

A Multi-Method Examination of the Perfectionism Social Disconnection Model Among
Adolescents: Testing the Unique Role of Online (Dis)Connection

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Abstract

The purpose of the current bi-phasic, multi-method study was to provide a comprehensive and rigorous test of the Perfectionism Social Disconnection Model (PSDM) among adolescents, with a focus on the role of online connection. According to the PSDM, perfectionism is thought to be linked with a lack of social connection which, in turn, predicts higher levels of psychopathology. In Phase One, adolescent self-identified perfectionists were compared to non-perfectionist adolescents with respect to themes relating to social media use and social connection, coded from semi-structured interviews. The findings provided valuable insight into adolescent perfectionists' experiences of connection and disconnection, both online and in-person. Importantly, these findings offered support for the PSDM whereby most perfectionists felt disconnected in online spaces – mirroring the pattern of their in-person relationships. To extend the findings of Phase One, a longitudinal quantitative test of the PSDM, including indicators of both online and in-person social connection, was conducted among a community sample of Ontario adolescents in Phase Two. The findings from the second phase of the current work supported the predictions of the PSDM, by demonstrating that each form of perfectionism was indirectly linked to depression via in-person social connection. Altogether, the findings of the present work provided support for the theoretical tenets put forth by the PSDM among a sample of community adolescents. More specifically, the results of the current work highlight the central role of perfectionistic self-presentation in the experiences of social disconnection among adolescents. Implications for theory as well as intervention and prevention efforts were discussed.

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1. Introduction

This study examined the relationship between perfectionism and depression, with a focus on the potential mediating role of social disconnection in both in-person and online contexts. Perfectionism is a multilevel personality style considered to be both a vulnerability factor as well as a transdiagnostic process for a multitude of psychological disorders, including depression, anxiety, and disordered eating, and appears to be on the rise alongside psychopathology (Curran & Hill, 2019; Egan et al., 2011; Hewitt et al., 2017a; Limburg et al., 2017). Although there is a plethora of literature linking perfectionism to poorer mental health outcomes, fewer studies have tested specific conceptual models that highlight *how* perfectionism is related to such outcomes (Hewitt et al., 2017c).

According to the Perfectionism Social Disconnection Model (PSDM), an explanatory mechanism in the relationship between perfectionism and depression is increased feelings of social disconnection among individuals higher in perfectionism. Consequently, this multimethod study was comprised of two complementary phases aimed at elucidating our understanding of the link between perfectionism and depression among adolescents using the PSDM as an overarching theoretical framework. Phase One used a qualitatively driven mixed-methods approach to explore the way in which self-identified adolescent perfectionists use online platforms (e.g., social media, online gaming) to connect with others compared to non-perfectionists and the implications that this has for their sense of connection with others, particularly within the context of the COVID-19 pandemic. The findings of Phase One helped to inform the hypotheses for

Phase Two, which provided the first known longitudinal test of the PSDM in adolescence, using a community sample of adolescents in Ontario, Canada.

2. Literature Review

2.1. Mental Health Difficulties in Adolescence

Mental health difficulties are a growing problem among Canadian youth (Boak et al., 2020; Comeau et al., 2019; Wiens et al., 2020). According to the Canadian Mental Health Association (n.d.), between 10% and 20% (i.e., 700, 000 to 1.4 million) of young people between the ages of 12 and 19 years in Canada are affected by some type of mental illness or disorder (Statistics Canada, 2019). Moreover, the prevalence of both self-reported and physician-diagnosed mental health disorders seem to be increasing among Canadian teenagers, mirroring patterns seen internationally (Boak et al., 2020; Bor et al., 2014; Collishaw, 2015; Comeau et al., 2019; Twenge et al., 2018; Wiens et al., 2020). In the Canadian context specifically, Wiens and colleagues (2020) found that the prevalence of young people indicating that they perceive their own level of mental health as fair or poor had more than doubled in 7 years, rising from 4.2% in 2011 to 9.9% in 2018. Furthermore, these researchers found that diagnosed mood and anxiety disorders as well as rates of suicidality have increased over time among adolescents and young adults (Wiens et al., 2020).

Similar trends have been found in Ontario; there have been increases in the proportion of Ontario students indicating that they perceive their mental health as fair or poor as well as in the prevalence of emotional disorders and suicidal ideation among Ontario teenagers (Boak et al., 2020; Comeau et al., 2019). Additionally, in the 2019 cycle of the Ontario Student Drug Use and Health Survey, 44% of Ontario students reported experiencing a moderate-to-severe level of psychological distress (i.e., symptoms of anxiety and depression), almost doubling the rate reported in 2013 when

monitoring of self-reported symptoms began in this study. An additional 21% indicated a serious level of psychological distress, which is significantly higher than the proportion reported in the 2017 cycle of this survey and represents the highest level of severe psychological distress among Ontario students since monitoring began. This suggests that a minimum of 613,600 adolescents in Ontario were experiencing at least a moderate level of psychological distress at the time this survey was conducted, with trends indicating that these numbers will likely continue to rise (Boak et al., 2020).

These trends are particularly concerning considering the debilitating and pervasive nature of mental health difficulties. For instance, non-communicable diseases, including mental health difficulties, represent the most significant burden to health and well-being among adolescents worldwide (Patton et al., 2016). Indeed, Gore and colleagues (2011) indicated that the global leading cause of years lost due to disability among young people between the ages of 10 and 24 years is neuropsychiatric disorders. Further, psychopathology in childhood and adolescence has been related to a wide range of adverse long-term outcomes, including lower educational attainment, increased physical health problems, and heightened risk for problematic substance use as well as financial, interpersonal, and legal issues later in life (e.g., Copeland et al., 2015; Mojtabai et al., 2015; Oerlemans et al., 2020; Ratnasingham et al., 2012; Richter et al., 2021). Additionally, experiencing mental health difficulties as an adolescent appears to set the stage for psychopathology later in life; it has been well-established that most mental health problems begin during childhood and adolescence and that the strongest predictor of having a given disorder in adulthood is prior disorder status as a child or adolescent (Costello et al., 2011; Government of Canada, 2006; Patton et al., 2014). What is even

more concerning is that the relationship between childhood mental health difficulties and a variety of negative outcomes, including later mental health problems as well as social and educational problems, has increased in strength over time (Sellers et al., 2019).

Finally, findings from a large-scale study ($n = 1420$) conducted by Copeland and colleagues (2011) suggest that the experience of psychological distress in adolescence is nearly universal. Specifically, they found that by the age of 21 years 82.5% of people had met criteria for some type of psychological disorder. Moreover, Copeland et al. (2011) found that this rate was even higher for the youngest cohort included in the study, with over 90% of participants having met criteria for diagnosis of a psychological disorder by the age of 21, highlighting the importance of conducting research focusing on mental health among today's youth.

Depression is one common form of psychopathology that tends to emerge in adolescence and poses a particularly significant threat to well-being in both the short- and the long-term (Avenevoli et al., 2015; Thapar et al., 2012). Indeed, adolescence appears to be a key developmental period with respect to depression given the drastic increase in prevalence of this disorder following the onset of puberty (Thapar et al., 2012).

Following this jump, prevalence rates of depression tend to continue to rise across adolescence, increasing from a cumulative probability of depression around 5% in early adolescence to approximately 20% by late adolescence (Hankin et al., 1998).

Additionally, depression tends to be documented at higher levels among female adolescents, compared to their male counterparts (e.g., Boak et al., 2020; Costello et al., 2011; Thapar et al., 2012). According to the Diagnostic and Statistical Manual (5th edition), the three key components of depression are depressed mood, loss of interest and

enjoyment and decreased levels of energy, however in adolescence, depressed mood can often present as increased irritability (Essau & Ollendick, 2009). Concerningly, adolescent depression is often experienced in conjunction with other psychiatric difficulties, including anxiety, disruptive behavior disorder, problematic substance use, eating disorders and attention deficit hyperactivity disorder (e.g., Rohde, 2009, Weller et al., 2018). Further, adolescent depression carries an increased risk of suicide attempt and completion (Jacobson & Gould, 2009). This is particularly concerning given that suicide is currently the second leading cause of death among Canadian youth aged 15 to 19 years, accounting for approximately 28% of deaths among adolescents annually (Statistics Canada, n.d.-a; Statistics Canada, n.d.-b). Finally, adolescent depression has been associated with a variety of negative long-term outcomes that carry into adulthood, including mental health difficulties, intimate partner violence victimization, lower levels of social support, and poorer physical health (McLeod et al., 2016; Naicker et al., 2013).

Although adolescence has long been conceptualized as a period in the life course characterized by turbulence and mood disruptions (e.g., Arnett, 1999; Hall, 1904), today's youth are clearly suffering more than preceding generations (e.g., Bor et al., 2014; Collishaw, 2015; Copeland et al., 2011; Kessler et al., 2005; Twenge, 2011), pointing to a critical need to explore the roots of adolescent mental health difficulties, specifically with respect to depression. It has been suggested that the nature of these generational differences in mental health may be due to cultural shifts, particularly in Westernized societies, towards individualism, competition, and consumerism which, in turn, incur feelings of disconnection, isolation and conflict with significant others (Arnett, 1999; Twenge, 2011). These shifts may also lead to changes in personality among

adolescents over time, which Collishaw (2015) suggests may be a key contributing factor to the increasing prevalence of mental health difficulties among teenagers. One such personality construct may be perfectionism, given that perfectionism appears to be on the rise alongside psychopathology and shifting societal values (e.g., Asay, 2011; Curran & Hill, 2019; Seligman, 1990) and is often posited as a vulnerability factor for both depression and feelings of social isolation and disconnection (Egan et al., 2011; Hewitt et al., 2017b; Limburg et al., 2017). The following section provides a conceptual overview of perfectionism, with a particular focus on perfectionism in adolescence.

2.2. Conceptualization of Perfectionism

Perfectionism has long been a topic of interest in the field of psychology (e.g., Burns, 1980, Horney, 1950, Pacht, 1984). Early on, perfectionism was conceptualized as a unidimensional personality trait characterized by the pervasive and compulsive need to be perfect across life domains, unreasonable standards for success and a sense of self-worth that is contingent on success and accomplishment (Burns, 1980; Hollender, 1965; Horney, 1950). Pacht (1984) stated that perfectionism creates a “no-win” scenario in which the perfectionist’s goals are set unreasonably high such that they can never truly be successful. Further, it has been well documented that perfectionists tend to engage in all-or-nothing thinking whereby if they do not achieve perfection, they feel that they have failed – and, by extension, are a failure themselves – regardless of how close they came to their goal (Burns, 1980; Hollender, 1965). Even if they do manage to reach these standards, they tend to view their own efforts as imperfect. In the eyes of a perfectionist, a perfect performance would be effortless and confident, involve no errors and be free of any sense of distress – thus, any typical coping efforts or struggle in reaching their goal

would be seen as inefficient and as an indicator of inadequacy (Burns, 1980). As a result, they often belittle their own accomplishments and move immediately on to the next task or goal without celebration (Pacht, 1984). Since the perfectionist can never, or almost never, achieve success in their own eyes and their view of themselves is contingent on their performance, they tend to have a low sense of self-worth, accompanied by a range of other negative correlates including poorer physical health, interpersonal difficulties, decreased productivity, and emotional disturbances, including depression and anxiety (Burns, 1980; Hollender, 1965).

Most recently, perfectionism has been operationally defined as a multifaceted personality style that functions at the dispositional, other-relational, and self-relational levels (Hewitt et al., 2017a). The current work focused on the dispositional and other-relational levels in light of theory implicating these components of a perfectionistic personality style in feelings of social connection (Hewitt et al., 2006; Hewitt et al., 2017b; Sherry et al., 2016). See Table 2.2.1. for a summary of these facets. Given the interpersonal focus of the current work, the self-relational component of a perfectionistic personality style was not examined. At the dispositional level, perfectionism directs energy towards requiring perfection of the self or others (Hewitt & Flett, 1991). Whereby early theorists conceptualized dispositional, or trait, perfectionism as unidimensional, there was a shift towards the conceptualization of perfectionism as a multidimensional personality trait in the early 1990s (Frost et al., 1990; Hewitt & Flett, 1990; 1991). Specifically, Hewitt and Flett (1991) contend that there are both intra- and interpersonal dimensions of perfectionism and that earlier unidimensional conceptualizations of perfectionism tend to focus on the intrapersonal component. They make the case that the

interpersonal dimensions of perfectionism are distinct constructs from intrapersonal perfectionistic tendencies and play their own unique roles in explaining the adjustment difficulties often seen in perfectionists (Hewitt & Flett, 1991).

Among adolescents, trait perfectionism is commonly conceptualized as having two dimensions, one intrapersonal and one interpersonal (Flett et al., 2016). Self-oriented perfectionism (SOP) is the *intrapersonal* dimension that involves a self-driven need to be perfect and to achieve unrealistically high standards, as well as harsh self-criticism. SOP is thought to involve both a key motivational component that drives the individual to strive for success and avoid failure as well as a high degree of self-blame when they inevitably fall short of their unreasonably high goals (Hewitt et al., 1989). As a result, SOP should, in theory, be related to both positive outcomes, due to a sense of control and competency with respect to self-imposed standards and goals, and negative outcomes, due to harsh self-criticism (Hewitt & Flett, 1991). With respect to depression, it is thought that SOP may represent a vulnerability factor for depressive symptoms as exceedingly high standards increase the likelihood and frequency of failure experiences (Hewitt & Flett, 1993). When failure inevitably occurs, the self-blame and harsh self-censure inherent to SOP is accompanied by punishment inflicted upon the self as well as feelings of guilt and inadequacy, further increasing the likelihood of depressive symptoms (Hewitt & Flett, 1990; 1993). However, it is worth noting that SOP also tends to be linked to feelings of efficacy and control, which may serve as a buffer against depression (Hewitt & Flett, 1990; Stoeber & Otto, 2006).

Socially prescribed perfectionism (SPP), on the other hand, represents the *interpersonal* component of trait perfectionism among adolescents that includes the belief

that significant others expect perfection of the self as well as the perception that others will act in harsh and unforgiving ways when their standards are believed not to have been met (Flett et al., 2016). For individuals with high levels of SPP, their key goals are to seek the attention and approval of significant others and to avoid disappointing these people by failing to live up to their standards. Given that these externally imposed standards are often seen as unreasonable and unattainable, SPP is often linked to negative emotional states and maladaptive outcomes (e.g., Flett & Hewitt, 2020). Further, an individual high in SPP may feel poorly about themselves due to the sense that they are not good enough for the significant players in their lives, to the perception that others are being overly demanding of the individual, or a combination of both. It is posited that depression among individuals high in SPP may originate due to feelings of helplessness and inability to reach the goals imposed upon them by significant others (Hewitt & Flett, 1991). In turn, these initial feelings of depression and lack of control are exacerbated by the socially prescribed perfectionist's need for the approval of other people as well as their heightened sensitivity to feedback and critique (Hewitt & Flett, 1993).

Beyond trait levels, perfectionism can be expressed at the other-relational level through a dynamic interpersonal style known as perfectionistic self-presentation (PSP; Hewitt et al., 2017a). PSP is a neurotic and deceptive self-presentational style that involves both promotional and withholding strategies. Specifically, this interpersonal style involves both a motivation to present the most perfect version of oneself to others, represented by perfectionistic self-promotion, as well as a general striving to avoid demonstrating imperfections publicly, exemplified by nondisplay and nondisclosure of imperfection. Perfectionistic self-promotion involves active aesthetic and behavioral

efforts to appear perfect to others in an attempt to impress other people and maintain a commendable reputation (Hewitt et al., 2003). Nondisplay of imperfection is comprised of an avoidant behavior style as well as concern over the public perception of one's own less-than-perfect behaviors and qualities. This often leads to the avoidance of situations in which individual performance will be scrutinized and imperfections could potentially be revealed (Hewitt et al., 2003). Finally, nondisclosure of imperfection is another form of avoidant behavior related more specifically to verbal disclosures of any personal imperfections. If an individual has high levels of this facet, they would be extremely unwilling to put themselves in a situation where they would have to publicly verbalize their own perceived shortcomings (Hewitt et al., 2003). Whereas trait perfectionism (i.e., SOP and SPP, among adolescents) is considered to represent the experience of perfectionistic demands, PSP is the outward expression of perfectionistic tendencies (Hewitt et al., 2003). Research in both adult and adolescent samples have demonstrated that PSP is a distinct construct from trait perfectionism that plays a unique role in personal distress as well as interpersonal difficulties (Hewitt et al., 2003; Hewitt et al., 2011). See Table 2.2.1. for a summary of trait and behavioral perfectionism and Table 2.2.2. for a summary of the self-presentational strategies involved with behavioral perfectionism.

It is thought that PSP is motivated by both intrapersonal and interpersonal phenomena. With respect to intrapersonal factors, namely psychopathology, Hewitt and colleagues (2003) posit that PSP is a strategy employed by perfectionists who are already experiencing psychological distress, including depression, as a means of coping with their negative emotional state. By engaging in perfectionistic self-presentational

strategies, the individual is attempting to protect their internal state by avoiding criticism from others. However, this strategy is often unsuccessful in promoting a more positive state of well-being and ends up perpetuating the experience of psychopathology and psychological distress, given that the root issues are not appropriately dealt with (Hewitt et al., 2003). PSP is also thought to be motivated by a lack of connection to other people. Perfectionistic individuals may attempt to present a faultless persona to impress other people and garner their approval. However, even though perfectionists attempt to put forth a flawless image to be seen favorably in the eyes of others, tendencies towards PSP are thought to be “interpersonally aversive” (Hewitt et al., 2003, p. 1305). More specifically, these tendencies may lead to dishonesty in social relationships, a perceived aura of inauthenticity and, ultimately, a lack of intimacy with the very people the perfectionistic individual is attempting to create a relationship with. Given the interpersonal nature of depression, particularly during adolescence (e.g., Rudolph, 2009), it follows that PSP may be implicated in the experience of depression among teenagers.

Finally, Hewitt and colleagues (2011) suggest that exploring PSP and its correlates may be particularly important among adolescents, given that adolescence is a period characterized by a desire for social acceptance among peers as well as the avoidance of public failures or embarrassments (Berndt, 1979). Further, adolescents tend to believe that other people their age are faring better than they are which may lead them to be less likely to be willing to disclose their own perceived failures or shortcomings. For adolescents, PSP is likely driven by a need to fit in with their friends and peers, guided by perceived normative pressures and linked to the navigation of one’s own sense of identity (Hewitt et al., 2011).

Table 2.2.1.*Definitions of Dispositional and Other-Relational Forms of Perfectionism*

Type of Perfectionism	Definition
Dispositional/Trait	E.g., Experience of perfectionistic demands
Self-Oriented Perfectionism (SOP)	<ul style="list-style-type: none"> • Self-driven need to be perfect • Self-imposed standards • Harsh self-criticism • Sense of competency and control over extremely high goals
Socially Prescribed Perfectionism (SPP)	<ul style="list-style-type: none"> • Actual or perceived external pressure to be perfect • Standards imposed by others thought to be unreasonable and unachievable • Believes that others will be harsh and unforgiving towards them in response to mistakes or failure • Seeks to avoid negative reactions from others by striving for perfection
Other-Relational/Behavioral	E.g., Outward expression of perfectionistic tendencies
Perfectionistic Self-Presentation (PSP)	<ul style="list-style-type: none"> • Neurotic and deceptive self-presentational style • Goal is to present the most perfect version of oneself • Actively strives to avoid public demonstrations of imperfection

Table 2.2.2.*Definitions of Strategies Associated With Perfectionistic Self-Presentation*

Strategy	Definition
Perfectionistic Self-Promotion	<ul style="list-style-type: none"> • Promotional strategy • Involves aesthetic and behavioral efforts to appear perfect to others • Seeking to impress others and maintain a good reputation
Nondisplay of Imperfections	<ul style="list-style-type: none"> • Withholding strategy • Involves avoiding the display of imperfect behaviors or qualities • Avoidance of situations involving evaluation whereby imperfections or mistakes could be revealed • Extreme concern over public perception of less-than-perfect behaviors or qualities if they are revealed to others
Nondisclosure of Imperfections	<ul style="list-style-type: none"> • Withholding strategy • Involves avoiding verbal disclosures of imperfections • Unwilling to put oneself in a situation in which one would have to discuss one's own shortcomings with others

2.3. Empirical Links Between Perfectionism and Depression***2.3.1. Cross-Sectional Associations in Adolescence***

There is a plethora of empirical work examining the cross-sectional links between trait perfectionism and depression in adolescent samples. This body of work indicates that SPP is consistently and positively related to levels of depression among convenience samples of adolescents (e.g., recruited through their schools), both at the bivariate level (e.g., Douilliez & Henot, 2013; Einstein et al., 2000; Ferrari et al., 2018; Flett et al., 2011a; Flett et al., 2016; Gamble & Roberts, 2005; Herman et al., 2013; Huang, 2008; Lambert et al., 2014; Lee et al., 2020; Magson et al., 2019; Sironic & Reeve, 2015;

Stornaes et al., 2019; Vicent et al., 2020) and when entered into regression alongside SOP (e.g., Flett et al., 2008; Hewitt et al., 2002; Musil, 2018; O'Connor et al., 2010). The link between SPP and depression has been replicated among specialized samples including gifted secondary students (e.g., Reyes et al., 2015), adolescent athletes (e.g., Smith et al., 2018), teenagers with emotional difficulties related to abuse within the family (e.g., Flett et al., 2012) as well as adolescent psychiatric patients (e.g., Freudenstein et al., 2012). Specific diagnoses and conditions examined in studies that focused on psychiatric samples include adolescents diagnosed with anorexia nervosa (Castro et al., 2004), who had attempted suicide and/or had a history of suicide ideation (e.g., Donaldson et al., 2000; Enns et al., 2003), and young people diagnosed with obsessive-compulsive disorder (e.g., Soreni et al., 2014). Finally, the finding that SPP is positively linked to levels of depression among adolescents emulates work done with older samples as well, highlighting the robustness of this finding (e.g., Flett et al., 2012; Hewitt et al., 1996; Senra et al., 2017; Smith et al., 2017; Smith et al., 2018; Smith et al., 2019). To my knowledge, there are only two studies that demonstrate a null relationship between SPP and depression in adolescence (e.g., Flett et al., 2011b; Hewitt et al., 2014). However, it is worth noting that both studies had relatively small sample sizes ($N = 73$ and $N = 55$, respectively). Further, all the participants in the Hewitt et al. (2014) study were diagnosed with a depressive disorder which may help to explain this finding, given that variability in depression scores would have been limited. With respect to this study, it is also of note that, although there was no association between SPP and depression as measured by the Beck Depression Inventory-II, SPP was positively associated with scores on the Child-Adolescent Suicide Potential Index, which includes items that assess anxious-impulsive

depression (Hewitt et al., 2014). Finally, there are no studies to date that demonstrate a negative relationship between SPP and depression in adolescents.

In contrast to the clear positive link between SPP and depression among teenagers, highlighted above, cross-sectional evidence with respect to the relationship between SOP and adolescent depression tends to be mixed. First, there are several studies that highlight a positive association between SOP and depression in both convenience and clinical samples at the bivariate level (e.g., Asseraf & Vaillancourt, 2015; Castro et al., 2004; Donaldson et al., 2000; Flett et al., 2008; Flett et al., 2011b; Freudenstein et al., 2012; Hewitt et al., 2002; Magson et al., 2019; Musil, 2018; Sironic & Reeve, 2015; Stornaes et al., 2019). In some cases, this relationship held when variance in depression attributable to SPP is held constant (e.g., Flett et al., 2011b), whereas in other studies the relationship between SOP and depression became non-significant when the influence of SPP was accounted for (e.g., Flett et al., 2008; Hewitt et al., 2002; Musil, 2018). However, there is an equally sizeable body of literature that suggests there is no relationship between SOP and depression in adolescents at the bivariate level (e.g., Asseraf & Vaillancourt, 2015; Cook & Kearney, 2009; Douilliex & Henot, 2013; Hewitt et al., 2014; Einstein et al., 2000; Enns et al., 2003; Flett et al., 2008; Flett et al., 2012; Flett et al., 2016; Reyes et al., 2015). Finally, Smith and colleagues (2018) found that SOP was negatively correlated with depression among a sample of male soccer players between the ages of 14 and 21 years, such that higher levels of SOP were related to lower levels of depression. Overall, the evidence with respect to the relationship between SOP and depression is varied, replicating trends seen in adult samples (e.g., Cox et al., 2002; Flett et al., 2012; Hewitt et al., 1996; Senra et al., 2017; Smith et al., 2017).

With respect to PSP, the literature examining links with depression among young samples is relatively scarce. However, the extant literature suggests that PSP is positively related to depression among adolescents. For instance, Castro and colleagues (2004) found that total scores representing PSP, encompassing perfectionistic self-promotion, nondisclosure of imperfection and nondisplay of imperfection, were positively linked to depression at the bivariate level among female adolescents diagnosed with anorexia nervosa. In examining the individual strategies involved with PSP more closely, both Hewitt and colleagues (2011) and Goya Arce and Polo (2017) found that perfectionistic self-promotion, non-disclosure of imperfection and non-display of imperfection were each positively related to depression among a psychiatric sample between the ages of 8 and 17 years and a community sample of ethnic minority adolescents, respectively. Further, Goya Arce and Polo (2017) found that each facet uniquely predicted levels of depression when simultaneously entered into a regression analysis. However, these authors did not include trait levels of perfectionism in their analyses. To this end, Hewitt and colleagues (2011) found that nondisclosure of imperfection and nondisplay of imperfection were unique predictors of depression over and above trait levels of perfectionism (i.e, SOP and SPP), whereas perfectionistic self-promotion did not uniquely predict variance in depression scores. This pattern of results tends to be found in older samples as well. More specifically, studies that include adult participants also tend to demonstrate that all three facets of PSP are positively related to symptoms of depression (e.g., Besser et al., 2010; Casale et al., 2020; Costa et al., 2016; Flett et al., 2012; Hewitt et al., 2003; Robinson et al., 2021) with nondisplay of imperfection and/or nondisclosure of imperfection uniquely predicting variance in levels of depression over and

above trait levels of perfectionism (e.g., Besser et al., 2010; Casale et al., 2020; Hewitt et al., 2003).

2.3.2. Longitudinal Associations and Temporal Models

Although the cross-sectional studies referenced in the preceding section provide valuable information with respect to the link between perfectionism and depression among young people, it is less clear how these constructs are linked across time. To address this issue, there are three competing and theoretically supported longitudinal models linking personality to pathological outcomes (e.g., Asseraf & Vaillancourt, 2015; Bagby et al., 2008; Kotov et al., 2010; McGrath et al., 2012). First, the vulnerability model postulates that a perfectionistic personality style is a risk factor for poorer mental health outcomes, including depression, over time. Generally, this is the assumption posited in many of the key theoretical frameworks in perfectionism research, including the PSDM (Hewitt et al., 2006; Hewitt et al., 2017b; Sherry et al., 2016). There are a number of qualities and experiences that tend to accompany a perfectionistic personality style that may place an individual at higher risk for depression, including feelings of guilt and inadequacy, harsh self-punishment when standards are perceived not to have been met, and a lack of intimacy with significant others (Hewitt & Flett, 1990; 1991; 1993; Hewitt et al., 2003; 2011).

However, the assumption that perfectionism is necessarily and exclusively a vulnerability factor for depression has recently been called into question by work supporting alternative temporal relationships between perfectionism and depression (e.g., Smith et al., 2021). There is some evidence for the scar model, particularly among teenage samples (e.g., Asseraf & Vaillancourt, 2015; Smith et al., 2018; Vaillancourt &

Haltigan, 2018; each described in more detail below), which theorizes that depression predicts changes in perfectionism over time. For instance, with respect to PSP, Hewitt and colleagues (2011) suggest that this behavioral style may be adopted as a strategy to cope with negative emotional states, including depression. In this case, it follows that heightened levels of depression would predict an increase in the tendency to engage in perfectionistic self-presentational strategies over time, as the individual attempts to cope with their feelings of depression. With respect to trait perfectionism, it is posited that depression may lead to increases in dispositional forms of perfectionism due to a negative perception of the self and significant others, an increased tendency to view errors as failures, and increased levels of rumination surrounding failure experiences (e.g., Asseraf & Vaillancourt, 2015). In other words, depression may draw greater attention to the individual's perceived shortcomings and negative self-views that are thought to reside at the root of a perfectionistic personality style (Burns, 1980; Hollender, 1965; Horney, 1950).

The final theoretical model linking perfectionism and depression is the reciprocal-causality model. The reciprocal-causality model puts forth the idea that perfectionism and psychopathology share a bidirectional relationship in which they influence one another over time. This model acknowledges both that the key components of a perfectionistic personality style (e.g., harsh self-censure, social disconnection) may lend themselves to experiences of depression and that depression may increase perfectionistic tendencies as a method of coping with negative emotional experiences and self-views.

Overall, longitudinal studies examining SPP and depression in adolescence to date tend to display mixed findings. On the one hand, there is some evidence supporting

the vulnerability model (i.e., perfectionism predicting levels of depression over time). For instance, Musil (2018) and O'Connor et al. (2010) both found that, among mid-to-late adolescents, higher levels of SPP at baseline predicted higher levels of depression approximately two months later and six months later, respectively, after baseline levels of depression were controlled for in the analyses. McCreary and colleagues (2004) had similar findings among a sample of early adolescents. Specifically, these authors found that higher levels of SPP in the sixth grade predicted higher levels of depression in the seventh grade, after depression scores in the sixth grade were accounted for in the analyses. It is worth noting that this relationship was only significant among the boys in this sample; there was no significant relationship between SPP and depression across time for the female participants. Further, these three studies share the same methodological issues whereby SPP was only measured at baseline, eliminating the potential for evidence supporting either the scar or reciprocal-vulnerability models. However, Lambert and colleagues (2014) did provide a test of all three competing models and found support for the vulnerability model. Specifically, this study found that SPP positively predicted depressive symptoms a year later, but not the other way around, in a sample of African American adolescents ($Mage = 12.75$ years, $SD = 0.35$ at baseline).

Conversely, other studies that tested all three models have shown support for the scar model. For instance, Asseraf and Vaillancourt (2015) found that depression predicted increased levels of SPP over two consecutive one-year periods (i.e., from grade six to grade seven and from grade seven to grade eight). Similarly, Smith et al. (2018) found that depression predicted increased levels of SPP over a three-month period, but not vice versa, in a sample of young male soccer players aged 14 to 21. Finally, in

examining joint trajectories of SPP and depression, Vaillancourt and Haltigan (2018) determined that depression trajectories across adolescence (i.e., between ages 12 and 17 years) were better predictors of adolescent trajectories of SPP compared to the other way around, demonstrating support for the scar model.

With respect to SOP, the current literature tends to demonstrate that there is no relationship between SOP and depression over time in adolescent samples. This appears to hold true in a variety of sample types, including elementary school students (e.g., Asseraf & Vaillancourt, 2015; McCreary et al., 2004), final year high school students (e.g., Einstein et al., 2000), young athletes (e.g., Smith et al., 2018), and youth hospitalized for suicidal ideation (e.g., Enns et al., 2000). However, as mentioned above, a number of these studies only tested the vulnerability model in their analyses (e.g., Einstein et al., 2000; Enns et al., 2003; McCreary et al., 2004). Finally, there is currently no literature examining longitudinal links between PSP and depression in either adolescent or adult samples.

2.2. Perfectionism Social Disconnection Model (PSDM)

2.2.1. Theoretical Overview of the PSDM

Although there exists a breadth of literature linking trait and behavioral perfectionism to depression, there are fewer studies that test specific theoretical models that explain how and why perfectionism may be related to depression (Hewitt et al., 2017c). One such model, which is examined in the current study, is the Perfectionism Social Disconnection Model (PSDM; Hewitt et al., 2006; See Figure 2.2.1.1). The PSDM puts forth the idea that perfectionism leads to interpersonal difficulties, such as fear of rejection and increased hostility, which then results in feelings of disconnection from

others and social isolation. Importantly, within the context of the PSDM, social disconnection may be objective (e.g., actual impaired relations with others) or subjective (e.g., feelings of loneliness and isolation) (Hewitt et al., 2006; Hewitt et al., 2017b). With respect to objective social disconnection, the PSDM posits that individuals with more perfectionistic personality styles are more likely to act in hostile ways in interpersonal situations. This may include increased levels of anger, competition, suspicion and resentment towards others (Hewitt et al., 2006). As a result, individuals who demonstrate perfectionistic tendencies are more likely to impair their relationships with those around them, leading to increased instances of objective social disconnection.

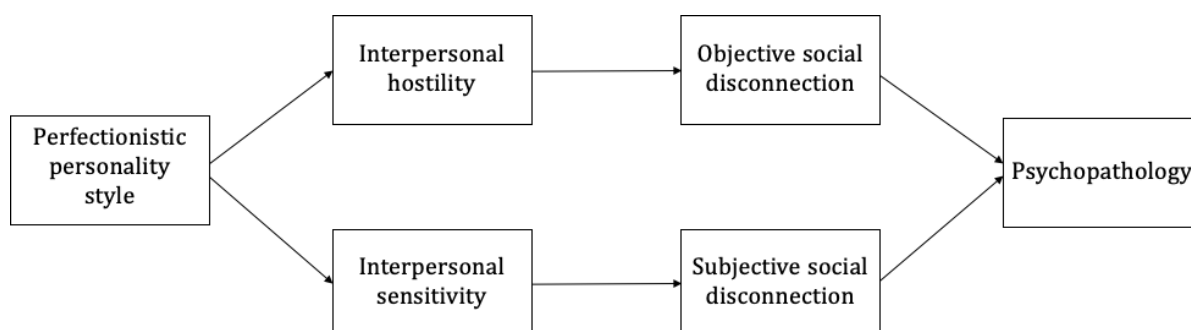
Regarding subjective social disconnection, Hewitt and colleagues (2006) suggest that the acute interpersonal sensitivity, marked by high levels of neediness, fear of negative evaluation and attachment insecurity, often associated with a perfectionistic personality style tend to lead to emotions and cognitions that constitute perceptions of isolation from others. This model further posits that it is this experience of being disconnected from peers and significant others, both objectively and subjectively, that mediates the relationship between elements of perfectionism and psychopathology (Hewitt et al., 2006; Hewitt et al., 2017b; Sherry et al., 2016). Thus, according to this model the key mechanism explaining the link between perfectionism and poor psychological adjustment is the social repercussions that tend to accompany a perfectionistic personality style.

Initially, the PSDM was created to explain the relationship between SPP and levels of suicidality, given the interpersonal underpinnings of both constructs (Hewitt & Flett, 1991; Hewitt et al., 2006; Joiner, 2005; Joiner & Silva, 2012). However, it has been

recently expanded to include multiple levels of perfectionism, including SOP and PSP, as well as all forms of psychological turmoil, distress, and disorder (Hewitt et al., 2017b; Sherry et al., 2016). With respect to perfectionism, the original model focused on SPP as individuals higher in SPP were thought to be particularly affected by social stressors, such as social disconnection and lack of support from significant others, given the interpersonal nature of many of the key components of this facet of trait perfectionism, including the need for approval and the fear of negative evaluation by others (Hewitt et al., 2006). However, more recently, Hewitt and colleagues (2017b) have called for the inclusion of intrapersonal trait perfectionism (i.e., SOP) and the interpersonal expression of perfectionism (i.e., PSP) when conceptualizing perfectionism within the PSDM. To answer this call, the current study examined both dimensions of trait perfectionism among adolescents (i.e., SOP and SPP) as well as PSP within the context of the PSDM. Given the scarcity of adolescent literature in this area, an overview of studies examining the PSDM in both adult and adolescent samples is provided below.

Figure 2.2.1.1.

Theoretical Model of the PSDM



2.2.2. Empirical Evidence for the PSDM

2.2.2.1. Evidence for the Link Between Perfectionism and Social

Disconnection.

There is a plethora of research that supports the link between perfectionism and indicators of social disconnection, put forth by the theoretical tenets of the PSDM. This body of literature tends to demonstrate a significant relationship between SPP and a variety of interpersonal difficulties, including higher levels of social disconnection, hostility towards others, loneliness, hopelessness in social contexts, and interpersonal distress as well as lower perceived levels social support (e.g., Gnilka & Broda, 2019; Harper et al., 2020; Hasnain & Fatima, 2012; Kleszewski & Otto, 2020; Magson et al., 2019; Molnar et al., 2012; Robinson et al., 2021; Roxborough et al., 2012; Sherry et al., 2008; Stoeber et al., 2017; Stoeber et al., 2021). Further, SPP is negatively related to mattering, which encompasses the sense that we are significant players in the lives of those around us as well as the feeling that others genuinely care about and depend on us (Cha, 2016; Flett, 2018; Flett et al., 2012b).

SPP also tends to be related to difficulties and disconnection within the context of close personal relationships, including friendships, family relationships and romantic relationships. For instance, SPP has been linked both with smaller social support networks as well as less satisfaction with these social support networks (Molnar et al., 2012). With respect to friendships and peer relationships, research tends to demonstrate that SPP is linked to poorer quality relationships with friends (Hewitt et al., 2020), greater peer victimization (Magson et al., 2019), and more interpersonal problems with peers (Melero et al., 2020). Similar findings are evident with respect to the family

context, whereby SPP is linked to a decreased sense of connection to family members, lower levels of perceived familial support and poorer quality family relationships in both adult and adolescent samples (Flett et al., 2012a; Hewitt et al., 2020; Sommerfeld & Malek, 2019). SPP also tends to be linked with insecure attachment styles (e.g., Chen et al., 2012; Ko et al., 2019), which indicates poor early relationships with caregivers as well as a propensity towards feelings of social exclusion and unmet needs for acceptance and belonging (Baumeister & Leary, 1995; Bowlby, 1980; Mikulincer & Shaver, 2007). Finally, SPP predicts interpersonal difficulties in the context of creating and maintaining a bond with a romantic partner, including greater conflict within romantic relationships (Mackinnon et al., 2012; Mackinnon et al., 2016), more rejecting behaviors towards one's partner (Mackinnon et al., 2016), and an increased likelihood of being single (Vacca et al., 2020).

In contrast to the distinct pattern indicating a lack of social connectedness seen with SPP, the research is less clear-cut with respect to the relationship between SOP and social (dis)connection. On the one hand, many studies indicate a positive link between SOP and social disconnection. More specifically, SOP has been linked to loneliness and social isolation (Harper et al., 2020; Hasnain & Fatima, 2012; Magson et al., 2019), interpersonal hopelessness (Robinson et al., 2021), poorer quality relationships with family and friends (Hewitt et al., 2020), greater peer victimization (Magson et al., 2019) as well as some forms of insecure attachment (Chen et al., 2015; Ko et al., 2019). On the other hand, there is some research that suggests that SOP may be linked to an adaptive interpersonal style that involves an increased sense of social connection (Stoeber et al., 2017), lower levels of loneliness (Kiral & Cavus, 2017), a tendency towards prosocial

behaviour (Melero et al., 2020), low levels of interpersonal hostility (Stoeber et al., 2017), a greater sense of perceived social support (Gnilka & Broda, 2019), more popularity among peers (Gilman et al., 2014) and larger social support networks as well as a greater sense of satisfaction with these social networks (Molnar et al., 2012). Further still, there is some evidence that suggests SOP is unrelated to indicators of social disconnection (e.g., Flett et al., 2012a; Flett et al., 2012b; Roxborough et al., 2012; Sherry et al., 2008; Sommerfeld & Malek, 2019).

Although the research examining the relationship between behavioural manifestations of perfectionism and social disconnection is more limited compared to the trait perfectionism literature, the extant studies indicate that PSP tends to mirror the pattern seen with SPP, whereby each facet of perfectionistic self-presentation is related with a variety of indicators of social disconnection. Specifically, perfectionistic self-promotion, perfectionistic nondisplay and perfectionistic nondisclosure have each been linked to bully victimization (Roxborough et al., 2012), loneliness (Goya Arce & Polo, 2017), hopelessness in interpersonal contexts (Robinson et al., 2021; Roxborough et al., 2012), and insecure attachment styles (Chen et al., 2012; Chen et al., 2015; Ko et al., 2019).

2.2.2.2. Evidence for the Link Between Social Disconnection and Depression.

The link between depression and feelings of disconnection from others has been well-established in both adult and youth samples (e.g., Erzen & Cikrikci, 2018; Gorrese, 2016; Smith et al., 2020). In adolescence specifically, depression has been linked to a variety of indicators of social disconnection. For instance, there is a large body of research linking depression with experiences of loneliness, both cross-sectionally and across time (e.g.,

Achterberg et al., 2020; Ladd & Ettekal, 2013; Lasgaard et al., 2011; Mahon et al., 2006; Mullarkey et al., 2019; Schinka et al., 2013; Stickley et al., 2016; Qualter et al., 2013; Vanhalst et al., 2012; Zhou et al., 2020). In a meta-synthesis of the extant qualitative literature exploring the link between loneliness and depression, Achterbergh and colleagues (2020) found that adolescents and young adults experiencing symptoms of depression are likely to engage in certain social behaviors, including withdrawing from family and friends and avoiding disclosing their feelings of depression, which in turn creates a hyperawareness of their depressed mood. In other words, these qualitative findings suggest that depression and loneliness feed into each other over time. In line with this finding, a large quantitative study using a five-wave longitudinal design demonstrated a reciprocal relationship between loneliness and depression across adolescence (Vanhalst et al., 2012). In contrast, Lasgaard and colleagues (2011) found that depressive symptoms predicted loneliness across adolescence, but not the other way around. However, due to the high attrition rate in this study (i.e., 53.6%), the authors note to interpret their longitudinal findings with caution (Lasgaard et al., 2011). Finally, the relationship between depression and loneliness has been established among adolescents from a variety of different countries, including the United States, Russia, the Czech Republic, Denmark, England, and China, further emphasizing the robust nature of this finding (Lasgaard et al., 2011; Qualter et al., 2013; Stickley et al., 2016; Zhou et al., 2020).

Beyond indicators of loneliness, there are a number of meta-analyses that, altogether, provide support for the ubiquitous relationship between depression and disconnection from significant others during adolescence. For instance, Rueger et al.

(2016) and Garipey et al. (2018) both found a negative relationship between perceptions of social support and depression during childhood and adolescence. Further, maladaptive parenting styles, particularly parental rejection, appear to be linked with depression during this period in the life course (McLeod et al. 2007). On a similar note, insecure forms of attachment to caregivers early on in life appear to be significant predictors of depression in child and adolescent samples (Spruit et al., 2020). Interestingly, there is a large body of work that examines the role of peer relationships in childhood and adolescent depression. For instance, depression during youth is linked with experiences of peer victimization and poor attachment to peers (Gorrese, 2016; Hawker & Boulton, 2000; Wu et al., 2015). Similarly, Card and colleagues (2008) found that indirect aggression towards peers (e.g., harming one's peer via rejection or exclusion; Feshbach, 1969) is significantly associated with depression. Further, negative friendship experiences, including a lower number of friends and negative friendship quality, is related to youth depression (Schwartz-Mette et al., 2020). Finally, Finning et al. (2019) found significant associations between depression and poor school attendance as well as depression and school refusal among youth samples, which the authors suggest may be both an antecedent and a consequence of depression.

2.2.2.3. Evidence for the PSDM in Adult Samples. Among adult samples, the PSDM tends to be supported. Multiple variable-centered studies have found that increased levels of SPP (or a closely related construct, perfectionistic concerns) tends to be related to higher levels of depression via a variety of interpersonal difficulties and indicators of social disconnection, including loneliness, perceived social support, interpersonal discrepancies, social hopelessness, and anti-mattering (Etherson et al.,

2022; Rnic et al., 2021; Robinson et al., 2021; Sherry et al., 2008; Sherry et al., 2013; Smith et al., 2018; Smith et al., 2020). Furthermore, Hewitt and colleagues (2020) demonstrated support for the PSDM in a clinical setting, finding that all facets of trait perfectionism predicted reduced changes in levels of depression following the completion of a 10-week group therapy program among a sample of adults who had recently been hospitalized for an affective disorder and that this relationship was explained by a lack of good quality friendships.

It is worth noting that other research has demonstrated differential relationships between the different dimensions of trait perfectionism and social connection in the context of the PSDM. For instance, Stoeber et al. (2017) found support for the idea that SPP, but not SOP, was positively related to social disconnection. Instead, these researchers found that SOP was related to a tendency towards social connection. Further, Etherson et al. (2022) found that SOP was unrelated to mattering and anti-mattering. Finally, Rnic and colleagues (2021) demonstrated a negative indirect effect of SOP on depression severity through lower levels of loneliness. In other words, SOP predicted lower levels of loneliness which, in turn, predicted less depression severity. However, despite some mixed evidence, a recent meta-analysis examining 18 longitudinal studies with a collective sample size of 5568 participants indicated that, overall, both perfectionistic strivings and perfectionistic concerns, which are closely related to SOP and SPP, respectively, were related to depression via increased levels of social disconnection (Smith et al., 2020).

In contrast to trait perfectionism, there are far fewer studies examining PSP and psychopathology in the context of the PSDM among adult samples. Indeed, to my

knowledge, there are only two studies that have tested the mediating link of interpersonal difficulties in the relationship between perfectionistic self-presentation and psychological distress in adult samples. First, a cross-sectional study conducted by Robinson and colleagues (2021) found that perfectionistic self-promotion, nondisclosure of imperfection and nondisplay of imperfection were all positively related to suicidal ideation and these relationships were each partially mediated by increased levels of interpersonal hopelessness (e.g., a low sense of belongingness, a sense of being a burden to those around the self) in a sample of adults in the U.S.. Further, these authors found that interpersonal hopelessness better explained the relationships between trait (both SOP and SPP) and behavioural (PSP) perfectionism and suicidal ideation compared to general hopelessness, highlighting the importance of the interpersonal context in the relationship between perfectionism and psychological distress (Robinson et al., 2021). Additionally, Rnic et al. (2021) found that each facet of perfectionistic self-presentation was indirectly linked to depression through loneliness and social hopelessness.

2.2.2.4. Evidence for the PSDM in Adolescent Samples. To date, there are only three studies that have tested the potential mediating role of interpersonal difficulties linking perfectionism with poorer mental health among adolescents, each of which employed a cross-sectional design. One recent study focused on how the relationship between trait perfectionism may be related to a variety of mental health difficulties within the PSDM (Magson et al., 2019). The researchers found that both dimensions of trait perfectionism among youth (i.e., SOP and SPP) with an average age of 11.2 years predicted higher levels of depression, anxiety and eating pathology. Further, these relations were sequentially mediated through greater sensitivity to rejection from others

followed by increased feelings of social isolation. Goya Arce and Polo (2017) chose to examine adolescents' levels of perfectionistic self-presentation in the context of the PSDM and found that social anxiety and loneliness serially mediated the relationships between all three facets of PSP (perfectionistic self-promotion, nondisplay of imperfection and nondisclosure of imperfection) and depression among a sample of predominantly Latino/a and African American middle school students. Finally, Roxborough and colleagues (2012) provided a test of both trait and behavioral levels of perfectionism predicting suicidality among a sample of young psychiatric outpatients between the ages of 8 and 20 years. The findings of this study indicated that SPP and all three components PSP were significantly related to suicide potential and that these relations were mediated by greater feelings of social hopelessness as well as a history of bully-victimization. No significant findings were found in relation to SOP in this sample (Roxborough et al., 2012).

2.4.2. The Potential Mediating Role of Online Connection

Another key area for expansion suggested by Hewitt and colleagues (2017b) is to extend the PSDM to include indicators of online social connection (or lack thereof) when examining the relationship between perfectionism and psychological distress. Theoretical work posits two competing hypotheses with respect to how perfectionism may be linked with online social connection. On the one hand, in line with the PSDM, it is possible that the relationship between perfectionism and online social connection mirrors that of the relationship between a perfectionistic personality style and face-to-face connection, whereby perfectionism predicts less connection regardless of context (Hewitt et al., 2017b). However, Hewitt et al. (2017b) acknowledge an alternative hypothesis – it is also

possible that individuals higher in perfectionism may turn to online platforms in an attempt to compensate for the lack of connection they are experiencing face-to-face by establishing meaningful relationships with other people online.

Currently, the literature examining perfectionism and online interactions and internet use is scarce. Most closely related to the tenets put forth by the PSDM, Casale and colleagues (2014) found that SPP was associated with problematic internet use, which the authors defined as involving both cognitive distortions (e.g., preference for online interaction over in-person) and dysfunctional behaviors (e.g., compulsive use of online platforms) related to internet use. Further, they found that this relation was mediated by low social support (for male participants only) as well as fear of negative evaluation (for both men and women) (Casale et al., 2014). This provides some indication that perfectionism may be related to internet use more generally and that levels of traditional social disconnection may be involved in this relationship. However, it does not speak to the nature of online connection among perfectionistic individuals and how engaged they feel with their online communities. Another study conducted by Fioravanti et al. (2020) found that perfectionistic discrepancies (i.e., a perceived difference between the ideal and the actual self; Slaney et al., 2002) predicted a preference for online social interaction among a sample of university students. Along the same lines, Casale and colleagues (2015) found that nondisplay of imperfection was positively linked to problematic internet use and that this relationship was mediated by a greater sense of importance placed on the temporal flexibility and reduced nonverbal cues present in online forms of communication. Altogether, the studies conducted by Fioravanti and colleagues (2020) and Casale et al. (2015) suggest that individuals higher in

perfectionism may be inclined to turn to online platforms to connect with others due to an increased sense of control over their interactions with others.

However, despite the fact that having more control over one's online image may be more appealing for individuals higher in perfectionism, increased engagement with social media platforms and having a preoccupation with controlling the information presented online appear to be linked to poorer outcomes (Hellman, 2016; Padoa et al., 2018). For instance, Harren et al. (2021) found that both SOP and SPP were linked to higher levels of problematic social media use and were significant positive predictors of social media burnout. Additionally, a study by Padoa and colleagues (2018) demonstrated that social comparison on social media may contribute to poorer mental health outcomes among perfectionistic mothers. Further, Hellman (2016) found that nondisclosure of imperfection on social media moderated the relationship between SOP and a variety of psychological outcomes (e.g., depression, stress, anxiety) such that individuals higher in SOP with higher levels of online nondisclosure of imperfection had significantly poorer outcomes while those with lower levels of online nondisclosure of imperfection had significantly better psychological outcomes. Finally, Yang et al. (2021) found that maladaptive perfectionism – which is most closely aligned with SPP – predicted greater levels of internet addiction among Chinese undergraduate students and that this relationship was mediated by depression. Given the limited and varied findings in this area, more work is needed to further elucidate the relationship between online connection and engagement, perfectionism, and mental health outcomes, particularly within the context of the PSDM.

Work examining the potential mediating role of online social connection in the relationship between a perfectionistic personality style and psychological distress may be particularly critical among young people, given that screen time, particularly social media and smartphone use in which teenagers are in connection with their peers, appears to be increasing with time (Twenge et al., 2017). Indeed, the 2019 edition of the Ontario Student Drug Use and Health Survey suggested that just under 90% of adolescents in Ontario visit social media sites at least once per day (Boak et al., 2020). Not only are most teenagers checking social media every day, but it also appears they are spending a significant amount of time on social media. Specifically, approximately 93.9% of teenagers surveyed reported spending at least one hour per day on social media platforms, with more than 20% of Ontario adolescents reporting that they spend more than 5 hours on social media sites daily (Boak et al., 2020). These findings highlight the significant role social media plays in the lives of today's youth.

Although the fact that social media is an integral part of the day-to-day lives of adolescents is undeniable, the literature examining outcomes associated with social media use among teens tends to be mixed. On the one hand, there is a growing body of literature suggesting that higher levels of screen time and social media use are linked to maladaptive outcomes among adolescents, including increased depression, rates of suicide, self-objectification, and eating disorders as well as poorer sleep, body image, and self-esteem (e.g., Kelly et al., 2018; Puukko et al., 2020; Twenge et al., 2017; Vandenbosch & Eggermont, 2016). Additionally, Orben and colleagues (2022) found that the link between increased social media use and decreased life satisfaction was strongest in adolescence, compared to all other developmental periods. Follow-up analyses

indicated that this effect was particularly prominent among younger adolescents (Orben et al., 2022). Interestingly, this relationship appeared to evolve among older adolescents such that extremely high levels and extremely low levels of social media use negatively predicted life satisfaction, suggesting that in late adolescence there may be an optimal level of social media use (Orben et al., 2022). Interestingly, Nesi et al. (2021) revealed complex longitudinal relationships between emotional responses to social media use and depressive symptoms, such that positive emotional responses to social media predicted depressive symptoms across time and, in turn, depressive symptoms predicted more negative emotional reactions to social media use over time. Furthermore, online technology use among teens is related to interpersonal problems, such as incidence of cyberbullying, social isolation, and conflict with friends and family (Best et al., 2014; Boak et al., 2020).

However, on the other hand, there are some researchers that suggest social media use may incur some advantages in adolescence, particularly with respect to experiences of social connection. For instance, Vannucci and McCauley Ohannessian (2019) found that adolescents whose social media use was characterized predominantly by the use of Snapchat and Instagram (e.g., social media platforms involving photo and video features alongside a high level of social interactivity with peers) demonstrated higher competence within close friendships and a greater sense of support from friends compared to people who had low levels of overall social media use. Further, there is a body of work that suggests that interacting with others online may carry benefits for young people who find it difficult to connect with others face-to-face (e.g., individuals higher in social anxiety), such as increased self-esteem, friendship formation, and perceived friendship quality and

closeness (e.g., Desjarlis & Willoughby, 2010; Valkenburg & Peter, 2007; Van Zalk et al., 2013). Finally, there is evidence to suggest that greater intensity of social media use is linked to increases in social capital one year later, particularly for individuals with low self-esteem (Steinfeld et al., 2008).

Given the mixed evidence in this field, it is suggested that social media use is not inherently good or bad and that future work should consider individual-level factors – such as personality – that may help to explain these mixed findings (Monks & Van Zalk, 2020; Negriff & Subrahmanyam, 2020). This study helped to build this area of research by examining how trait and behavioral elements of a perfectionistic personality style are linked to social media use, online social connection, and depression.

2.4. Contextualizing the Current Work: COVID-19

It is important to acknowledge that the current study was conducted within the context of the COVID-19 pandemic, which dictated a quickly changing societal landscape that permeated many domains of daily life. At the time the current work was written, there have been 3,932,523 confirmed cases of COVID-19, with 166,213 hospitalizations and 41,756 deaths in Canada (Government of Canada, 2021). In Ontario specifically, there were 1,322,895 confirmed cases, including 49,654 hospitalizations and 13,406 deaths (Public Health Ontario, 2021). Although not all teenagers will have experienced the physical consequences of the COVID-19 pandemic, many, if not all, would have felt the societal impact of COVID-19 through the federal, provincial, and municipal governments restrictions imposed on schools, businesses, and public spaces aimed at curbing the spread of infection. During this time, there has been growing concern regarding the physical, mental, and social well-being of young people. This

concern is fueled by the idea that they are missing out on the supports they are accustomed to having in their daily lives, including school-related services and connections with their friends and family, pointing to a need for research highlighting how young people are faring during the pandemic (e.g. Fegert et al., 2020; Hoffman & Miller, 2020). To date, research suggests that the COVID-19 pandemic has negatively affected the mental health of adolescents. For instance, as of February 2021, 27.5% of Canadian youth indicated that their mental health was worse compared to before the onset of the pandemic (Statistics Canada, 2021). This percentage is more than double the incidence reported in September 2020 (i.e., 13.6%), suggesting that the mental health of Canadian youth is declining as the pandemic progresses and associated restrictions are imposed. Even more concerning is that research emerging from a prominent children's hospital in Ontario indicates that suicide attempts among children and adolescents are increasing in both frequency and severity, evidenced by higher rates of hospitalization and longer stays in in-patient care (Brown, 2021). Importantly, these young people tend to report interpersonal stressors related to the COVID-19 pandemic and associated restrictions, such as lack of interaction with others and the absence of support from friends, as key contributors to their distress. This highlights a crucial need to explore the role of social connection in adolescent mental health during the COVID-19 pandemic.

Indeed, there is a growing body of research that supports the idea that adolescent mental health is declining throughout the pandemic (Barendse et al., 2021; Hawke et al., 2020; Magson et al., 2021; Raviv et al., 2020; Zhou et al., 2020). With respect to depression specifically, several studies have found increases in depressive symptoms. For instance, Hawke and colleagues (2020) found that retrospective reports of their mental

health pre- to intra-pandemic indicated that Canadian adolescents have experienced an increase in depressive symptoms across the pandemic. Further, Zhou and colleagues (2020) found that the prevalence of depressive symptoms among adolescents in their study had increased markedly compared to levels reported pre-pandemic. Additionally, Raviv et al. (2021) found that caregivers of young people from pre-kindergarten to Grade 12 reported a significant increase in low and depressed mood after the pandemic began, compared to before. These findings are in line with a large meta-analysis, which analyzed a total of 80, 879 children and adolescents, that indicated 1 in 4 youth were exhibiting signs of diagnosable depression during the pandemic; this doubled the prevalence seen before the pandemic (Racine et al., 2021). Although these studies rely on retrospective comparisons of youth well-being, longitudinal research with adolescents emerging from the pandemic have also demonstrated a pattern of increased depression across the pandemic. For instance, Magson et al. (2021) found that adolescents between the ages of 13 and 16 years reported significantly higher levels of depressive symptoms compared to their pre-pandemic level. Further, a prospective study that monitored a large international sample of young people between the ages of 9 and 18 years during the first 6 months of the pandemic found that adolescents reported significant increases in depressive symptoms (Barendse et al., 2021). This effect was particularly strong for youth with multiracial identities and who were living in areas that were experiencing government-mandated lockdown protocols. Altogether, these studies highlight that depression has been worsening among adolescents during the COVID-19 pandemic and indicate this is an outcome warranting further examination.

In relation to perfectionism, Flett and Hewitt (2020b) suggest that this pandemic will have affected young people with perfectionistic tendencies. First, they highlight that it is possible for perfectionism to increase during the pandemic to try and regain control in a seemingly unpredictable and everchanging situation. Further, Flett and Hewitt (2020b) note that individuals exhibiting perfectionistic tendencies may be at an increased risk for psychological distress throughout the COVID-19 pandemic. Specifically, these authors highlight a number of pandemic-related factors that may place individuals higher in perfectionism at increased risk for struggling with feelings of depression. These factors include a feeling of entrapment, heightened feelings of burnout and familial conflict as the boundaries between work life and home life become increasingly blurred with work-from-home measures, and potential identity crises as the opportunity for goal-related endeavors are restricted. Of particular importance with respect to the current study, they emphasize the potential harm done by increased feelings of isolation and loneliness incurred by physical and social isolation requirements (Flett & Hewitt, 2020b). Given that individuals with greater perfectionistic tendencies already tend to feel disconnected from those around them, it may be more difficult for these individuals to cope with pandemic-related feelings of loneliness. This may, in turn, lead to elevated levels of depression among perfectionistic individuals – particularly if they were struggling with depression before the onset of the pandemic (Flett & Hewitt, 2020b). However, Hewitt and Flett (2020b) also note that it is possible for this period of time to act “as a catalyst for positive change” due to the circumstances highlighting the notion that perfection is not always necessary or useful when evaluating performance and shifting attention towards the importance of relationships with other people (Flett & Hewitt, 2020b, p. 96).

To my knowledge, there are no studies to date that have examined the relationship between perfectionism and adolescent depression in the context of the COVID-19 pandemic. However, one published study by Molnar and colleagues (2021) examined the links between perfectionistic cognitions (e.g., automatic and recurring thoughts surrounding the need to be perfect; Flett et al., 2016; Flett et al., 2018) and anxious and depressive symptoms pre-pandemic to intra-pandemic among a sample of young adults, as young as 18 years. With respect to depression, zero-order bivariate correlations indicated that perfectionistic cognitions and depressive symptoms were significantly related both within and across time. However, there were no significant relationships between perfectionistic cognitions and depression in the final analytical model, which tested the reciprocal longitudinal relationships between perfectionistic cognitions and depression and anxiety. Further, there is an emerging body of research that has begun to examine the relationship between perfectionism and other markers of mental health and well-being among teenagers. For instance, Lane et al. (2021) compared perfectionism and anxiety among a pre-pandemic cohort of grade 7 and 8 students to an intra-pandemic cohort of adolescents the same age. These authors found that SOP was significantly higher among the intra-pandemic cohort and that SOP predicted anxious symptoms in both cohorts. However, due to its cross-sectional nature, this study could not assess within-person changes. Further, Blackburn and colleagues (2022) assessed the role of within-person combinations of SOP and SPP in predicting changes to health-promoting behaviors (e.g., healthy eating habits, adequate sleep, daily exercise) among adolescents during the pandemic. This study found that three out of four combinations of these two facets predicted significant increases in such behaviors (i.e., low SOP/low SPP, high

SOP/low SPP, low SOP/high SPP; Blackburn et al., 2022). In this case, some young perfectionists appeared to use the pandemic, and specifically the early stages, to engage in positive changes to their lifestyle behaviors. However, it is worth noting that adolescents who were high in both SOP and SPP experienced a decrease in health-promoting behaviors during this same time period, suggesting that the role of perfectionism during the pandemic is not uniform. Given the unprecedented nature of the COVID-19 pandemic and the scarcity of research focusing on perfectionism in adolescents during this time, it is critical to take into account the global context in which the current study is taking place to elucidate our understanding of how perfectionistic youth are faring across the pandemic.

3. The Current Work

The overarching goal of the current study was to provide an in-depth test of the PSDM among a community sample of Ontario adolescents using a multi-method design in which both qualitative and quantitative data were examined. This work was carried out in two phases that were designed in such a way to help address critical gaps in the PSDM literature. Phase One used an inductive, qualitatively-driven mixed-methods approach to examine how self-identified adolescent perfectionists use online platforms (e.g., social media sites, online gaming) compared to their non-perfectionist peers and the implications this has for their sense of connection with others. Despite a call for the inclusion of indicators of online social connection in tests of the PSDM (Hewitt et al., 2017b), researchers have yet to explore this avenue of research. A testable hypothesis rooted in the PSDM is that perfectionism would be jointly linked with lower levels of both in-person and online social connectedness (Hewitt et al., 2017b). However, Hewitt and colleagues (2017b) acknowledge that critics of their work may suggest that perfectionists may turn to social media and online relationships to compensate for the lack of face-to-face connection they tend to experience in-person. In other words, it is possible that perfectionism may be linked to higher levels of online social connectedness despite being linked to lower levels of social connectedness in in-person contexts. As such, Phase One used a bottom-up approach to explore both possibilities simultaneously, without imposing one particular perspective.

The results from Phase One then informed the hypotheses for Phase Two, which was a three-wave longitudinal test of the PSDM. Phase Two tested indicators of both online and in-person social connection as potential mediators in the relationships between

trait (i.e., SOP, SPP) and behavioral (i.e., PSP) perfectionism and depression among a large community sample of adolescents. The key aims of Phase Two were to (a) examine the temporal nature of the relationships between different forms of perfectionism and depression among adolescents, (b) to test whether these relationships were explained, at least in part, by levels of in-person social connection across time, and (c) to examine whether feelings of social connection in online spaces played a mediating role in these relationships, over and above feelings of social connection in in-person settings. Altogether, the current bi-phasic study offered a comprehensive and rigorous test of the PSDM among adolescents, with a particular focus on the role of online connection.

4. General Study Procedure

4.1. Study Design

Data for the current study was collected as part of a larger longitudinal project examining personality, mental health, well-being, and adjustment among adolescents that began in June 2021 and concluded in April 2022. Ethical clearance was received from the University Ethics Committee and the study was registered with the Open Science Framework Registries prior to data collection (<https://osf.io/fp34x/>; See also Appendices A through C). Community participants between the ages of 12 and 18 years were recruited through a variety of methods, including participant pools from previous studies, social media advertisements, news articles about the study, and passive snowball sampling. This study employed a longitudinal mixed-methods design such that all participants had the opportunity to complete online surveys at three time points (i.e., baseline, approximately 2-month follow-up, approximately 4-month follow-up) and a subset of participants were interviewed online at each time point. Phase One of the current study focused on the interviews conducted at baseline.

4.2. Consent Procedure

Once interest in the study was indicated, either by the participant or by their parent or guardian on their behalf, the appropriate consent forms were sent via email. The consent forms for this study covered both the survey and interview portions of the study design. For participants who were 18 years of age, the informed consent form was sent directly to their email address. They provided consent by replying to this email with the required information outlined in the informed consent form. For participants under the age of 18 years, the parental consent form was sent to their parent or guardian. Consent

was provided by the participant's parent/guardian replying to this email with the information requested in the parental consent form. All participants, regardless of age, were presented with the youth assent form before beginning the online survey at each time point, at which point they were required to indicate they assented to participating in the study before continuing. At this point, participants also indicated whether they were interested in participating in an online interview. If interest was indicated, they were added to the interview participant pool.

4.3. Online Surveys

As mentioned above, all participants had the opportunity to complete an online survey at three time points (i.e., baseline, approximately 2-month follow-up, approximately 4-month follow-up). Participants were assigned a unique ID code such that their responses at each time point could be linked. At each time point, participants aged 18 years or older were sent their unique ID code and the link to the online survey directly. For participants aged 12 to 17 years, their unique ID code for the baseline survey was sent to their consenting parent or guardian and the link to the survey was sent to the participant directly. This was done to ensure that participants under the age of 18 years could not have participated without their parent's or guardian's consent. For subsequent timepoints, both the unique ID code and the survey link were sent to the participant directly as parental consent was adequately confirmed through the baseline survey protocol.

Surveys were conducted on an online survey platform (i.e., Qualtrics, Provo, UT) at each time point. Surveys took roughly 60 to 90 minutes to complete. Measures relevant to the current study were identical at each time point. Access to the survey was provided

via anonymous link. Participants were required to enter their unique ID code at each time point to link their responses over time. At each time point, participants received a \$20 (CAN) Amazon gift card via email for full survey completion. If participants completed at least half of the online survey but did not fully complete all survey measures, they received a \$10 (CAN) Amazon gift card for that time point.

4.4. Online Interviews

Interviewees were randomly selected from the interview participant pool then screened for eligibility. There were six targeted groups to promote saturation of the interview data with respect to self-identified perfectionist status and level of education (i.e., perfectionist/elementary, non-perfectionist/elementary, perfectionist/secondary, non-perfectionist/secondary, perfectionist/post-secondary, non-perfectionist/post-secondary). A researcher who was not conducting interviews ensured that each of these six groups had a roughly equal number of participants. At the elementary and secondary school levels, there was a roughly equal number of perfectionists and non-perfectionists. However, at the post-secondary level, the perfectionist group appeared to be overrepresented while there were fewer non-perfectionists. See Table 4.4.1. for the final sample sizes for each group. The interviewers were not aware of the level of education or perfectionist status of their interviewees prior to the interview.

Interviews were conducted on an online video conferencing platform (i.e., Lifesize) and were semi-structured in nature. At the beginning of each interview, interviewees were informed that the session was being recorded for transcription purposes and that all recordings and transcripts would be treated confidentially. Interviewers reviewed key information from the consent/assent form with the participant

and youth consent/assent was confirmed before beginning the interview. Interview guides were created in advance to assist in obtaining an in-depth account of the participants' experiences. However, given the semi-structured nature of the interviews, interviewers prompted participants for clarification and elaboration when necessary and appropriate. Broadly, the interview questions touched on perfectionism, social media use, and experiences during the COVID-19 pandemic (see section 5.1.2. for a more detailed explanation of questions relevant to this study).

Table 4.4.1.

Sample Sizes for Each Interview Subgroup

	Elementary	Secondary	Post-secondary
Perfectionist	8	7	10
Non-perfectionist	8	6	4

5. Phase One: ‘With texting, I’m always second guessing myself how they’re really feeling’: Perfectionists’ Experiences of (Dis)Connection Online

A key contribution of Phase One of this study to the PSDM literature was to provide a qualitative exploration of how perfectionism is linked to social media use and online connection in adolescence using an inductive, qualitatively-driven mixed methods approach. Employing a qualitative approach offers several advantages, particularly with respect to perfectionism research which tends to use predominantly quantitative methods (Flett & Hewitt, 2020a). First, qualitative methods take a naturalistic approach to understanding the social world that aims to make sense of phenomena, such as perfectionism and feelings of connection with others, while focusing on the meaning ascribed to these phenomena by those experiencing them (Denzin & Lincoln, 2011). With respect to the current study, using qualitative methods offered an avenue for adolescent voices to directly shape our understanding of perfectionism and its implications for social connection and social media use during the teenage years. This is particularly valuable given the lack of qualitative studies examining adolescent experiences with perfectionism (see Mallinson-Howard et al., 2018 for exception). Although there is a growing body of literature examining the PSDM among youth, this body of work has relied solely on quantitative research methods; no studies to date have used qualitative methods to examine the tenets of this model among adolescents. Quantitative methods are extremely valuable in that they help to reveal global trends in the data. However, these approaches tend to paint the experiences of perfectionism, social disconnection, and psychological distress among adolescents with a broad brush. It is critical to create space for adolescent voices to be heard and valued in youth-centered research to highlight the intricacies and

complexities of their experiences (e.g., Levitan, 2019; Woodgate et al., 2020). By creating such a space, the current work contributes a more nuanced understanding of how adolescents are experiencing perfectionism with respect to its relationship with feelings of social connection to others, particularly in online contexts.

Another key advantage of incorporating qualitative research methods into the current work was that such approaches offer a greater sensitivity to and consideration of context, rather than simply assuming theoretical models that have been established in different settings will apply to novel situations (Hill et al., 2015). Given how little is known about how adolescents with perfectionistic tendencies may make use of online platforms to connect with other people, an inductive consideration of the online context is most appropriate for the current work. Rather than assuming the theoretical tenets of the PSDM would apply to online contexts, the qualitative component of Phase One allowed for a bottom-up approach in which adolescent self-identified perfectionists directly informed our understanding of how young perfectionists tend to engage with others on online platforms. Specifically, this approach allowed me to examine whether perfectionists feel less connected online compared to their non-perfectionist peers, in line with the PSDM, or whether perfectionist teenagers are using online platforms to compensate for their relatively low levels of connection in face-to-face contexts through the creation of strong online social networks and friendships.

In Phase One, I compared adolescent self-identified perfectionists to their non-perfectionist peers with respect to themes relating to social media use and connection with significant others coded from semi-structured interviews. Allowing participants to self-identify as perfectionists is a selection method used with success in previous research

(e.g., Hill et al., 2015; Slaney & Ashby, 1995; Slaney et al., 2000). Given that there is currently no empirical evidence to support either of the arguments presented by Hewitt et al. (2017b), Phase One was exploratory and focused on the following research questions:

- (1) How does self-identified perfectionist status align with scores on validated measures of trait and behavioural perfectionism?
- (2) How connected do adolescent perfectionists feel on online platforms compared to non-perfectionists? Does this differ from their sense of connection in in-person contexts?
- (3) Are adolescent perfectionists using online platforms differently than adolescents who do not identify as perfectionists in ways that impact their sense of connection online?
- (4) How do adolescent perfectionists versus adolescent non-perfectionists think about their interactions with others online compared to in-person?
- (5) How has the COVID-19 pandemic impacted the way adolescents connect with others online? Does this differ as a function of whether the individual identifies as a perfectionist or not?

5.1 Phase One Methods

5.1.1. Phase One Participants

Forty-three participants completed interviews at baseline and, as such, were included in the sample for Phase One. Overall, the sample ranged in age from 12 to 18 years of age ($M = 15.16$, $SD = 2.43$) and was comprised of 27 participants who identified as female, 13 participants who identified as male, and 3 participants who identified as non-binary. The majority of the sample identified as White/Caucasian ($n = 25$; 58.1%),

with the rest of the sample identifying as Asian Canadian ($n = 10$; 23.3%), Latin Canadian ($n = 2$; 4.7%), or other ($n = 6$; 14%). With respect to education level, 16 participants (37.2%) reported attending elementary school, 13 participants (30.2%) reported attending secondary school, and 14 participants (32.6%) were enrolled in a post-secondary program. Most participants ($n = 25$; 58.1%) perceived their family to be about as rich as the average Canadian, while 11 participants (25.6%) perceived their family to be more rich than average and 4 participants (9.3%) perceived their family to be less rich than average. Three participants (7%) indicated that they would prefer not to report their family's perceived SES. See Table 1 in Appendix J for descriptive statistics for all measures of social connection and social media use for the overall sample.

There were 25 participants (58%) that identified as perfectionists, ranging in age from 12 years to 18 years old ($M = 15.64$, $SD = 2.41$). This group was predominantly female ($n = 18$; 72%), with 4 male participants (16%) and 3 non-binary participants (12%) identifying as perfectionists. With respect to race, more than half of the perfectionist group identified as White/Caucasian ($n = 16$; 64%), whereas just under a quarter of the group identified as Asian Canadian ($n = 6$; 24%). The remainder of this group identified as Other ($n = 2$; 8%) or Latin Canadian ($n = 1$; 4%). There were 8 (32%) perfectionists who attended school at the elementary school level, 7 (28%) perfectionists in secondary school, and 10 (40%) perfectionists enrolled in a program at either the college or university level. With respect to SES, over half of the perfectionist group ($n = 15$; 60%) perceived their family to be about as rich as the average Canadian, while six participants (24%) perceived their family to be above average and two (8%) perceived their family to be below average. Two participants did not report their family's perceived

SES. See Table 5.1.1.1 for descriptive statistics related to social connection measures and social media items for the perfectionist group.

In contrast, there were 18 participants (42%) that indicated that they do not identify as perfectionists. This group also ranged in age from 12 years to 18 years ($M = 14.5$, $SD = 2.36$) and was evenly split between female ($n = 9$; 50%) and male ($n = 9$; 50%) participants, with no participants in the non-perfectionist group identifying as non-binary. Half of this group identified as White/Caucasian ($n = 9$; 50%), with the remainder of non-perfectionists having identified as Asian Canadian ($n = 4$; 22.2%), Other ($n = 4$; 22.2%), or Latin Canadian ($n = 1$; 5.6%). With respect to education level, there were 8 (44.4%) participants in the non-perfectionist group in elementary school, 6 (33.3%) in secondary school, and 4 (22.2%) enrolled in a post-secondary program. When asked how their family compares to the average Canadian, 10 of the non-perfectionists (55.6%) reported their families were equally as rich, 5 non-perfectionists (27.8%) perceived their families to be more rich, and 2 non-perfectionists (11.1%) indicated their family was less rich. One participant (5.6%) in this group indicated they would prefer not to respond to this question. See Table 5.1.1.1 for descriptive statistics related to social connection measures and social media items for the non-perfectionist group.

Table 5.1.1.1.*Descriptive Statistics for Social Connection and Social Media Variables, by Group*

	Perfectionists				Non-perfectionists			
	<i>M</i>	<i>SD</i>	Min	Max	<i>M</i>	<i>SD</i>	Min	Max
FCS	79.89	15.72	45.00	109.00	85.41	12.89	65.26	109.00
SCS	84.94	17.15	41.00	116.25	84.44	16.19	55.79	116.25
Platforms	3.70	1.79	0.00	7.00	4.07	1.28	0.00	6.00
Friends	803.61	983.61	9.00	3430.00	687.40	939.77	7.00	3741.00
Hours	3.95	2.28	1.00	10.00	3.93	2.02	1.00	8.00
LikeCheck	2.41	1.46	1.00	5.00	2.27	1.39	1.00	5.00
Filters	2.14	1.11	1.00	5.00	2.13	1.06	1.00	4.00
SMCheck	3.76	1.24	1.00	5.00	3.67	1.35	1.00	5.00
SMCheckDur	3.18	1.49	1.00	8.00	3.20	1.01	1.00	5.00
LikeImp	1.82	1.01	1.00	5.00	1.73	0.70	1.00	3.00
SynDiffWd	0.51	1.86	-4.00	5.00	0.40	2.44	-4.00	5.00
SynDiffWe	0.08	2.17	-6.00	5.00	0.07	2.71	-5.00	5.00
AsyDiffWd	1.21	1.44	-2.00	4.10	1.27	1.75	-2.00	4.00
AsyDiffWe	0.69	1.64	-4.00	5.00	0.60	1.88	-4.00	4.00

Note. FCS = Online connection, measured by the Facebook Connectedness Scale (adapted for social media); SCS = In-person connection, measured by the Social Connectedness Scale; Platforms = Total number of social media platforms used; Friends = Total number of friends on social media, across platforms; Hours = Total number of hours spent on social media, per day; LikeCheck = How often they are checking for likes; Filters = How often they use filters; SMCheck = How often they are checking social media; SMCheckDur = How long they are on social media each time they check; LikeImp = How important likes are to them; SynChangeWd = Change in amount of time spent interacting with friends in a synchronous manner on weekdays following the onset of the pandemic, in hours; SynChangeWe = Change in amount of time spent interacting with friends in a synchronous manner on weekends following the onset of the pandemic, in hours; AsyChangeWd = Change in amount of time spent interacting with friends in an asynchronous manner on weekdays following the onset of the pandemic, in hours; AsyChangeWe = Change in amount of time spent interacting with friends in an asynchronous manner on weekends following the onset of the pandemic, in hours

5.1.2. Phase One Interview Guide

The interview guide used for the current study was comprised of three sections: Social Media Use, Perfectionism, and School Experiences During COVID-19. Phase One of the current work focused exclusively on the first part of the interview, to gain an in-depth understanding of adolescents' online experiences. This portion of the interview

asked participants about their social media use, including which platforms they use and why, their sense of connection online, and differences between their online and face-to-face interactions. For a complete list of the interview questions included in this portion of the survey, see Table 5.1.2.1. For a full account of all the interview questions included in the interview guide, see Appendix C.

Table 5.1.2.1.

Interview Questions from Social Media Use Portion of the Interview Guide

Question Number	Question
S1	How do you connect with others online?
S2	What impact has the pandemic had on your social media use and the role of social media in your life?
S3	Do you think your engagement will change once the pandemic is over? If so, how?
S4	Please describe your use of social media.
S4a	Which social media platforms do you use?
S4b	Are there platforms you use more than others?
S4c	Do you use them for different reasons?
S4d	Do you have a private Instagram account or private Snapchat story? If so, can you tell me more about it?
S5	How would you describe your connection, or lack of connection, to others on these platforms?
S6	How engaged are you when you are using these platforms?
S7	Is there a difference between your face-to-face interactions and your interactions using social media?
S7a	Do you prefer interacting with others online or in-person? Why?
S7b	Do you find it easier or more difficult to connect with others online compared to in-person?
S7c	Do you feel more or less in control of your interactions on social media or in-person?
S8	Are they people you interact with online your real-life friends? Or do you have a separate group of people that you interact with online?
S9	How often do you post on social media?
S9a	How do you decide what to post?
S9b	Do you post to express yourself?
S9c	Do you post to receive positive feedback from others?
S10	How much time and effort are you putting into your posts?
S10a	Time spent editing?

S10b	Time thinking about captions/hashtags?
S10c	Time thinking about how to message/reply to others?
S11	What do you think about the use of filters, pre-sets, and editing apps?
S11a	Do you use them?
S11b	Which ones do you use?
S11c	Why are you using them?
S12	After posting content, how often are you checking your content for likes?
S12a	Are likes important to you?
S12b	Do you consider likes when you are deciding what to post? Why?
S13	Do you consider the time of day when you are posting content? Why?
S14	When you use social media, how important is it to you to control the image you are presenting (e.g., posts, messages, profile pictures, etc.)? Is it important to you to appear perfect online?

5.1.3. Phase One Survey Measures

5.1.3.1. Demographics. Participants reported their age, gender identification, race, level of education (e.g., elementary, secondary, post-secondary), and SES.

5.1.3.2. Trait perfectionism. Trait dimensions of perfectionism were measured using the CAPS (Flett et al., 2016; See Appendix D). This 22-item measure was comprised of two subscales representing SOP and SPP, respectively. All items were rated on a 5-point Likert scale that ranged from 1 (*False – Not true at all of me*) to 5 (*Very true of me*). The subscale representing SOP consisted of 12 items that quantify the extent to which respondents hold excessively high standards for themselves and engage in harsh self-censure (e.g., “I get upset if there is even one mistake in my work”). The SPP subscale included 10 items that gauged the extent to which participants perceive that important people in their lives expect them to be perfect and react negatively if perfection was not attained (e.g., “People expect more from me than I am able to give”). Summed scores for each of the subscales were calculated by computing the mean of their

respective items and multiplying this mean by the number of items included in each subscale. Summed scores for the respective subscales were only calculated if participants responded to at least 80% of the items used for that subscale. This approach was taken to help account for missing data. Higher total scores represent higher trait levels of SOP and SPP, respectively. The CAPS has demonstrated acceptable validity and reliability among Canadian samples, with Cronbach's alphas ranging between .81 and .87 (Flett et al., 2016).

5.1.3.3. Behavioral perfectionism. Perfectionistic self-presentation was assessed using the Perfectionistic Self-Presentation Scale – Junior Form (Hewitt et al., 2011; See Appendix E). This scale is made up of 18 items that represent the following three subscales: perfectionistic self-promotion (e.g., “It’s important to act perfectly around other people”), nondisplay of imperfection (e.g., “I do not want my friends to see even one of my bad points”), and nondisclosure of imperfection (“I should fix my own problems rather than telling them to other people”). Items were rated from 1 (*Disagree strongly*) to 5 (*Strongly agree*) on a 5-point Likert scale. Total summed scores were calculated by computing the mean of all the items on the PSPS-Jr and multiplying this mean by the number of items included in the scale. Summed scores were only calculated if participants responded to at least 80% of the items used for that subscale. This approach was taken to help account for missing data. Previous studies have established support for the reliability and validity of the PSPS-Jr (Hewitt et al., 2011).

5.1.3.4. In-person social connection. The Social Connectedness Scale – Revised (Lee et al., 2001; See Appendix F) measured the degree to which participants feel connected to those around them in face-to-face contexts specifically. This measure was

made up of 20 items that were written from a phenomenological perspective to capture the subjective experiences of belongingness and connectedness (or lack thereof; Lee & Robbins, 1995). In the current study, participants were instructed to consider their sense of connection with others in face-to-face contexts specifically, to distinguish from the Facebook Connectedness Scale (described in the proceeding subsection). This scale was comprised of 10 positively worded items (e.g., “I feel understood by people I know in face-to-face contexts”) and 10 negatively worded items (e.g., “I feel like an outsider in face-to-face contexts”). Each item was rated on a 6-point Likert scale ranging from 1 (*Strongly disagree*) to 6 (*Strongly agree*). First, the negatively worded items were reverse scored, so that higher scores on all items represented higher levels of social connection in in-person contexts. Summed scores were then calculated by computing the mean and multiplying this number by the number of items included in the scale. Summed scores were only computed if the participant responded to at least 80% of the items. The summed scores represented a total in-person social connectedness score, with higher scores indicating a greater sense of connection with others in face-to-face contexts. This measure has demonstrated good reliability (Cronbach’s alpha = 0.94) and validity via negative associations demonstrated between total social connectedness scores and maladaptive outcomes such as loneliness and social distress (Lee et al., 2001).

5.1.3.5. Online Social Connection. The Facebook Connectedness Scale (adapted for social media more generally) was administered to assess participants’ sense of connection to others online. Adapted from the Social Connectedness Scale – Revised (described above; Lee et al., 2001; See Appendix G), this measure was comprised of 20 items that assess one’s subjective sense of connection with others derived from the use of

online social media platforms. Each item included in this scale was identical to the items presented for the Social Connectedness Scale – Revises (Lee et al., 2001), but specified for the participant to consider their connection on social media, rather than in face-to-face contexts. Participants were presented with 10 positively worded items (e.g., “I am able to relate to my peers on social media”) and 10 negatively worded items (e.g., “I don’t feel I participate with anyone or any group on social media”). Each item was rated on a 6-point Likert scale ranging from 1 (*Strongly disagree*) to 6 (*Strongly agree*). First, the negatively worded items were reverse scored, so that higher scores on all items represented higher levels of social connection in online contexts. Summed scores were then calculated by computing the mean and multiplying this number by the number of items included in the scale. Summed scores were only computed if the participant responded to at least 80% of the items. This approach was taken to account for missing data. The summed scores represented a total in-person social connectedness score, with higher scores indicating a greater sense of connection with others in online contexts. The Facebook Connectedness Scale has demonstrated good reliability (Cronbach’s alpha = 0.93), validity (negative associations with subjective well-being, depression, and anxiety), and appears to represent a construct distinct from offline social connectedness, as measured by the Social Connectedness Scale (Grieve et al., 2013).

5.1.3.6. Social media use. Social media use was quantified using a battery of questions authored for the purpose of the current study. This questionnaire included questions about the amount of time spent on social media, preferred social media platforms, connections with other people online (objective number of friends/followers, subjective feelings of connectedness), and the use of editing apps and filters. Please see

Appendix H for a full list of items (including response options) that were presented in this battery.

5.2. Phase One Data Analysis

Braun and Clarke's (2006; 2021) six phases of thematic analysis as well as principles of consensus coding (Zinga et al., 2013) were used to guide the framework for the qualitative analyses for Phase One. Interview recordings were transcribed using automatic transcription software (i.e., Nvivo; QSR International Pty Ltd., 2020) and subsequently checked and stripped of identifying information by myself alongside trained research assistants, which allowed for initial familiarization with the data (Phase 1; Braun & Clarke, 2006; 2021). Anonymized transcripts were entered back into Nvivo (QSR International Pty Ltd., 2020) for the coding stage.

The coding team consisted of myself and Dr. Dawn Zinga. To begin, I read through several transcripts to further familiarize myself with the transcripts included in the current sample (Phase 1; Braun & Clarke, 2006; 2021). I then identified a group of initial emergent codes relating to feelings of connection as well as thoughts about and uses of social media platforms to interact and connect with others (Phase 2; Braun & Clarke, 2006; 2021). See Appendix K for a full account of initial codes. I met with Dr. Zinga to review the initial codes and clarify definitions of potential codes, including inclusion and exclusion criteria. Dr. Zinga and I then independently coded four transcripts (two from the perfectionist group, two from the non-perfectionist group) and compared our findings. We reviewed areas where we were discrepant with our coding and discussed ways we could add to and/or adjust our codes to address these discrepancies. Additionally, as a results of these discussions, some codes were collapsed.

We then coded two more transcripts for the non-perfectionist group, as this is where we were most discrepant based on our first round of coding. After reviewing our performance in coding these two transcripts, we felt we had adequately reached consensus surrounding our final codes. See Appendix L for the final codebook, including definitions of each code. Consequently, Dr. Zinga and I each coded half of the remaining transcripts.

It is worth noting that, although the current work was largely informed by Braun and Clarke (2006; 2021)'s six steps, the approach employed here deviated from their recommendations with respect to the use of an inductively developed codebook and consensus coding (Zinga et al., 2013). Braun and Clarke (2021) do not advocate for the use of codebooks or any elements of consensus coding in their approach to thematic analysis. This is largely due to their position that the use of codebooks and consensus coding is underpinned by "(post)positivist notions of reliability" and the "aim of seeking unbiased, objective truth" (p. 237). However, in the current work, this was not done to establish reliability but rather to manage the volume of qualitative data and to balance the perspectives of the coders. The initial stages of coding during which Dr. Zinga and I met to review areas of agreement and discrepancy in our coding were not to assess our level of agreement in how we were coding each transcript, but rather to engage in an iterative process during which we developed clearly defined codes before proceeding to code the remainder of the transcripts. Further, it is worth noting that, in keeping with Braun and Clarke's (2006; 2021) emphasis on the importance of allowing for a reflexive process in thematic analysis, reflection and consequent revisions were included at every stage of

analysis, including after the coding process, which resulted in additional coding in some cases.

Once all the transcripts were coded based on our codebook, I went through each of the codes and engaged in recoding by further categorizing passages that fell under each code. I performed this process separately for the perfectionists and non-perfectionist groups, to allow for both convergences and divergences to emerge. For instance, responses to the initial code of 'Control' were separated into the following categories for the perfectionist group: Control over expression, Control over accounts/settings, Control over conversations, and Lack of control online. For the non-perfectionist group, responses were categorized into the following headings: Control over expression, Control over accounts/settings. See Tables 2 and 3 in Appendix J for a full account of response categories for each emergent code. I then completed a similar categorization process with responses at the question level (see Tables 4 and 5 in Appendix J). Once categorization was completed for all emergent and question-level codes, I collated across documents and combined similar themes from across questions and themes. I then organized the merged categories by research question. See Tables 6 and 7 in Appendix J for a full record of the merged categories across emergent codes and interview questions for the perfectionist and non-perfectionist groups, respectively.

This helped me to construct themes across the codes that represented broader, shared meaning (Phase 3; Braun & Clarke, 2021). I was particularly interested in themes related to similarities and differences between perfectionists and non-perfectionists. Initially, I noticed the way each group spoke about their social media use and their sense of connection online tended to follow similar patterns; however, perfectionists tended to

think about some aspects of online engagement and connection differently. Further, there was a strong emergent theme among the perfectionists, but not the non-perfectionists, related to anxiety surrounding online engagement. Finally, there was a clear subgroup of perfectionists who tended to divert from the pattern of use and sense of connection shared by the non-perfectionists and the majority of the perfectionists.

Upon reviewing these initial themes via the creation of a thematic map for analysis (Phase 4; Braun & Clarke, 2006; 2021), I noticed that the themes relating to similarities in use and differences in thought processes fit better with the dataset as two sets of parallel subthemes under the broader themes of social (dis)connection and social media use, respectively. In other words, references made to their sense of connection and social media use, respectively, were best organized by similarities in pattern and differences in thought processes. The other two themes appeared to fit the data well.

As such, I ended up with four broad themes: Sense of (Dis)Connection Online versus In-Person, Social Media Use, Perfectionists' Anxiety and Concern Surrounding Online Engagement, and Impact on Perfectionists of Being Rejected and Not Fitting In. See Table 5.2.1 for an account of the final themes and their respective subthemes. Once I had defined and named the themes (Phase 5; Braun & Clarke, 2006; 2021), I reviewed the plan for analysis to ensure that the themes and subthemes adequately portrayed the story of the data. I then produced the final report (Phase 6; Braun & Clarke, 2006; 2-21), in which I selected and reviewed example quotes for each theme and relevant subtheme(s) and wove together the findings into a cohesive narrative, presented below.

5.2.1. Data Quality

With respect to ensuring the quality and trustworthiness of the data, I followed the work of several qualitative scholars (Anfara et al., 2002; Denzin & Lincoln, 2000; Guba & Lincoln, 1981; 1982; Lincoln & Guba, 1985; Lincoln, 2001; Morse et al., 2002). I used a purposive sampling approach whereby we attempted to balance the number of perfectionists and non-perfectionists invited to complete interviews to allow for meaningful differences between groups to emerge. Further, I used in-depth semi-structured interviews to elicit information relevant to the research questions relevant to the study, while allowing for thick descriptions of phenomena from the participants and for unexpected themes and findings to emerge. The coding team was balanced to include one researcher who was familiar with the data and perfectionism literature (myself) and one researcher who has extensive expertise in qualitative research (Dr. Zinga). Our approach to coding and analysis was iterative and based on a reflective and collaborative process of reading transcripts, brainstorming sessions, and discussions of potential themes and codes as they emerged. I maintained an audit trail of the coding and analyses processes, to allow for transparency with respect to how the data was analyzed (see Tables 2-7 in Appendix J and Table 5.2.1 below).

Table 5.2.1.

Final Themes in Relation to Emergent Codes and Interview Questions

Themes	Subthemes	Emergent Codes	Questions
Sense of (Dis)Connection Online Versus In-person	Disconnected online Connected online Connected in-person Disconnected during the pandemic	A, B, C, D, K, O	S2, S3, S5

	Social media as a tool to connect during the pandemic		
Social Media Use	Reasons for use Interacting and connecting with friends Benefits of in-person interactions compared to online Benefits of online interactions compared to in-person Logistical context of online Lack of control online Curated interactions and presentation Posting online Importance of likes and comments	A, B, C, D, E, F, G, H, I, J, K, L, M, N	S4c, S4d, S5, S6, S7, S7a, S7b, S7c, S8, S9, S9a, S9b, S9c, S12, S12a, S12b, S14
Perfectionists' Anxiety and Concern Surrounding Online Engagement	Worry surrounding online interactions and relationships Worry surrounding identity and impression management	A, D, F, H, I, J, L, M, N	S7a, S7c, S14
Impact on Perfectionists of Being Rejected and Not Fitting In	Connected online Disconnected in-person Meaningful online-only relationships Benefits of online interactions compared to in-person	A, B, C, I	S5, S7, S7a, S7b, S8

5.3. Phase One Results

5.3.1. *Self-identification as Perfectionist vs Non-perfectionist*

With respect to self-identification as a perfectionist, twenty-five participants (58%) indicated that they identify as perfectionists. These participants were significantly

higher on SOP ($M = 50.60$, $SD = 6.49$) and PSP ($M = 65.12$, $SD = 12.75$) compared to the group who indicated that they did not identify as perfectionists ($n = 18$, 42%; $M_{SOP} = 36.83$, $SD = 8.26$; $M_{PSP} = 52.02$, $SD = 12.42$) (see Table 4.1). There were no statistically significant differences on SPP between perfectionists ($M = 30.69$, $SD = 9.97$) and non-perfectionists ($M = 25.01$, $SD = 10.67$) in the current sample (see Table 5.3.1.1.).

However, the effect size for differences in SPP was moderate (i.e., Cohen's $d = 0.55$), suggesting that the non-significance of this comparison was a result of an underpowered sample. This effect would have likely been significant in a larger sample size.

Table 5.3.1.1.

Independent Samples T-tests Comparing Perfectionists and Non-perfectionists on SOP, SPP, and PSP

	Independent Samples T-test					Cohen's d		
	df	t	p	95% CIs		Estimate	95% CIs	
				LLCI	ULCI		LLCI	ULCI
SOP	40	6.05	.000	9.17	18.36	1.89	1.14	2.62
SPP	40	1.77	.084	-0.80	12.15	0.55	-0.07	1.17
PSP	40	3.33	.002	5.15	21.04	1.04	0.38	1.75

*Note: SOP = self-oriented perfectionism; SPP = socially prescribed perfectionism; PSP = perfectionistic self-presentation

Note. Given that multiple independent samples t-tests were conducted simultaneously using the same sample (see Appendix M), a Bonferroni correction was applied to reduce Type 1 error. As such, a p value cut-off of $< .003$ was used to determine significance in the results presented above (i.e., alpha of $.05/17$ statistical tests = $.003$; See Tables 4 and 5 Appendix M for results from the other 14 statistical tests)

5.3.2. Sense of (Dis)Connection Online Versus In-Person

Sentiments of feeling disconnected in online spaces emerged in both the perfectionist ('*When it's online, it's kind of like you're interacting, but it's a bit lonely I find*' Perfectionist, Female) and non-perfectionist ('*Me and my friends aren't really connected online*' Non-perfectionist, Female) groups. However, references to feeling

disconnected online came up among almost every participant in the perfectionist group (88%), whereas only 55% of the non-perfectionists made explicit references to disconnection in online spaces, suggesting that perfectionists may be more inclined to feeling disconnected from their friends and peers online. Not only did a greater proportion of perfectionists talk about disconnection online, perfectionists also tended to discuss these feelings of disconnection more often throughout their interviews relative to non-perfectionists. Indeed, there were 62 references to feeling disconnected online across the 22 participants in the perfectionist group who expressed this sentiment, compared to 18 references across 10 participants in the non-perfectionist group. Finally, the perfectionists' references to online disconnection tended to be more detailed and to include more affective language, compared to the references made by the non-perfectionists:

I definitely prefer in person because I feel like you can't really express your feelings over text messaging because they can take it a bunch of different ways and you're not really able to connect emotionally with people through text message and stuff like that. Which is why I feel like usage is mostly – I don't know how to really say it – but it's much more personal when you're in person than texting or over the phone and stuff like that. (Perfectionist, Female)

I would say it's definitely harder to get like a meaningful connection online because sometimes it's like I would talk to someone, but it doesn't seem like a very deep conversation or it's just kind of like talking because, you know, they don't have anyone to talk to and you're the only one to talk to. I would say it's probably more shallow level or even if conversations are deeper, it's just like there's something missing there. I've met people I talk to online and even if you talk for a while, it's still kind of awkward at the beginning when you meet in person because there's an element missing when you just message back and forth because you have more time to think about replies than you do in a real conversation, I guess. So maybe it's part of it and, yeah, you're just missing the face-to-face thing, I guess. So I would say it's probably just like not as deep connections. (Perfectionist, Male)

I don't really connect with them, I just kind of see what's happening. (Non-perfectionist, Female)

I feel that it's less connected online because I'm not actually seeing that face-to-face, not actually talking to them right in front of them. So I feel that there's a stronger sense of connection if I'm talking to them in-person. (Non-perfectionist, Male)

When perfectionists did make references to feeling connected online (68%), they tended to specify who they felt connected to. Specifically, most references to feeling connected online among perfectionists were in the context of online interactions they have with people they know from their day-to-day lives:

Pretty connected, I guess. But only to the people I know because I feel like people I don't know that I talk to online, it's just not that connected because I don't know them. (Perfectionist, Male)

If I don't see them in person, I don't feel very connected to them over Instagram. But if I do hang out with them in person then I'm sending the messages through Instagram, I feel more connected because I know that there's someone that I actually interact with outside of that. (Perfectionist, Female)

In contrast, relatively fewer non-perfectionists (50%) talked about feeling well-connected to others online and tended to make general references to these feelings of connection, without specifying who they were connecting with (*'I think I connect well [online]'* 268, Non-perfectionist, Male; *'I feel connected in a sense that I know what they're doing and what's up in my friend's life and all that'* 281, Non-perfectionist, Female).

With respect to their sense of connection in face-to-face contexts, most participants in both groups expressed feeling well-connected in-person (*'It's a lot easier to talk to someone in-person and like easy to start a conversation. I think it's just more natural to talk to somebody.'* Perfectionist, Female; *'It just feels more fun and more connected and there's more stuff you can do. Like I'd rather be playing basketball with my friends than playing Call of Duty with them.'* Non-perfectionist, Male) and often compared this to the relative lack of connection they feel in online environments.

Specifically, most of the references (87.5%) among perfectionists and all of the references among non-perfectionists made to feeling connected in-person were relative to how close they feel to others online:

Because when you're face-to-face, first of all, you can see them. Like they're in front of you. So that's just a different way of connecting than on the phone, you know? So it's just more fun in a way. Because when you're texting, it's just messages on a screen but then when you see them in real life, they're there and you just see them instead of just seeing what they say. (Perfectionist, Male)

It's definitely more of a genuine conversation that is happening. And you don't even have to talk to them, even like being in someone's presence you kind of get a lot more of a connection there rather than on social media. It's a lot more effort to be able to maintain that connection. I don't feel like it even matches up whatsoever. I think in person it's definitely a lot more connection. A lot more than online. (Perfectionist, Male)

It's nothing compared to with people in real life. It's a lot more connected in real life. Yes, just a big difference. (Non-perfectionist, Male)

If I were to choose between talking to someone and Snapping someone, I'd choose talking just because it's face-to-face and you can feel a lot more close. (Non-perfectionist, Female)

As demonstrated in the above quotes, perfectionists provided more detailed accounts of their feelings of connection in face-to-face contexts compared to non-perfectionists, following the same pattern seen with regards to how each group spoke about online connection, respectively.

This pattern of few tangible differences between groups, but greater emphasis on feelings of connection and disconnection among perfectionists, appeared to replicate in the context of references made to the COVID-19 pandemic. Specifically, both perfectionists and non-perfectionists experienced feelings of disconnection during the pandemic:

Even if I scroll through, say, an Instagram group chat. If you look before the pandemic, there were messages from every single person, every day, multiple

times a day. Now, you scroll down and there's a few messages here, there, whenever. And it's just disconnected. And I've talked to people and everyone just feels like they don't have anything to talk about, which is sad, but it's kind of the way things are. And so I think everyone's kind of disconnected. (Perfectionist, Female)

I find quarantine and covid and everything has made me super antisocial for some reason. Like I find I don't have a lot of motivation to talk to people, which is bad. But it's just kind of, you know, a thing right now. (Non-perfectionist, Female)

In both groups, these feelings of disconnection were largely credited to the pandemic-related restrictions, such as social distancing measures and online learning:

I'd say it was way more disconnected. You're disconnected from your teachers. You're disconnected from your family and friends because you can't see them. Everything's virtual. Seeing someone through FaceTime is completely different than seeing someone in person. [...] So it was definitely more of a disconnect. And the COVID-19 pandemic definitely hit hard in that sense because you're just checking up on each other on social media and nothing's really real anymore. The world seems so distorted and you feel like you're living in some fake simulation because everything was online. (Perfectionist, Female)

Even like if I want to approach someone, I don't know if they're okay with it because of like masks and stuff and staying six feet away. So I don't want to be rude or anything and get in their personal space. (Non-perfectionist, Male)

As such, most participants in both groups indicated that their social media use increased significantly during the pandemic – particularly during times when lockdown restrictions were in place in Ontario:

I think it has made me see how useful social media is, but it has also increased the number of hours that I spent on social media. It's just like a time passer when you have nothing to do and you're stuck in the house. It's also just a way to talk to people and friends and stay connected. Before the pandemic, I used to talk face-to-face and I wouldn't really text or call much. As much as I had social media, I wasn't posting much or using it. But now that's basically what you use to connect with people that – you know, school acquaintances or friends that you wouldn't normally call, you just text them as opposed to seeing them in school. (Perfectionist, Female)

Before the pandemic, I was probably using social media less often to communicate with my friends because I was actually meeting up with them in person. But now with the pandemic, I can say that I started using it more often

because maybe sometimes I couldn't meet up with them in person so that was my means of communicating with them. (Non-perfectionist, Male)

However, a greater proportion of the perfectionist group (68%) compared to the non-perfectionist group (38.9%) indicated that this increase was directly related to the use of online platforms as a tool to remain connected with friends and family. This finding, combined with the relative length and detail involved with their descriptions of connection and disconnection, as demonstrated in the quotes relevant to the pandemic above, further indicate a preoccupation with thinking about and making efforts to maintain relationships with others during the pandemic.

Altogether, these findings suggest that perfectionists and non-perfectionists demonstrate similar patterns with respect to their feelings of (dis)connection in both online and face-to-face contexts. In line with this, independent samples t-tests comparing the perfectionist group and the non-perfectionist group on measure of online and face-to-face connection did not reveal any significant differences (see Table 1 in Appendix M). However, perfectionists seem to have a greater preoccupation with thinking about these feelings, evidenced by their more detailed descriptions, the increased number of references to these feelings among this group, and the fact that a larger proportion of this group tended to make references to these feelings compared to non-perfectionists.

5.3.3. Social Media Use

Similarly, both perfectionists and non-perfectionists appear to use social media in parallel ways. This emerged both with respect to how they spoke about the logistics of their social media use in the interviews, presented in the current section, and through a series of independent samples t-tests comparing perfectionists and non-perfectionists with respect to items assessing their social media use that indicated no significant group

differences (see Table 2 in Appendix M). However, the interviews revealed that perfectionists seem to be thinking about their use, including their interactions with others and the way they post, differently than non-perfectionists.

First, perfectionists and non-perfectionists referred to the same three most prominent reasons for using social media: connecting with friends and family (*'It's just more like connecting with people that I actually see in person and connect with more and I have relationships with.'* Perfectionist, Male; *'I use Snapchat majority of the time. That's usually how I talk to my friends.'* Non-perfectionist, Female), creating and posting content (*'If I see something and I want to share it, I'll put it on my story.'* Perfectionist, Female; *'I don't post every day, but at least on one of the three stories, I'll post at least every other day.'* Non-perfectionist, Male), and as a source of entertainment (*'For Tik Tok, I'm not really communicating with people, just for my entertainment. And for Instagram – that's the one I use the least – I would say just for my entertainment as well.'* Perfectionist, Female; *'And then Tik Tok it's more like "Oh, what's this?" and you just keep scrolling to find something to keep me entertained.'* Non-perfectionist, Female).

With respect to communication with family and friends, although all participants in both groups indicated this was one of their main uses of social media, the perfectionist group spoke about using social media platforms as a tool to connect in a more in-depth manner. Specifically, every participant in the perfectionist group had at least two references to the use of social media to communicate with members of their social networks and they collectively made 119 references across 25 participants, compared to 41 references across the 18 non-perfectionists, suggesting that perfectionists are consciously putting in more effort to maintain connection with friends online.

With respect to interacting and connecting with friends, perfectionists and non-perfectionists exhibited several similarities. For instance, one way that roughly half the adolescents in both groups indicated they connected with friends on social media was through the use of a private Instagram or Snapchat story. A private story, whether on Instagram or Snapchat, was generally defined by participants as “a private account where I post about my private life with my friends – not really meant to get likes or anything, more like communicating what’s going on in my life” (Perfectionist, Non-binary). As indicated in this quote, participants in both groups who talked about having a private story most often referred to this platform affording them a way to share a more personal side of their identity online (*‘Probably more personal stuff, like I did post on my personal Snapchat story for friends when I wanted to send something to all of them.’* Perfectionist, Female; *‘It’s kind of like, you know, funny personal stuff where I can feel like I can be more myself.’* Non-perfectionist, Female), with their closest friends (*‘My close friends list will probably be like my sister, my two best friends and people that I feel know me a certain way that I don’t mind if I post something on that.’* Perfectionist, Non-binary; *‘Mostly the people I hang out with every day or like that I used to. They’re kind of the people that I’m super comfortable and share everything with.’* Non-perfectionist, Male).

Another similarity between groups with respect to online interactions emerged in relation to who they reported interacting with online. Specifically, over half of each group indicated that they interacted solely with people they know from their day-to-day lives (*‘I don’t have any friends that I met online.’* Perfectionist, Female; *‘I don’t have any friends that I met online. All of them are just, you know, I’ve met them in real life or at school or whatever.’* Non-perfectionist, Female), while the rest indicated they interact

with a blend of real-life and online friends (*'I have friends that I met online and I have friends that are in person.'* Perfectionist, Female; *'It's both. Like I interact with my friends online and then I do have like a few Internet friends. So those are people I haven't met in real life, but I consider us friends.'* Non-perfectionist, Female). In both groups, those who indicated they interacted only with real-life friends further highlighted that they felt it was important to have a face-to-face foundation in order to be able to connect with others online:

I would say that just being able to hang out with them in-person and talk to them in-person has made me feel like I'm missing something a lot less because I still probably text them the same amount that I would normally. But being able to see them in-person just makes a huge difference in when I do send those texts because it feels like it's not in place of seeing them in-person. (Perfectionist, Female)

Well I guess with my friends, it's easier both ways because we know each other, so we like to answer each other and we're interested about what we have to say and we're interested in helping each other. So either way, it works fine with my friends. (Non-perfectionist, Male)

Further, all the perfectionists (100%, 119 references) and most of the non-perfectionists (88.9%, 70 references) discussed, in-depth, the benefits of interacting with others in-person relative to online. The most common theme to emerge here among both groups was that in-person interactions feel more comfortable and more natural:

The face-to-face interactions I have with my friends are more comfortable because we can just be whoever we want, but on the online games we have to kind of watch ourselves and not share too much and we have to watch our every move. You have to watch everything. But I feel like face-to-face interactions are the best because me and my friends, we would just go on walks and we would be ourselves and we would do whatever we want. (Perfectionist, Female)

Just because online it's kind of awkward for us to all like see our own faces, in a way. Because, you know, most of us are just used to walking and just talking together. So yeah, it's definitely much better to actually talk in person. Just because it's awkward when you're trying to explain something to someone and it's online and all of a sudden their Wifi cuts out, you know? (Non-perfectionist, Female)

Further, both groups indicated that their in-person interactions tended to be more meaningful and more personal compared to their interactions online:

I think face-to-face are deeper connections. I think in texting and stuff you can connect but it's almost a bit detached from the actual person because if you don't have a face-to-face connection then you're just like – if you're talking to a screen, sometimes it doesn't seem like you're really talking to the person you're talking to. It feels a bit like it could be anyone, like it's not specific to that person. (Perfectionist, Male)

I would say, just in terms of having a meaningful conversation, I think in-person is a lot more balanced than online. I feel like just because it's more like you're more present in an in-person conversation, it's kind of more balanced, if that makes sense, than you would be online. Sometimes online I feel like it's just more one sided. (Perfectionist, Female).

However, the perfectionist group uniquely emphasized (68%, 23 references) that they prefer in-person interactions due to the increased ability to express and interpret non-verbal cues in face-to-face contexts, whereas only a few non-perfectionists (22.2%, 4 references) mentioned the presence of non-verbal cues as a benefit to interacting with others face-to-face:

It's easier to talk to someone in-person. And online, it doesn't feel like they could be listening as well. Do you know what I mean? Like if you're reading a text, then you're just reading the text. You can't really respond with facial expressions or anything like that. (Perfectionist, Female)

It could be a bit harder because when you text something, it could be like – with your expression that you use over text, saying that word can be different. So when you just text it, you don't know what the other person's reaction was to it. But with face-to-face, you can see the other person's reaction and how they react to what you just said. (Perfectionist, Female)

Finally, the non-perfectionist group was able to identify some relative benefits of the online context, such as more control,

I feel like on social media you can control a lot. Like for example, the private story, you can easily just post things and only have people you want to see, see it.

Whereas in person, if there's lots of people around, anybody can see or hear whatever you're saying. (Non-perfectionist, Female)

and more confidence,

On social media, I'll talk to anyone. It's cool, it's whatever. But if it was just a random person that I see in person, I will go up to them but I won't be as confident as I would be on social media. (Non-perfectionist, Male)

whereas these themes generally did not emerge for the perfectionist group.

Further, both groups discussed how the logistical context of social media platforms shaped their interactions with others, albeit in slightly different ways. On the one hand, non-perfectionists spoke about logistical considerations in a more general sense and were able to identify both logistical advantages (*'A lot of people who I talk to online, I can't really talk to in-person because they live in other countries and stuff.'* Non-perfectionist, Female) and disadvantages (*'Online, if you have too many people, there's a constant loud noise of everyone trying to talk at once. And you can't hear everyone. So we're not really connecting, we're just kind of yelling and hoping people hear us.'* Non-perfectionist, Male). Perfectionists, on the other hand, tended to focus on the logistical disadvantages of the online context and linked these drawbacks to a feeling of lacking control over their interactions with others online (*'If I want to get a hold of somebody and they're not answering, then that's out of my control. Like I can't just walk up to them and talk to them, which is hard.'* Perfectionist, Female).

Along a similar vein, perfectionists (60%) spoke of a lack of control in online spaces more often than non-perfectionists (33.3%). However, despite expressing how they feel they lack control more often, perfectionists (80%) simultaneously discussed making active efforts to curate and control the way they interact with and present

themselves to others online. Most of these references spoke generally to how they attempt to do so:

Your only perspective of me is what I'm posting and what is on my page or my story or what I'm saying in my messages, right? So you get my personality but if this was someone I don't know, or someone like a teacher or, let's say, you, I'm going to be a lot more respectful in my emails and things like that. So everything is like laid out. (Perfectionist, Non-binary)

Even like certain posts on my story, I'll put quite a bit of effort in because there's a lot of judgment online and you don't want to be judged by people online. So I think you try to, you know, make an effort so that doesn't happen. Because you don't know if it's happening. (Perfectionist, Female)

Occasionally, perfectionists linked their attempt to control their interactions and posts to their sense of connection with others online. Some participants linked their attempts to control their online engagement with poorer connection,

When you have the time to think about what you want to say back – yeah, so you kind of have more time to think about it than if you're just talking to someone back and forth. So I think that's probably it. Like that's probably why I think there's a little bit less connection. (Perfectionist, Male)

while others linked this sense of control to better connection with others,

If it's a new person especially, because I know that they don't know me, they might not know what I look like, I can just kind of say whatever and then you just kind of act happy, even if you're not. So that way it's easier to connect with people. (Perfectionist, Female)

In contrast, relatively fewer non-perfectionists (56%) discussed making active attempts to control the way they interact with people online and the way they present themselves to others on social media. However, those who did talk about it, tended to bring it up multiple times across their interviews (35 references across 10 participants). Unlike the perfectionist group, non-perfectionists tended to discuss this increased control in online spaces without linking it to their sense of connection. Rather they tended to stick to describing the curation of their posts and interactions in a general sense:

When I say something, it's like 'eh', I just post it. But I make sure I'm conscious of what I'm trying to portray too. So like I'm not going to post a random thing like 'my dog died today!' with a heart emoji. (Non-perfectionist, Female)

On Instagram and Snapchat, I guess it's not necessarily that I want to appear perfect, but I want to appear – like I want it to be conveyed exactly how I want it. Does that make sense? I want my image to be exactly what I want it to be for other people. (Non-perfectionist, Female)

With respect to what the adolescents in this sample chose to post online, perfectionists and non-perfectionists both identified the same three most prominent categories of posts: highlight reel posts (*'I mainly express like whenever I'm feeling excited or, for example, if I'm celebrating a certain thing.'* Perfectionist, Non-binary; *'I'd post an award I have gotten for maybe school or dance or something else or like an achievement that I made that contributes to something in my life.'* Non-Perfectionist, Female), authentic or free expression (*I want to make it authentic and real [...] I want it to kind of resemble me and what I've done or some things I enjoy doing.'* Perfectionist, Female; *'I definitely try to keep it basically how I am in real life.'* Non-perfectionist, Male), and sharing content related to their interests (*'If there is something going on with things I'm interested in, like there's a new Gossip Girl reboot coming out today, so I'm tweeting a lot. [...] If it's Twitter, I'm expressing how I feel about pop culture stuff.'* Perfectionist, Female; *'I create hockey content because I'm a Montreal Canadiens fan, so I create stuff on there and I've grown a lot because I started it last month. So I have created a lot of content since then.'* Non-perfectionist, Male).

However, when discussing how they decide what gets posted online, the perfectionist and non-perfectionist groups exhibited both convergences and divergences, indicating that perfectionists versus non-perfectionists may be thinking differently about

posting in some ways. First, with respect to similarities in deciding what to post, roughly three quarters of the participants in each group discussed image considerations,

I don't want to be seen as the rude person. I would rather be seen as more uptight – not uptight, sorry – like put together kind of person. So I feel like I wouldn't want to make a post that would make me look bad as a person. I want to look as kind and as put together as I can on social media. (Perfectionist, Female)

I'm pretty conscious of watching how I am portraying myself from an outsider – like a third party. I know that's important. And I wouldn't want to portray myself in the wrong light. So I would say I'm pretty mindful of that. And I feel like that even controls how much I'm posting because, you know, I don't want to overshare and stuff. (Non-perfectionist, Female)

while over half of each group mentioned choosing images to post based on confidence and which pictures they personally preferred (*'And it's mostly because I know I look good in those pictures, so I like it enough. And I don't really need other people's approval when it comes to liking my own pictures.'* Perfectionist, Non-binary; *'It's more so I just want to post this because I think me and my friend look good in it or I want to post this because I like it.'* Non-perfectionist, Female). Further, choosing posts based on perceived social rules about posting came up in both groups, however it was more prominent among the perfectionists. Indeed, roughly 70% of the perfectionists referenced social rules when deciding what to post, compared to under half of the non-perfectionists. Specifically, these adolescents appeared to be quite focused on following cues from other people about what is worth posting. These cues ranged with respect to how explicit they were; in some cases, adolescents directly asked others which pictures should be posted,

A lot of the time, if I'm debating between certain pictures to post, I'll actually consult with my friends and be like 'Which one do you like? What's the better one? What do you think I should caption this as?' Like it's a lot of social influence for that type of thing. My closest friends, I'll ask. Because I know they'll give me an answer that's not biased. They're not going to be like 'Oh yeah, post that one' and have it been a terrible picture. So yeah, a lot of the time I'll just ask other people what their ideas are on that. (Perfectionist, Female)

Usually when I was posting on Instagram, I'd ask my friends what one looks better to post. (Non-perfectionist, Female)

while in other cases, adolescents interpreted social rules surrounding posting by gauging what other people are posting online,

If I'm with my friends and they post it, then I'll post it. Because I have that like – they're doing it do it must be okay to put on there. Or like if they post it, then I'll just repost it on my story. But I don't really do anything of like myself personally. (Perfectionist, Female)

And I'll post it if other people are posting it. About like a repost or whatever, I'll probably post it. But I wouldn't repost something that nobody else is reposting. (Non-perfectionist, Female)

and monitoring the feedback they receive on their posts to determine which are being best received by their followers,

I know if I'm posting in a bikini or something like that – something more scandalous, I'd say – then I know I'm going to get more likes because I can tell from my phone what I get the most likes on. But if it was just like a photo of myself, it wouldn't get as many likes. So I do kind of know. And it's sad, but it's true. (Perfectionist, Female)

I would say that I do in the sense that if I notice that maybe if I post more, you know, like the nature-y content or like a picture on vacation, that doesn't receive as many likes as like a self or whatever. Then I would think 'Oh, people are more attracted to seeing pictures of myself. (Non-perfectionist, Female)

Finally, some perfectionists (36%, 18 references) uniquely mentioned posting specifically to seek validation from others:

The more I post and the more likes it gets, the more it's seen by other people and the more people that are willing to help me with something that maybe I'm struggling on, same with Discord. There's a whole thing about that on Discord. But yeah, positive feedback is definitely something that I post to get. (Perfectionist, Female)

I think I used to do that a lot more and rely a lot more on wanting that positive feedback from people. I think now I post less for that and more so for myself. But yeah, there's still definitely -- that definitely plays a part in it. (Perfectionist, Female)

Notably, this sub-theme did not come up in the non-perfectionist group with respect to how they decide what to post.

It is worth noting, that regardless of the reason for posting, perfectionists made far more references (159 references across 22 participants) to their rationale for posting relative to non-perfectionists (69 references across 15 participants). In line with this finding, almost half of the non-perfectionists mentioned not putting a significant amount of thought into what they post (*'Usually my main channel or account would be posting about games. If you get an idea, just might as well post it, see what happens.'* Non-perfectionist, Male), compared to only 16% of perfectionists. Altogether, this suggests that perfectionists tend to put more thought into what they should versus should not post online compared to non-perfectionists, who exhibit a more casual decision-making process regarding their social media posts.

One final group difference with respect to posting on social media emerged with respect to the way perfectionists versus non-perfectionists talk about the importance of the likes and comments they receive in response to what they post. Twenty-four percent of perfectionists indicated that likes and comments are important and carry meaning:

I like to leave it for an hour and then look at it. But when I do finally cave in, it's like a constant scroll of updates to see "Oh my gosh, how many am I getting a second? How many am I getting a minute?" And this is also important to add – for me, if I post a photo and it's been posted for seven minutes, let's say, then I would expect more than seven likes. I would expect myself to have more than a like a minute. And then in my head, I feel accomplished when that happens. So that's just something else important. [...] Whereas in comments, it's very dependent on "Who commented on this post? Who commented on my post? What are they saying? Is it good feedback? Is it bad?" (Perfectionist, Female)

Considerably greater proportions of the perfectionist group referenced a more neutral or casual attitude towards likes (68%; *'I don't think I really check very often because I don't*

post very often. But like I do check – I would say the next day, I would check and see.’

Perfectionist, Female, Early) or framed likes as unimportant or lacking meaning (56%; *‘I don’t really care about likes. They don’t mean anything.’* Perfectionist, Female), respectively. However, of the 20 perfectionists that made references to the importance of likes, 15 participants fell in at least two of these categories, suggesting some contradiction with respect to the way the perfectionists talk about likes. Indeed, despite most references in relation to likes indicating nonchalant attitudes towards likes and comments, validation via likes and comments emerged as a significant theme among the perfectionist group:

If I post it and I’m really excited and other people are excited with me and it blows up, that makes me feel really good and I’m going to go to bed smiling because I’m like ‘Yeah, that was a good time in my day.’ (Perfectionist, Female)

If not many people like it, then I can assume that ‘Oh, maybe this is the wrong message’ or it didn’t really come across as great. And if it does get quite a few likes, I can think of ‘Maybe this was something good to post’ or ‘Maybe this means I am more interesting now.’ (Perfectionist, Male)

Further, an emergent sentiment unique to the perfectionist group was that of reluctance towards admitting that they value positive feedback online and seek validation via likes and comments on their social media posts:

You do want people to like your posts and stuff, but I don’t entirely care about what others mostly think. But there’s still an aspect of how many likes you can get, how many comments you have and the positive feedback and stuff. (Perfectionist, Female)

I do hide my likes, that’s an option now. I do hide my likes because I get – I do – if I’m being honest, I do get embarrassed when I’m like ‘Ugh, I only got 300 likes and this person got like 700.’ And then the comments too, I’m always like ‘Ugh, I shouldn’t look at my phone’ – like this is honestly what goes through my head: I post something on Instagram, then I think I shouldn’t look at my phone for like an hour. Because then after an hour when I do look, it will seem like I have a lot of likes, a lot of notifications, and a lot of comments. When in reality, I couldn’t care

less. But in the moment – oh my gosh, one hundred percent, I do care about that.
(Perfectionist, Female)

In contrast, just under 30% of the non-perfectionist group indicated likes were important to them (*'When I see a video that has 200 likes, which has happened to me before – which is my most liked video – I go 'Wow, that's an accomplishment' because I can't believe 200 other people like my video'* Non-perfectionist, Male), while the majority indicated likes were unimportant and did not carry any significant meaning (*'Not anymore, but they used to be important to me.'* Non-perfectionist, Male). In the non-perfectionist group, only 2 participants fell into more than one category. Further, validation via likes and comments emerged among the non-perfectionists,

When I take pictures and I felt like I looked really good in them, I wanted to post it so I could feel better about myself. And then once other people see it, it just makes you feel better once you know 'Aw, I look really nice in this picture.'
(Non-perfectionist, Female)

but not as prominently as with the perfectionist group. Finally, this group did not exhibit the same reluctance to admit they enjoy receiving positive feedback online. Altogether, these findings suggest that perfectionists appeared to have conflicting feelings about the importance of receiving positive feedback from others online, exhibited by contradicting references about the value they attach to likes and comments on their social media that seemed to be fueled by a reluctance to admit they value such feedback. This paradox did not clearly emerge in the non-perfectionist group.

Altogether, comparisons of the theme of social media use among perfectionists and non-perfectionists highlight that they are largely using online platforms in similar ways. However, differences emerged between these two groups with respect to the ways in which and depth with which they think about their online engagement.

5.3.4. Perfectionists' Anxiety and Concern Surrounding Online Engagement

The first two themes highlight how perfectionists and non-perfectionists demonstrate similar patterns with respect to their feelings of connection in both online and in-person contexts as well as the ways they use social media but that perfectionists appear to be thinking about these things at a deeper level and in slightly different ways. One potential contributing factor to these differences is captured by the third theme, anxiety and concern surrounding online engagement. This theme was extremely prominent in the perfectionist group (96%; 176 references). Indeed, the only participant who was not captured in this theme was the only perfectionist who indicated they did not use social media. In contrast, these sentiments only came up among 67% of non-perfectionists and these individuals discussed feelings of anxiety and concern surrounding online activity far less often (21 references).

More specifically, perfectionists' references to anxiety and concern over online engagement can be thought of in two ways: worry surrounding online interactions and relationships (84%; 67 references) and worry surrounding identity and impression management (92%; 109 references). With respect to the former, worry related to interactions and relationships tended to manifest in a couple different ways. First, perfectionists expressed concern surrounding the relative anonymity of online contexts and often discussed online obscurity as a potential threat to their privacy and safety:

So, you know, on Tinder, dating apps, you swipe through and you see someone that you like. But when you actually meet them, it's a completely different person or it's just like the angle of the camera made them look better or different. And then you go and meet up with them and in real life that's not the same person, you know? So that's called catfishing. Sometimes it can just be like funny, in way, like 'Oh wow, you're not that person'. Or sometimes it can also be dangerous, you know? You never know who's behind the screen. So that's the danger of catfishing. (Perfectionist, Male)

It's more so because there's strangers online that – you never know, there could just be these like 60-year-old men or like 60-year-old women that are just trying to be really creepy on these games. There's just like a lot of creeps on these games. Like I've heard stories of these people that have friended like these online people and then they found out where they lived and stalked them and everything. So I'm really careful on what I'm saying, like I don't say anything that could be possibly be traced back to me. (Perfectionist, Female)

Further, perfectionists appeared to be quite worried about upsetting or offending others in online spaces. They were conscious of considering other peoples' feelings and wanted to make sure that they were treading carefully so as not to make waves online:

I don't like to interact with people a lot for the fact that if I say something and it's not the right thing to say, then something's going to happen. [...] When someone posts about a certain subject and I respond with something, I don't know how that person is going to take how I respond to it and how they're going to think of like a tone or how I say it or how it sounds. So I just don't like to comment that much. (Perfectionist, Non-binary).

If it's somebody I don't talk to often, then I'll like think of it a bit to see if I'm coming off as rude cause with my friends I can joke around with stuff like that but I don't know if they can take a joke like that. (Perfectionist, Female)

Similarly, perfectionists commonly brought up concerns surrounding potential miscommunication in online contexts. Again, the concerns about miscommunication tended to be linked to concern about upsetting others or hurting their feelings:

Sometimes things can get – at least I definitely experience this – things can get misunderstood over text because it's not as easy to clarify like if you send something and then someone responds and they think about it before they respond so they already have an idea of what you said even though that's not what you meant. But if it's in person it can be more of a conversation, it's easier to figure out. But yeah, at least for me, I definitely send misleading messages online I think and I think I'm not that misleading in person. Because I'd say I'm pretty – like sometimes I'm a dry texter but that's just part of what I'm like, I'm just kind of a dry person, I like a very dry humor. So then it's harder to convey that online without sounding like a jerk sometimes. (Perfectionist, Male)

I can be a little awkward when I text, I just don't know what to say and then there's a lot of miscommunication versus like you can't really convey feelings over text. Like you could send a text and it's like “Oh, this sounds aggressive”

when, you know, it didn't mean to sound aggressive [...] it's just a miscommunication of feelings. Like I said, I could send a text and I could sound aggressive, even though I did not mean it that way and someone might find it aggressive. Or someone finds it a little unemotional, you know? It normally just depends on who reads it, I guess. (Perfectionist, Female)

Finally, perfectionists demonstrated significant anxiety surrounding how interactions may go and are going. They reported both being worried about the quality of future interactions and of having difficulty gauging ongoing interactions to determine whether it was a positive social interaction or not:

I'm a big over thinker so I always think ahead and think like – even if I don't know the person – I'll think about 'Oh, what are they going to say? Will they think it's weird?' Even myself, I think it's awkward starting a conversation, even with my friends. But with new people it can be kind of hard, as always. It's cause I just think about what people are going to say and I just don't know how they're going to feel. If they're going to feel awkward, I'm going to feel awkward. I just don't know how it's going to go. So I always overthink about the situation that might happen, even though it has not happened yet. (Perfectionist, Female)

I have admittedly gotten myself into trouble multiple times because I can't see those things. I tend to misunderstand things, especially as someone who has problems with that in real life. It's just hard to tell whether they're being sincere, sarcastic, genuine; if they're mad or they're angry or they're joking around, or they're happy. (Perfectionist, Female)

As mentioned above, perfectionists' anxieties and concerns surrounding online engagement also extended to their expression of their identity and their efforts to manage the impression they are giving off in online spaces. More specifically, perfectionists conveyed worry surrounding what their interactions portray about their identity,

For me, I want to put on a good impression when I'm online because I don't want people to think I'm a bad person when I know I'm not. And it upsets me when people assume something about me and it's not true and I know it's not true. So I try to put the best person I can about myself out there. (Perfectionist, Female)

If it's somebody I don't really know, then I'll take longer to make sure the spelling is good. And it's like correct and I use like full words and – yeah, I guess I just really think through the answer to kind of be polite and stuff. (Perfectionist, Female)

I think on social media you have to be careful in what you say to other people because on Instagram, for example, the large following. Well not large but I have a following on Instagram more than I do on Snapchat. So when I reply to someone, I don't want to look like 'Oh, that seems so bad if I reply back to this comment in this way.' Because I don't want people to think I'm weird. Again, the judgement part on that. And then comments as well, I usually will reply to them. And I think I have a set list in my brain of what to say back to comments. And I use that exact set – like a “thank you”, something like that -- I use the exact same thing because I don't want to do something different and, once again, be judged online. (Perfectionist, Female)

and what their posts say about who they are as a person,

I don't want to be posting anything that makes me look like a bad person. I would rather post things that make other people want to follow me. Like I don't want people to think badly of me. [...] I don't want to be putting people in an off state, I'd rather make them feel comfortable around me and not be scared of me. (Perfectionist, Female)

I don't want people to ever get the wrong idea about me, especially because cancel culture is so horrible or whatever. I know people can see what I'm saying [...] so it is curated and I'm not going to put every single thought I have or comment on every single world tragedy because I don't want future employers to see it or someone that could be a potential friend. Where I had like one thought that they don't agree with five years ago and all of a sudden there are ruined opportunities. (Perfectionist, Female)

I guess to make myself – well because I want to make myself look like a good person so I don't do anything stupid in a post or like do anything that would get backlash or whatever [...] I guess just kind of like going with the flow and just like not doing anything that's going to upset certain people. (Perfectionist, Male)

Moreover, concern surrounding interactions specifically, whether in reference to the nature of the on-going relationship with the other person or their portrayal of self via interactions, appeared to be largely driven by the lack of social cues in online contexts. Their accounts indicate that perhaps they rely heavily on non-verbal cues and social feedback during their face-to-face interactions to both express themselves and to read other people to gauge the quality of their interactions and, in turn, their relationships with others. Indeed, they indicated that their increased ability to provide social cues in in-

person contexts helps mitigate difficulties expressing their tone and emotions to other people and, in turn, helps them to avoid potential miscommunications:

I'd say in-person. Because it's the expression in your face and it's all that stuff. Because when you're saying something through text, you could say it but then the other person could not quite understand. They could think that you're doing a different expression almost. They might think you're doing something mean or trying to say something mean. (Perfectionist, Female)

In-person I feel like you can get more extraverted, you can definitely be a lot more engaged with the other person. Whereas online it's more of whatever you say through text and it doesn't clearly convey your emotions and your personality isn't really coming through as much. So it's like the person on the other side, they're less able to tell what you're trying to say and what you're trying to express. And I feel like it's a lot harder to communicate than just in person. It's a lot easier, there's definitely alternate ways of saying stuff. They can kind of see your body language and all that stuff, which comes together (Perfectionist, Male)

In addition to acknowledging that they are better able to provide social cues to their conversational partners face-to-face, perfectionists also highlighted that the social cues provided by their friends and peers in in-person contexts allows them to get a better sense of other peoples' true intentions and emotions. As such, the clear social feedback available for interpretation in face-to-face seemed to help assuage their anxieties surrounding how the other person is perceiving the quality of the interaction:

I've asked a lot of people like 'Hey, you didn't mean this in a mean way, right? Like you were – your text sounded mean, like you sounded sad.' With texting, I'm always second guessing myself how they're really feeling. While with human interaction, I'm like 'Yeah, I know how you're feeling because I can see it on your face'. (Perfectionist, Non-binary)

I find social media interactions more awkward than in-person interactions. I know that's not the case for some people but I like to talk to you in person because sometimes it's difficult to tell what a person actually thinks online. And I tend to be a bit of an overthinker. So social media communications are not my favourite thing because there's so much that you can interpret from a text message. But when you're hearing someone talking and seeing their facial expressions, it's a lot easier. (Perfectionist, Female)

Altogether, the quotes presented in this theme highlight that at least one contributing factor to differences in how perfectionists think and talk about their experiences of social connection online and their social media engagement compared to non-perfectionists, is anxiety surrounding the nature of their online engagement, with respect to the quality of their interactions with others as well as the image they are putting out online. As highlighted above, these worries seem to be fueled, at least in part, by the lack of social cues in online contexts that perfectionists appear to rely on in face-to-face contexts to confirm that they are having positive and meaningful interactions with others and that they are leaving their intended impression on the people they interact with.

5.3.5. Impact on Perfectionists of Being Rejected and Not Fitting In

Overall, the three themes discussed above align with the central tenets of the PSDM in online spaces, whereby perfectionists demonstrate greater feelings of disconnection online compared to their non-perfectionist peers. However, there was a subgroup of perfectionists that emerged who demonstrated a divergent pattern of connection with other people online. Specifically, five participants in the perfectionist group indicated they felt well-connected to people they met online:

So with the online people, a lot of those people I would actually hang out with in real life, the only issue is distance. Some of these people are in like the Philippines. I'm like 'We can't visit, that doesn't work.' And the people I interact with online are more so people I choose to write, versus a lot of time in person it's just who was there. So it's a lot more curated. And we get to talk about things that we are actually interested in and we actually share in common. (Perfectionist, Female)

Sometimes I can be really connected with someone and like have a really nice conversation with them. But my mom doesn't necessarily like it when I find random people online because, you never know, they could just be acting like a 13-year-old to be friends with you. So yeah, it's nice to have a good conversation once in a while, but I'm not going to friend them and get really close to them – unless my mom approves. (Perfectionist, Female)

We met on Reddit. And it was through the subreddit but it was a weird thing. It was like – you know when you meet someone in real life and you just feel like this little click and you’re like ‘I immediately like this person’? It was kind of like that. And I just met her. And I’m like ‘You know what? I can already tell that you’re like a really good person.’ So we started talking every single day.’ (134, Perfectionist, Female, Early, 37:47)

Online. Like the ones I met online and then seen in-person, I haven’t really – yeah, a couple sentences here and there, but not like a full blown how you would talk online kind of thing. So probably more connected to the people who just stay online. (Perfectionist, Female)

I met some of my best friends through an online video game, believe it or not. [...] It became this consistent routine where I was playing this online game with them and we would kind of bond through the game and have fun and play around. And then eventually we started taking part in like other interests, like other video games and watching anime and movies together. (Perfectionist, Non-binary)

Interestingly, these same five participants also referred to a lack of connection in person, that ranged from an acute fear of being rejected to feeling like they do not fit in with face-to-face peers to bully victimization:

I’d say when it’s in person – well a lot of the time in-person, I’m not with the people I actually have like the deepest connection with so a lot of things are more surface level. And then on social media, I’m kind of more actually talking about things I have like opinions on. (Perfectionist, Female)

I’m sometimes shy in-person. Like making new friends is easy for me because I’m generally an open-minded person and I’m willing to make new friends but... if I’m not that close to you I’ll still be kind of awkward. Like my old friend group, they weren’t the nicest to me, they had been bullying me. (Perfectionist, Female)

I don’t really hang out with them at break. I don’t really speak about my interests because I had more than a few times where I have spoken about my interests and it was immediately ruined by my friends through some inappropriate joke or just straight up concerning comment. Then I would just – I like slowly retracted into myself. And I’m like ‘Alright, that’s the end of sharing my interests with you.’ [...] I don’t feel that they deserve to know about what I’m interested in because I know that they will use it the wrong way. Or I’ll end up feeling really weird because they’re all in one group and I’m over there alone. (Perfectionist, Female)

Just like the fear of judgment, I guess. I’m trying to get over it but like the fear of like, you know, if I fail, what happens after that? I think it comes from general

society – like just being raised to think like others’ opinions really matter [...] Like that need to fit in, but if they judge you maybe you won’t fit in, and you’ll be an outcast. (Perfectionist, Female)

It’s like you kind of have a hard time connecting with them. And it could be because you two just aren’t a good fit for each other and figuring each other out. It normally happens with me with neurotypicals where a lot of times I’ll have a hard time interacting with them. Or like straight cis people when they don’t know how to use my pronouns or like they don’t really understand LGBTQ stuff. (Perfectionist, Non-binary)

As demonstrated above, each of these participants were at different levels with respect to how much they felt like they had been rejected by those around them or that they did not belong. However, in each case, the lack of connection felt in-person by each of these participants seemed to push them towards an inclination towards seeking out social networks with people they met online. It is worth noting that there were a handful of non-perfectionists who discussed feeling connected to online friends as well. However, these adolescents did not discuss feelings of rejection or lack of belonging in face-to-face contexts. As such, it does not appear that non-perfectionists are using online platforms to make up for a lack of connection in the same way that this subgroup of perfectionists are. Indeed, when non-perfectionists create online-only relationships it appeared to be in addition to, rather than in place of, face-to-face connections.

Further, these five participants spoke in-depth throughout their interviews about forging meaningful online-only relationships (21 references). Notably, a theme that emerged among most of these participants was the idea that they use online platforms to connect with a broader pool of people who share their common interests:

The main thing I use social media for is to interact with people I don’t know in my real life. So I mainly use it to interact with thing I like so I’ll talk to people about celebrities or music or TV. (Perfectionist, Female)

So online is almost like you can make different friends, like you can make friends that are older, you can make friends that are younger. You can make friends that live across the world. [...] It's a lot of kids from like 7 to 13 that play that game. So you honestly connect with people really easily, like you can connect on the games that you like. (Perfectionist, Female)

People on these platforms, most of them are my friends and many of them are really friendly. So I feel a lot more connected, especially when I'm linked to a certain group of people who share the exact same interests as me. (Perfectionist, Female)

And we got each other's social medias – other social medias, rather than just Discord – and we started following each other on there and created this group chat so we can talk about anime. But then we started adding more people to the group and it just started becoming a group chat away from the main Discord server of the close knit people. (Perfectionist, Non-binary)

In addition to being able to connect with a wider range of people, these perfectionists were able to identify several benefits of online communication compared to in-person, whereas these did not significantly emerge for the broader perfectionist group, as indicated in the theme related to social media use. Specifically, they talked about it being easier to connect with others in online spaces, compared to in-person environments,

If I see someone say something I can just respond and then there's a conversation and then we could keep talking and be friends versus in person you have to actively go up to somebody. And just because they're in public doesn't mean they want to talk to you. Versus if you're on social media and they're posting something, it's sort of an open invitation to interact. (Perfectionist, Female)

It's easier to make quick friends online and it's not really that awkward, but in-person it's a bit more awkward. And like you really have to dig deep to see what you can connect with. (Perfectionist, Female)

It's just so much easier to connect with people than it is in real life where I'm surrounded by people who don't really share the same interests as me and frankly don't care. (Perfectionist, Female)

and mentioned that they tend to have more confidence when interacting with others online compared to in-person,

[In-person] is a bit harder cause it's not as easy to approach people. But online is a bit more, you know, they can't see you and I think humans in general have that safety when you can't really see the person, you're a bit more open to contacting people. [...] Probably the insecurity is the biggest part in what makes it easier to talk to people online versus actually approaching someone [...] I want to say for me it's like, what if they look at me and they're like "Oh, she's not who I thought she was". But behind a screen if you say the wrong thing, you can maybe cut off connection and they won't even know who you are. (Perfectionist, Female)

I can't look people in the eye. So that's one. But I feel like I act the same. I mean, I know I'm a little bit more bolder online, so I'm more likely to kind of stand up for myself when I'm online. (Perfectionist, Non-binary)

Finally, it is worth noting that in several places throughout the other three themes discussed above, these participants did align with the rest of the perfectionist group with respect to the way they think about social media. For instance, each of these participants made references to feelings of anxiety surrounding their online interactions and the way they present themselves on social media and most of them referred to problems associated with the lack of social cues online. Altogether, this suggests that it is not necessarily that they prefer the online context for interacting with others, but rather that they are seeking a place where they fit in or are less likely to be rejected, in response to actual or anticipated rejection experiences in the face-to-face contexts they find themselves in.

5.4. Phase One Discussion

Phase One of the current work offered a number of critical insights into the nature of how young self-identified perfectionists think about and experience social connection in both in-person and online spaces. First, perfectionist and non-perfectionist teens largely demonstrated similar patterns with respect to their sense of connection as well as their social media use. Specifically, both groups reported being relatively disconnected

online compared to in-person. With respect to their social media use, perfectionists and non-perfectionists shared the same reasons for using social media and same categories of things they post online. Further, the two groups were similar in their use of private stories and who they are connecting with online (i.e., real-life friends only versus a blend on real-life and online friends). Finally, both groups acknowledged how logistical aspects of the online context (e.g., delays in response time, ability to connect with people across the globe) shaped their online interactions.

These similarities were supported by independent-samples t-tests which indicated no differences between groups on any of the survey items gauging social connection and social media use (e.g., hours spent on social media, number of friends on social media, number of social media platforms used, importance of likes). However, these findings should be interpreted with caution given that these tests were underpowered as a result of a relatively small sample size. More nuanced findings may have emerged in a larger sample size. Indeed, some of the effect sizes were sizeable (e.g., Cohen's d for Number of Friends = -0.28) and likely would have reached statistical significance in an appropriately sized sample. As such, the results from the independent-samples t-tests in Phase One should be considered for descriptive and preliminary purposes only. Future work should continue to explore potential differences between self-identified perfectionists and non-perfectionists with respect to social connectedness in online and face-to-face contexts as well as their use of social media platforms.

Despite largely exhibiting similar patterns, there were a number of notable differences that emerged between groups with respect to how perfectionists versus non-perfectionists think about how connected they are online and how they perceive their use

of social media. With respect to their sense of connection, perfectionists talked about experiencing disconnection online more often, in more detail, and with more emotion-laden language. This suggests that perfectionists are more disconnected from others online in relation to their non-perfectionist peers. This is in line with Hewitt and colleagues (2017b) hypothesis that the pattern of heightened social connection amongst individuals higher in perfectionism will replicate in other contexts. It is possible that this effect is driven primarily by SOP and PSP, given that the perfectionist group was higher in these two facets. However, it is again important to keep in mind that these tests were likely underpowered due to the sample size. Indeed, although there was no significant difference between groups with respect to SPP, there was a moderate effect size (Cohen's $d = 0.55$) that would have likely been significant in a larger sample. As such, for Phase Two, it was expected that all three facets of perfectionism examined in the current work would be linked with lower levels of social connection in both online and in-person contexts. In turn, it was expected that this weaker sense of connection to others online and in-person would predict higher levels of depression, in line with the theoretical tenets of the PSDM.

There were also a number of differences that emerged in the way perfectionists versus non-perfectionists think about interacting with others and posting online. With respect to comparing online and in-person contexts, both groups emphasized that in-person interactions were more comfortable and more meaningful. However, perfectionists uniquely identified that they prefer in-person interactions due to increased social cues facilitating these exchanges, while only the non-perfectionists tended to identify advantages to the online context. With respect to logistical considerations of the

online environment, perfectionists tended to link logistical disadvantages to a lack of control whereas non-perfectionists discussed both advantages and disadvantages without explicitly linking them to their sense of control over their interactions with others.

Extending the theme of control in online contexts, perfectionists expressed a lack of control online more often and placed a greater emphasis on curating their interactions and presentation of self via social media compared to non-perfectionists. Interestingly, this finding both aligns with and diverges from previous research. Previous research has suggested that individuals higher in perfectionism appreciate the additional control afforded to them by the logistical aspects of online communication contexts (e.g., temporal flexibility, reduced nonverbal cues; Casale et al., 2015; Fioravanti et al., 2020).

The present work suggests that although perfectionist adolescents appear to be more inclined to try and take advantage of these logistical aspects to exert more control over their social interactions, they also seem to be acutely aware of the fact that other people are equally able to use these logistical controls which ultimately leads them to feel as if they are unable to control these situations.

In relation to decisions about posting on social media, both the perfectionists and non-perfectionists talked about image considerations, confidence and personal preferences and social rules, particularly with respect to the cues they receive from other people. However, the discussion of social rules was particularly prominent among the perfectionists. Additionally, perfectionists uniquely discussed validation-seeking as a reason for posting and made significantly more references to the rationale behind their posting compared to non-perfectionists. Finally, perfectionists provided more nuanced accounts of their feelings towards likes and comments online, whereby they tended to

dismiss their importance on the surface level while simultaneously expressing a sense of validation through positive feedback on social media and a reluctance to admit that they do value and/or seek out such feedback. Altogether, the group differences in both social media use and sense of connection to others suggest that perfectionists are thinking about and evaluating their interactions with others online, including their direct interactions and the way others are perceiving their posts and online personas, at a deeper level than their non-perfectionist peers.

Indeed, this idea that perfectionists are more preoccupied with reflecting on and assessing the quality of their interactions was represented in the third theme, Perfectionists' Anxiety and Concern Surrounding Online Engagement. Importantly, this finding appears to be a key contributing factor as to why perfectionists feel more disconnected online compared to non-perfectionists. Specifically, the adolescent perfectionists in the present sample were uniquely focused on gauging whether or not they were saying and doing the right things online, both in their interactions with others and in the ways they were expressing themselves and portraying their identities online. With respect to interactions, perfectionists appeared to be highly sensitive to other people's feelings online and were especially concerned about potential miscommunication conflicts online. As such, they were extremely concerned with evaluating their interactions with others in an attempt to determine how the other person was feeling about the interaction. However, they also cited a difficulty being able to accurately assess their interactions online which appeared to be stressful.

The finding that the perfectionists in our study exhibited a heightened concern surrounding how others were evaluating both the quality of the interaction and the

perfectionist themselves aligns with and extends previous theory and research examining links between perfectionism and interpersonal sensitivity (i.e., fear and vigilance surrounding evaluation of the self by others in social situations; Hewitt et al., 2006). Theoretically, perfectionists are thought to be highly concerned about securing interpersonal relationships but tend to have difficulty engaging in them due to negative expressions of perfectionism in relationships, depleted social confidence, and perceptions of others as highly judgmental in social situations (Habke & Flynn, 2002; Horney, 1950). Indeed, both trait and behavioral levels of perfectionism have been linked with a variety of indicators of interpersonal sensitivity, including socially-based anxiety (e.g., Calissano et al., 2021; Casale et al., 2020; Cox & Chen, 2015; Flett et al., 1994; Flett et al., 2012; Gautreau et al., 2015; Goya Arce & Polo, 2017; Hewitt et al., 2003; Hewitt et al., 2011; Kehayes et al., 2019; Laurenti et al., 2008; Mackinnon et al., 2014; Nepon et al., 2011; Newby et al., 2017), excessive investment in social relationships (e.g., Flett et al., 1997; Hewitt & Flett, 1993; Kumari et al., 2012; Larijani & Besharat, 2010; Sherry et al., 2003), poor perceived social competence (e.g., Flett et al., 1996; Hewitt et al., 2003; Laurenti et al., 2008; Roxborough et al., 2012; Sherry & Hall, 2009), fear of negative social evaluation (e.g., Casale et al., 2014; Hewitt and Flett, 1991; Hewitt et al., 2003; Shafique et al., 2017), and seeking approval and validation from others (e.g., Flett et al., 2014; Hewitt et al., 2003; Hill et al., 2010; Nepon et al., 2016). Although these studies have predominantly focused on adult samples, a handful have begun to replicate the phenomenon of heightened interpersonal sensitivity among adolescent samples as well. Specifically, research with adolescents has demonstrated associations between trait and behavioural perfectionism and social anxiety (Flett et al., 2012; Goya Arce & Polo, 2017;

Hewitt et al., 2011), social hopelessness (Roxborough et al., 2012), and rejection sensitivity (Magson et al., 2019). This pattern of interpersonal sensitivity is reflected in the current findings, whereby perfectionists were preoccupied with the quality of their online interactions and relationships but did not seem to be confident that they would be able to navigate them successfully, citing excessive concerns about eliciting negative reactions from others. Other research has supported the idea that heightened interpersonal sensitivity among individuals high in perfectionism is related to the way such individuals use online platforms. For instance, Casale and colleagues (2014) found that the relationship between SPP and problematic internet use was mediated by a fear of negative social evaluation. Notably, this is the first study to demonstrate that interpersonal sensitivity, represented by an intense investment in the quality of online relationships accompanied by a fear of negative social evaluation, appears to extend to online contexts among adolescents.

Not only are concerns and anxieties fueled by high levels of interpersonal sensitivity relevant in online spaces for teenagers, but they appeared to be amplified in such contexts. More specifically, this effect seemed to be due to the lack of social cues available in online contexts. Perfectionists reported relying heavily on these cues (e.g., tone of voice, facial expressions, body language) to both express themselves and read other people in in-person contexts. Being able to actively provide their conversational partners with social cues appears to mitigate some of the concern that they are not being perceived in the way they had intended. In a way, this appears to provide perfectionists with a sense of control over their social interactions and the way other people experience them. Additionally, they are able to confirm that they are making the correct social moves

by interpreting others' reactions to the things they are saying and doing in-person by interpreting the social feedback they are receiving from them. This finding aligns with the concept of self-monitoring, which involves the observations and control of the way an individual presents and expresses themselves in social situations (e.g., Snyder, 1974; Hoyle & Sowards, 1993). More specifically, self-monitoring is thought to involve three stages that are cyclical in nature. The first stage, self-referent analysis, involves seeking out and evaluating cues from others in a social situation, either immediate or anticipated (Hoyle & Sowards, 1993). The second stage is entitled self-evaluation and involves an interpretation of these cues and how they align or conflict with the individual's public self-concept. In other words, self-evaluation involves assessing social cues to gauge how the individual is being seen in the eyes of others and how that either aligns with or diverges from how the individual would like to be perceived in social situations. Finally, the third stage outlined by Hoyle and Sowards (1993), self-control, involves the enactment of social behaviors that aim to align the individual's desired self-concept with the way they are being perceived by others. The process then continues, such that the individual would continue seek out and interpret social cues as indicators of how successful their controlled social behaviours were in moving them closer towards their ideal public self-image and, in turn, make strategic decisions about social behaviour. Accordingly, individuals are thought to engage in self-monitoring when they perceive that their affective experiences and actions in social situations are either inappropriate or fail to meet their standards (Snyder 1974; Hoyle & Sowards, 1993). As such, self-monitoring may be particularly relevant for individuals with perfectionistic tendencies

who may set unrealistic and unattainable standards for what constitutes ideal social performance.

Indeed, Hewitt and colleagues (2003) have suggested that self-monitoring may be particularly common for individuals higher in PSP, who are overly concerned with appropriate social behaviour and attempt to enact such behavior by “monitoring others’ reactions, comparing themselves with others, and attempting to facilitate positive evaluations by others” (p. 1312). It is possible that levels of PSP were driving this finding, given that the self-identified perfectionists in the current sample were significantly higher on this facet of perfectionism compared to non-perfectionists. However, it is also possible that self-monitoring is implicated in the trait forms of perfectionism assessed in the current work. For instance, Hoyle and Sowards (1993) suggest that individuals engage in self-monitoring processes to attempt to close the gap between their actual social experience and their desired social experience. Research has indicated that individuals high on SOP tend to set unrealistically high goals for their social interactions that exceed their own perceived social ability (Alden et al., 1994). Since self-oriented perfectionists tend to aim for absolute perfection in their relationships and social interactions, but do not perceive themselves as capable of living up to these impossible standards, they may also be prime candidates for engaging in self-monitoring as they have created a gap between their actual and desired social experiences that can never be bridged. With respect to SPP, it is possible that individuals high in this facet may be inclined to engage in self-monitoring as well, given that they are preoccupied with meeting the expectations of significant others and securing their approval (Hewitt & Flett, 1991; Hewitt et al., 2006; Sherry et al., 2003). As such, self-monitoring may offer

them one method of gauging their success in doing so. Altogether, theoretical assertions as well as empirical evidence have suggested that self-monitoring may be common among individuals who exhibit perfectionistic tendencies.

This notion was supported by the current work, such that adolescent perfectionists were acutely concerned about the way they are navigating social situations in both in-person and online contexts and, as a result, appeared to have learned to rely on self-monitoring via social feedback in face-to-face social situations to soothe these worries. In other words, young perfectionists are relying on social feedback to cope with what appears to be social anxiety surrounding the quality of their interactions and relationships with others. According to Schlenker and Leary (1982) the success of self-presentational efforts to soothe social anxiety are generally based on an individual's standards for social performance. For perfectionists, "perfect" social behaviour, whether defined by themselves or by the perceived expectations of others, is the standard. As such, it is likely that self-monitoring never fully eliminates the experience of social anxiety among perfectionists. However, by collecting evidence of their success in social interactions via the feedback they receive from others in face-to-face settings, they are able to alleviate some of their concern surrounding these interactions. In sum, it appears that self-monitoring during socialization experiences in face-to-face settings is a relatively effective strategy for coping with feelings of social anxiety among the perfectionists in the current sample, given that there are available social cues that they can use to gauge their own social appropriateness and/or success (Snyder, 1974).

However, herein lies the tension these perfectionists cited experiencing in online spaces. They reported attempting to socialize with their friends and peers, as they would

in-person, which activates the overarching concerns they appear to have about social situations. However, the cues they appear to rely so heavily on in face-to-face contexts are no longer available in online spaces, leaving them with no gauge for how the interactions are going. In other words, they are unable to apply the coping mechanism they have developed to cope with their heightened levels of interpersonal sensitivity in online contexts. This appeared to fuel a widespread and perpetual concern about the quality of their online interactions and relationships among the perfectionist group that they were unable to assuage. In some cases, this even appeared to cause perfectionists to avoid online interactions altogether, due to excessive fears of negative social evaluations and conflicts related to misinterpretation. It is important to note that in online spaces, it seems that interpersonal sensitivity is a precursor for both objective and subjective forms of disconnection. Traditionally, according to the PSDM, interpersonal sensitivity is thought to uniquely link perfectionism to subjective social disconnection whereas interpersonal hostility is thought to be the key mechanism linking perfectionism to objective social disconnection (Hewitt et al., 2006; Hewitt et al., 2017b). This is an important difference in how the PSDM applies in online contexts for adolescents, as the dual impact of interpersonal insensitivity on objective and subjective social disconnection likely leads to a more profound sense of disconnection from peers. This may have been particularly detrimental during periods of government-mandated lockdown during the COVID-19 pandemic, when social media platforms were the primary, if not only, means of interacting with friends and peers.

Interestingly, there was a subgroup of perfectionists who diverged from the general pattern of social connection and social media use shared by the rest of the

perfectionists. These five participants indicated that they felt well-connected to individuals they had met in online spaces and that, in most cases, these connections superseded those that they had been able to forge with people in their day-to-day lives. These participants also discussed a lack of connection in-person contexts that was driven by the fear of and/or the experience of rejection by the peers the encounter in their school and extracurricular contexts. Further, some of these participants described withdrawing from their face-to-face peers as a result of this lack of belonging. Interestingly, Habke and Flynn (2002) suggest that perfectionists tend to respond in one of two ways to their preoccupation with and concerns about engaging in social relationships. First, perfectionists may develop a strong need for social approval and, as such, aim to shape their social behaviours in ways that will secure social relationships. This appears to be the case for the majority of the present sample, as described above. Alternatively, this subset of perfectionists seems to opt for the second strategy, social withdrawal (Habke & Flynn, 2002). By withdrawing from their peers, these perfectionists appear to be aiming to protect themselves from anticipated and/or actual rejection (Blatt, 1995). However, these participants were not withdrawing from social interaction completely. Instead, they often redirected their social efforts to online contexts, where they felt a greater sense of belonging.

Notably, these participants tended to align with the rest of the group when it came to their perspectives of the importance of social cues for interpreting the quality of social interactions in-person and the challenges presented by the lack of such cues in online communication. Thus, it does not appear that they prefer the logistical context of social media for communicating with others generally, but rather that the social cues that they

rely so heavily on in-person have indicated to them that they do not fit in with their peers and, as such, they have turned to social media to widen the range of people they interact with and connect with those that they perceive to be more relatable, which allows them to create a social network in which they feel like they belong. Two participants demonstrated this most clearly. Both participants highlight that they do not share any common interests with the peers they are surrounded with in face-to-face contexts and, as such, have sought out online communities on Twitter and Reddit, respectively, where they can interact with others who they feel are more similar to them and with whom they have a foundation of shared interests. Similarly, another participant felt that they cannot always relate well to all of the people they are surrounded with due to differences related to neurodivergence, gender identity, and sexuality. As such, they appear to seek out online relationships where they share other interests with people online, such as video games and anime. Notably, this participant mentioned throughout their interview that the internet has also offered them a safe place to express their sexual and gender identity and connect with other members of the LGBTQ community (*'I created that account where it's like a safe space for myself and my friends to kind of have fun. And for me to share a little bit about my life as a LGBTQ teen privately.'* Perfectionist, Non-binary). These participants appear to fit the more compensatory alternative hypothesis put forth by Hewitt and colleagues (2017b), whereby perfectionists may be utilizing online spaces to make up for the lack of connection they feel in face-to-face contexts. This subgroup reported more extreme or overt cases of social disconnection in their day-to-day lives, which seemed to push them towards making active attempts to foster a sense of connection and belongingness through their online networks.

In sum, it seems that adolescent perfectionists are preoccupied with social cues in face-to-face interactions as a way to evaluate the nature of their relationships with others (e.g., self-monitoring; Snyder 1974; Hoyle and Sowards, 1993). When they perceive that they are receiving positive feedback from others in the context of socialization, this helps to soothe their fears of rejection. This was the case for most of the perfectionists in the current sample. They then attempt to extend this strategy to their online relationships, which seem to be largely an extension of their in-person relationships. However, this strategy does not appear to be effective online, given that the logistical context of online communication inhibits self-monitoring by limiting the performance and interpretation of social feedback, helping to explain why these youth feel relatively disconnected online compared to in-person.

In contrast, when perfectionistic youth perceive that they are receiving negative social feedback from their peers, it seems to push them to seek out alternative spaces where they feel like they do fit in. Online platforms are the ideal place to do so as it allows them to connect with other young people from around the world based primarily on common interests. Notably, participants in the current sample seemed to be using these platforms in responsible and adaptive ways to supplement their sense of connection and belonging. However, their heightened fear of rejection and desire to fit in with online communities may place them at higher risk for victimization by predators online. This is not to say that engaging with online communities should be discouraged among perfectionistic adolescents who feel that they are lacking a sense of belonging in their face-to-face environments. Rather, it emphasizes the importance for parents and individuals who work with young people to maintain open and honest lines of

communication surrounding online relationships, involving discussions of both the benefits and potential dangers of online social networks. One perfectionistic participant who spoke in depth about her online relationships served as an excellent example of how adolescents can learn to navigate online spaces with the goal of strengthening their social networks while being cognizant of internet safety. She was arguably the most engaged with and integrated in online communities of all the participants included in this study, yet often clearly described the safety precautions she takes online. For example, she mentioned that she only uses screennames with her friends online, despite feeling a close emotional connection to these friends. She also mentioned several times that her mom is aware of everything she does online, including who she has made friends with. By establishing firm boundaries and safety strategies online with the help of her mother, she has been able to create a space online where she feels safe, comfortable, and connected, which are sentiments she explicitly expresses not experiencing in her day-to-day life.

Phase One provided valuable insight into adolescent perfectionists' experiences of connection and disconnection, both online and in-person, including the psychological underpinnings of these experiences, how they cope with social anxiety relating to their interactions with others, and how they compensate via online platforms when their coping strategies fail to provide them with a sense of security in their social relationships. Importantly, overall, the current findings provide support for the PSDM whereby most perfectionists felt disconnected in online spaces – mirroring the pattern of their in-person relationships. As such, it was expected that all three forms of perfectionism included in the current work (e.g., SOP, SPP, PSP) would be linked to lower levels of social connection online in Phase Two.

6. Phase Two: Perfectionism, Online and In-person Social Connection, and Depression Among Adolescents During the COVID-19 Pandemic: Testing the Perfectionism Social Disconnection Model

To extend the findings of Phase One, a longitudinal test of the PSDM, including indicators of both online and in-person social connection, was conducted among a community sample of Ontario adolescents in Phase Two. This design aimed to help address a number of key methodological issues with the extant PSDM literature focusing on adolescent samples. First, this study included a community sample of young people aged 12 to 18 years, which improves confidence in the generalizability of the present results compared to those described above, each of which used specialized samples (i.e., minority youth, pre-adolescents, and psychiatric outpatients; Goya Arce & Polo, 2017; Magson et al., 2019; Roxborough et al., 2012).

Further, the longitudinal nature of Phase Two represented a key strength of its design, given that all three of the studies that examine the PSDM in adolescent samples were cross-sectional in nature (Goya Arce & Polo, 2017; Magson et al., 2019; Roxborough et al., 2012). Thus, although these studies indicate that links do exist between trait and behavioral levels of perfectionism and psychological distress, temporal precedence cannot be established. In other words, it is not possible to know whether perfectionism is leading to interpersonal difficulties and feelings of social disconnection which, in turn results in increased levels of psychopathology (i.e., vulnerability model) – as predicted by the PSDM – or whether these constructs are related in a different order over time (i.e., scar model, reciprocal-causality model). To provide stronger support for the PSDM, this model must be tested within a longitudinal research design. Study two

attempted to address this gap in the literature by performing the first longitudinal test of the PSDM among adolescents to date and by explicitly testing the competing temporal pathways between perfectionism and depression posited by the vulnerability, scar and reciprocal-causality models, respectively, using structural equation modeling.

I also tested whether subjective social disconnection – in both in-person and online contexts – represented explanatory mechanisms through which perfectionism is linked to depression among adolescents. This built on the findings of Phase One by testing the potential mediating role of online social disconnection in the relationship between perfectionism and depression among adolescents. Where Phase One helped to inform our understanding of how perfectionism is linked to feelings of connection to others online, Phase Two extended this understanding by testing how well, if at all, online social connection helped to explain the link between adolescent perfectionism and depression, over and above in-person social connection. Given the longitudinal nature of Phase Two, this was also expected to help to provide stronger evidence for the mediating role of in-person social (dis)connection in the relationship between perfectionism and depression. See Figure 6.1 for a visual representation of the theoretical mediational model to be tested, based on the PSDM.

In sum, there were three key aims of Phase Two in the current work: (1) test three competing temporal models (i.e., vulnerability, scar, reciprocal-causality) of the relationships between different forms of perfectionism and depression, (2) to test whether these relationships were explained, at least in part, by levels of social connection across time, and (3) to examine whether feelings of social connection in online spaces plays a key mediating role in these relationships, over and above feelings of social connection in

in-person settings. Based on the theoretical tenets of the PSDM (Hewitt et al., 2006; Hewitt et al., 2017b; Sherry et al., 2016), and the findings of Phase One, the hypotheses for Phase Two were as follows:

Aim 1: Test three competing temporal models (i.e., vulnerability, scar, reciprocal-causality) of the relationships between perfectionism (i.e., SOP, SPP, PSP) and depression.

Hypothesis 1a: Given mixed evidence concerning the relationship between SOP and depression in the extant literature, SOP was expected to predict depression across time however this hypothesis remained non-directional.

Hypothesis 1b: SPP was expected to predict higher levels of depression across time, but not vice versa (i.e., support for the vulnerability model).

Hypothesis 1c: PSP was expected to predict higher levels of depression across time, but not vice versa (i.e., support for the vulnerability model).

Aim 2: Test whether the relationships between perfectionism (i.e., SOP, SPP, PSP) and depression were mediated by in-person social connection.

Hypothesis 2a: Given mixed evidence concerning the relationship between SOP and social connection in the extant literature, the longitudinal path from SOP to depression was expected to be mediated by in-person social connection, however this hypothesis remained non-directional.

Hypothesis 2b: It was expected that the longitudinal path from SPP to depression would be explained, at least in part, by lower levels of in-person social connection.

Hypothesis 2c: It was expected that the longitudinal path from PSP to depression would be explained, at least in part, by lower levels of in-person social connection.

Aim 3: Test whether the relationships between perfectionism (i.e., SOP, SPP, PSP) and depression were mediated by online social connection, over and above in-person social connection.

Hypothesis 3a: It was expected that the relationship between SOP and depression would be explained, at least in part, by lower levels of online social connection.

Hypothesis 3b: It was expected that the relationship between SPP and depression would be explained, at least in part, by lower levels of online social connection.

Hypothesis 3c: It was expected that the relationship between PSP and depression would be explained, at least in part, by lower levels of online social connection.

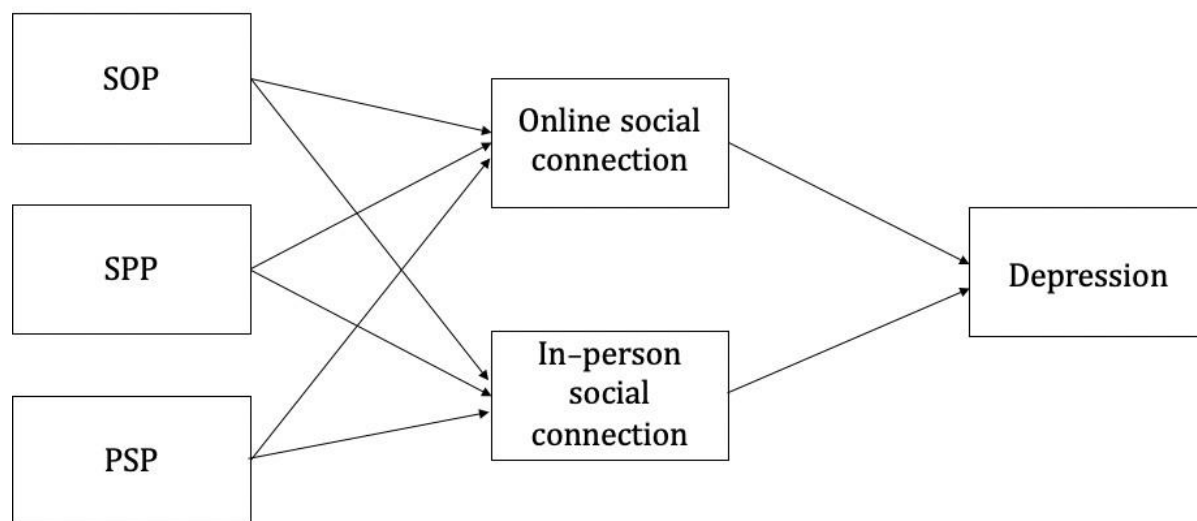
The current work also tested the potential moderating role of age and gender identification in Phase Two. With respect to age, moderation was tested based on stage of adolescence. Specifically, moderation analyses were conducted to test whether the final model paths varied as a function of whether participants were in early (i.e., 11 to 13 years), middle (i.e., 14 to 16 years) or late adolescence (i.e., 17 to 19 years) (Barrett, 1996). Although a sample representative of each of these three stages is a strength of the current study, there are marked biological, social, and cognitive changes that occur across adolescence thus potential age-related differences are critical to explore (e.g., Canals et

al. 2005; Coe-Odess et al., 2019; Galvan, 2018). More specifically, there may exist some key age-related differences with respect to the model variables included in this study. First, it has been well-established that there is a marked increase in depression during early adolescence that continues to rise across middle and late adolescence (e.g., Hankin et al., 1998; Thapar et al., 2012). Further, adolescence is considered a period of transition during which young people shift away from their family units and begin to place greater importance on their social relationships with their peers (Newman & Newman, 2011). Given that social connections and experiences with peers are weighted more heavily as youth move through adolescence, it is possible that these shifts may have an impact on the relationships between social disconnection, perfectionism, and depression, respectively.

There are also some key differences with respect to gender that warranted further exploration. For instance, it is well documented that female adolescents tend to have markedly higher levels of depression compared to male adolescents (e.g., Boak et al., 2020; Costello et al., 2011; Thapar et al., 2012). Further, there is some evidence to suggest that the link between social disconnection and depression is stronger among female adolescents compared to their male counterparts (e.g., Gorrese, 2016; Wu et al., 2015). Finally, it is also important to consider differences between cis-gender adolescents and those who identify as a gender minority (e.g., transgender male, transgender female, non-binary, gender non-conforming), given the notable associations between gender minority status and mental health difficulties (e.g., Lipson et al., 2019). Further, gender minority youth are more likely to have negative social experiences with peers, including

bullying and harassment, compared to their cisgender peers, which may lead to greater feelings of social disconnection (e.g., Reisner et al., 2015).

Finally, given the pervasive nature of the COVID-19 pandemic, two COVID-19 related variables were assessed as potential covariates in Phase Two. Specifically, school delivery status (i.e., whether participants were attending school in-person, online, or a mix of the two), and COVID-19-related worry were examined. These two indicators were selected as they may play a key role in experiences of social connection for adolescents over the course of the pandemic. For instance, a teenager who is attending school fully online is likely interacting with far fewer of their peers compared to others who are attending school via in-person or blended formats. Further, worry surrounding the COVID-19 pandemic may play a critical role given that increased perception of risk and fear of contracting COVID-19 have been shown to be related to greater adherence to social distancing protocols, in turn reducing the number of other people with whom this individual interacts (e.g., Balsamo et al., 2020; Ebrahimi et al., 2021).

Figure 6.1.*Theoretical Model, Based on the PSDM*

Note. SOP = self-oriented perfectionism; SPP = socially prescribed perfectionism; PSP = perfectionistic self-presentation

6.1. Phase Two Methods

6.1.1. Phase Two Participants

The sample for Phase Two consisted of 357 participants at baseline, ranging between the ages of 12 and 18 years of age ($M = 15.50$ years, $SD = 2.07$). Eighty participants fell within the range of early adolescence (22.4%), 136 participants were in middle adolescence (38.1%), and 141 participants were in late adolescence (39.5%). The sample was predominantly female ($n = 246$; 68.9%), with 26.3% of the sample identifying as male ($n = 94$) and 3.9% identifying as a gender minority ($n = 14$). More specifically, of the 14 participants who identified as a gender minority, 10 participants identified as non-binary or gender non-conforming, one participant identified as female

trans, and three participants selected “Other”. Three participants (0.8%) did not report their gender identity. Just under three quarters of the sample identified as White/Caucasian ($n = 261$; 73.1%). The remainder of the sample identified as Asian Canadian ($n = 44$; 12.3%), Other ($n = 29$; 8.1%), Black/African Canadian ($n = 9$; 2.5%), Indigenous Peoples in Canada ($n = 4$; 1.1%), or Latin Canadian ($n = 3$; 0.8%). Seven participants (2%) did not report their race. With respect to education level, there were 70 elementary school students (19.6%), 189 secondary school students (52.9%), and 98 ($n = 27.5\%$) students enrolled in a post-secondary program included in the present sample. When asked how their family’s finances compared to the average Canadian, most of the sample perceived their family to be about as rich as the average family ($n = 204$; 57.1%) while roughly a quarter of the sample ($n = 95$; 26.7%) indicated their family was more rich or a lot more rich and 14.8% ($n = 53$) indicated their family was less rich or a lot less rich than average. See Table 6.1.1.1. for descriptive statistics for items related to social media use.

Table 6.1.1.1.

Descriptive Statistics for Items Related to Social Media Use

	<i>M</i>	<i>SD</i>	Min	Max
Platforms	3.84	1.56	0.00	9.00
Friends	2743.32	16124.61	0.00	190447.00
Hours	4.28	2.65	1.00	18.00
LikeCheck	2.42	1.20	1.00	5.00
Filters	2.11	1.20	1.00	5.00
SMCheck	3.59	1.06	1.00	5.00
SMCheckDur	3.24	1.35	1.00	8.00
LikeImp	1.89	0.97	1.00	5.00
SynChangeWd	0.76	2.62	-14.00	11.00
SynChangeWe	2.70	0.67	-13.00	15.00
AsyChangeWd	1.16	2.05	-5.00	15.00
AsyChangeWe	0.80	2.28	-12.00	11.00

Note. Platforms = Total number of social media platforms used; Friends = Total number of friends on social media, across platforms; Hours = Total number of hours spent on social media, per day; LikeCheck = How often they are checking for likes; Filters = How often they use filters; SMCheck = How often they are checking social media; SMCheckDur = How long they are on social media each time they check; LikeImp = How important likes are to them; SynChangeWd = Change in amount of time spent interacting with friends in a synchronous manner on weekdays following the onset of the pandemic, in hours; SynChangeWe = Change in amount of time spent interacting with friends in a synchronous manner on weekends following the onset of the pandemic, in hours; AsyChangeWd = Change in amount of time spent interacting with friends in an asynchronous manner on weekdays following the onset of the pandemic, in hours; AsyChangeWe = Change in amount of time spent interacting with friends in an asynchronous manner on weekends following the onset of the pandemic, in hours

6.1.2. Phase Two Measures

Measures used to assess demographic information, trait perfectionism, behavioral perfectionism, in-person social connectedness, online social connectedness, and social media use were identical to those used in Phase One (see Section 5.1.2. for a detailed description of each measure and Appendices D through H for the full measures). Additionally, the following measures were used to assess depression and COVID-19-related covariates.

6.1.2.1. Center for Epidemiological Studies – Depression Scale Revised. The Center for Epidemiological Studies – Depression Scale Revised is a 20-item self-report measure used to measure depression (Radloff, 1977; See Appendix I). Each item represented a symptom of depression (e.g. “I felt that everything I had to do was an effort”) and was presented with the following 4 response options which represented how often participants experienced each symptom during the past week: rarely or none of the time (less than 1 day), some or a little of the time (1-2 days), occasionally or a moderate amount of the time (3-4 days), and most or all of the time (5-7 days). Before calculating total depression scores, two items were reverse coded so that higher scores represent a

greater frequency of depression symptoms. Once those items were adjusted, total scores were achieved by summing all 20 items. Previous research has demonstrated good reliability (Cronbach's alpha ranging from 0.85 to 0.90; 0.87 in youth samples) and validity, with significant positive links with anxiety and emotional problems among youth (Essau et al., 2013; Radloff, 1977).

6.1.2.2. Covariates related to COVID-19. Two covariates related to the context of the COVID-19 pandemic were included in the current work: school delivery status and worry surrounding the COVID-19. School delivery status was assessed using one question asking how the participant chose to attend school most recently at the time of each survey (i.e., "How were you attending school before the most recent government mandated school shutdown?"). Response options for this question included: (1) *In-person*, (2) *Online*, and (3) *Blended*. Worry surrounding the COVID-19 pandemic was gauged using three questions assessing pandemic-related worry in different domains (i.e., "How worried are you about COVID-19?"; "How worried are you about your family's finances (losing money) due to COVID-19?"; "How worried are you about your family's health due to COVID-19?"). Participants responded to these items on a 5-point Likert scale ranging from *Not at all worried* to *Extremely worried*. Total COVID-19 related worry was calculated by computing the mean of these three items.

6.3. Phase Two Results

6.3.1. Preliminary Analyses

Before conducting any statistical tests, the data was assessed for plausible values, missing data, attrition, univariate outliers and assumptions (i.e., normality, linearity) as well as multivariate outliers and assumptions (i.e., multivariate normality). Examination

of minimum and maximum values for all model variables indicated that all values entered in the dataset were plausible and there was no reason to suspect data entry errors. With respect to missing data, 44.8% ($n = 160$) of participants were missing responses on at least one model variable. Little's (1988) Missing Completely at Random test indicated that the data was not missing completely at random, $\chi^2(675) = 838.76, p < .001$. Missing value analysis indicated that significant patterns of missing data were driven by attrition (e.g., missing all Time 2 and/or Time 3 variables) or missing responses on the Facebook Connectedness Scale (adapted for social media; Grieve et al., 2013) at every complete time point. With respect to the latter, participants were not presented with this scale if they indicated that they were not allowed to use social media, explaining this pattern of missing data across time points. Follow up diagnostic analyses of categorical variables indicated that participants with fully complete data were more likely to identify as female, $\chi^2(1) = 5.41, p = .020$, and to be middle or late adolescents, $\chi^2(2) = 22.88, p < .001$. School delivery format was not significantly related to whether participants had complete data, $\chi^2(1) = 0.82, p = .364$. There were no significant differences in continuous model variable scores between participants with fully complete data and those who were missing on at least one model variable (see Table 1 in Appendix N for results from independent samples t-tests). Missing data was handled in the current study using full-information maximum likelihood estimation (Graham, 2003) during structural equation modeling in MPlus (Muthén & Muthén, 1998-2017).

Next, attrition analyses were conducted to test whether participants who participated in the study at each time point ($n = 266$; 74.5%) differed significantly from those who were missing at least one full survey ($n = 91$; 25.5%). With respect to

categorical model variables, participants who participated in every time point were significantly more likely to be older adolescents, $\chi^2(2) = 7.71, p = .021$. There were no group differences with respect to gender, $\chi^2(1) = 3.63, p = .057$, or school delivery format, $\chi^2(1) = 0.01, p = .923$. Further, there were no significant differences between participants who participated in all time points and those who were missing at least one survey with respect to continuous model variables (see Table 2 in Appendix N).

Given that parceling was used to create latent model variables (described in section 6.3.3. in greater detail), the parcels used to create the latent variables were assessed for outliers and assumptions. Univariate outliers were defined as scores more than 3.29 *SDs* from the mean (Field, 2018). Based on this criterion, four univariate outliers were identified. These scores were Winsorized such that the scores were adjusted to represent *z*-scores that would have been within the parameters of ± 3.29 *SDs* from the mean, while maintaining rank order to one decimal place (Field, 2018). See Table 3 in Appendix N for a record of univariate outliers and how they were handled. Normality of model parcels was assessed by examining skewness and kurtosis values (normal values defined as falling between ± 2 ; Field, 2018), as well as through visual inspection of histograms for deviation from the normal curve. Based on these criteria, all parcels met the assumption of normality (see Table 4 and Figures 1 through 55 in Appendix N for skewness/kurtosis values and histograms, respectively). Examination of scatterplots representing the relationship between each unique pair of model variables indicated that the assumption of linearity was met¹. Examination of scatterplots representing the relationship between the standardized residuals and standardized predicted values

¹ Bivariate scatterplots can be provided upon request if readers are interested

indicated that the assumptions of multivariate normality and linearity were met². Finally, the data was screened for multivariate outliers. Multivariate outliers were defined as cases with a Cook's distance > 1 (Stevens, 1996). Based on this criterion, three multivariate outliers were identified (IDs: 227, 271, 307). The final model presented in section 6.3.5. was run with and without these cases. There were no meaningful changes to the results with these cases removed (see Table 5 in Appendix N). As such, the results including multivariate outliers are reported below.

6.3.2. Descriptive Statistics and Bivariate Correlations

Descriptive statistics, including reliability statistics, for all model variables are presented in Table 6.3.2.1. With respect to potential moderators, stage of adolescence was associated with being female³, higher levels of all forms of perfectionism at all time points (with the exception of SOP at Time 3), and increased levels of depression at Time 1 and Time 2. Being female was associated with an increased likelihood of participating in school in a face-to-face context, increased levels of covid-related worries, higher levels of SOP and PSP at all time points, higher levels of SPP at Time 2, increased online connection at Time 2, increased in-person connection at Time 1, and increased levels of depression at each time point. With respect to potential covariates, covid-related worry was linked with higher levels of SOP at Time 1 and Time 2, increased SPP and PSP at all time points, lower levels of online connection at Time 1, lower levels of in-person

² Multivariate scatterplots can be provided upon request if readers are interested

³ Although there were youth that identified as a gender minority (e.g., non-binary, transgender), there were not enough adolescents in the present sample who identified as a gender minority (e.g., non-binary, transgender) to include as a unique group for moderation analyses ($n = 14$). As such, gender was treated as a binary variable whereby 0 = male and 1 = female for all analyses. However, all forms of gender identification were included when describing the sample in the Methods section above (see section 6.1.1. for more detail).

connection at Time 1 and Time 2, and higher levels of depression at Time 1 and Time 2. School delivery format was only associated with gender, as indicated above; there were no significant relationships with any model variables at the bivariate level⁴.

With respect to the model variables, all forms of perfectionism (i.e., SOP, SPP, PSP) were associated with themselves across time as well as with each other, both within and across time. SOP at Time 1 and Time 2 was associated with lower feelings of online connection both within and across time. There were no significant associations between SOP at the third time point and online connection at any time point. Further, SOP was negatively associated with in-person connection at baseline only; there was no association between SOP at Times 2 and 3 and in-person connection, either within or across time. SOP at baseline was positively associated with depression at all time points. In contrast, SOP at Time 2 was positively linked with depression at baseline and Time 2, and SOP at Time 3 was not associated with depression at any time point. Baseline SPP was associated with a poorer sense of online connection at Times 1 and 2. SPP at Times 2 and 3 were only negatively associated with online connection at their respective time points. SPP at all time points was negatively related with in-person connection and positively related to depression, both within and across all time points. PSP was related to a lower sense of connection within and across all time points in both online and in-person contexts as well as with higher levels of depression within and across time. Online and in-person connection were positively related with themselves, with each other, and negatively associated with depression at all time points. Finally, depression was positively associated with itself across time. `

⁴ Given that there were no significant bivariate associations between Format and any key model variables, Format was not tested as a covariate in the final model.

Table 6.3.2.1.

Descriptive Statistics and Bivariate Correlations for All Model Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
1. Stage	-----																						
2. Gender	.16**	-----																					
3. Format	.07 ^a	-.11*	-----																				
4. <u>CovWor</u>	.04 ^a	.14*	.09	-----																			
5. SOP1	.17**	.21*	-.06	.17*	-----																		
6. SOP2	.15**	.16*	-.05	.16*	.82*	-----																	
7. SOP3	.09 ^a	.20*	-.08	.08	.73*	.77*	-----																
8. SPP1	.22**	.12*	.02	.24*	.48*	.38*	.31*	-----															
9. SPP2	.21**	.07	.08	.20*	.41*	.46*	.35*	.79*	-----														
10. SPP3	.23**	.08	.00	.17*	.37*	.37*	.45*	.68*	.74*	-----													
11. PSP1	.12**	.19*	-.08	.24*	.56*	.45*	.40*	.48*	.42*	.38*	-----												
12. PSP2	.18**	.20*	.01	.25*	.56*	.60*	.51*	.49*	.55*	.48*	.70*	-----											
13. PSP3	.16**	.16*	.02	.17*	.50*	.49*	.59*	.39*	.43*	.51*	.65*	.74*	-----										
14. FCS1	-.03 ^a	-.11	.07	-.13*	-.20*	-.12*	-.09	-.16*	-.11	-.11	-.29*	-.20*	-.19*	-----									
15. FCS2	-.11 ^a	-.21*	.00	-.08	-.20*	-.16*	-.12	-.14*	-.13	-.10	-.29*	-.31*	-.23*	-.21*	-----								
16. FCS3	-.04 ^a	-.09	.04	.02	-.17*	-.17*	-.07	-.08	-.09	-.13*	-.25*	-.25*	-.21*	.72*	.79*	-----							
17. SCS1	-.05 ^a	-.14*	-.09	-.18*	-.19*	-.10	-.07	-.29*	-.22*	-.24*	-.42*	-.35*	-.31*	.58*	.52*	.72*	-----						
18. SCS2	-.09 ^a	-.11	-.05	-.14*	-.14*	-.09	-.05	-.29*	-.34*	-.26*	-.35*	-.40*	-.30*	.45*	.55*	.47*	.77*	-----					
19. SCS3	-.05 ^a	-.09	-.11	-.10	-.14*	-.07	-.05	-.20*	-.22*	-.28*	-.34*	-.35*	-.36*	.43*	.51*	.60*	.72*	.79*	-----				
20. DEPI	.14**	.25*	-.02	.18*	.29*	.13*	.12	.44*	.35*	.31*	.56*	.42*	.32*	.39*	.35*	-.28*	-.61*	-.57*	-.52*	-----			
21. DEP2	.16**	.31*	.00	.13*	.20*	.19*	.10	.32*	.36*	.27*	.34*	.43*	.30*	.29*	.40*	-.34*	-.51*	-.62*	-.57*	.67*	-----		
22. DEP3	.12 ^a	.28*	-.03	.11	.17*	.09	.11	.28*	.30*	.34*	.39*	.36*	.39*	.27*	.35*	-.40*	-.47*	-.54*	-.64*	.64*	.72*	-----	
MEAN	2.17	.72	.17	2.74	42.90	42.93	42.27	27.76	28.90	29.08	58.17	58.55	58.16	79.08	79.62	79.41	83.12	83.25	83.21	21.62	22.16	21.77	
SD	0.77	0.45	.38	0.93	10.22	10.27	10.35	9.47	9.31	9.19	14.92	14.58	14.96	15.97	15.46	16.04	17.78	17.99	17.74	12.72	12.92	13.50	
α	N/A	N/A	N/A	.60	.91	.92	.92	.91	.91	.91	.93	.93	.93	.90	.90	.91	.92	.93	.93	.92	.93	.94	

Note: Stage = stage of adolescence, whereby 1 = early adolescence, 2 = middle adolescence, 3 = late adolescence; Gender = dummy-coded gender, whereby 0 = male, 1 = female; Format = school delivery format, whereby 0 = in-person/blended, 1 = online; CovWor = covid-related worry; SOP = self-oriented perfectionism, measured by the CAPS; SPP = socially prescribed perfectionism, measured by the CAPS; PSP = perfectionistic self-presentation, measured by the PSPS-Jr; FCS = online connection, measured by the Facebook Connectedness Scale (adapted for social media); SCS = in-person connection, measured by the Social Connectedness Scale; DEP = depression, measured by the CESD-R^a Spearman correlation used, given that Stage was ordinal level data

6.3.3. Parceling and Measurement Invariance

Before testing the hypothesized structural models, structural equation modeling (SEM) was employed using Mplus version 7.2 (Muthen & Muthen, 1998-2017) to create latent variables representing each key model variable (i.e., SOP, SPP, PSP, FCS, SCS, DEP) via parceling (i.e., calculating the mean of two or more items; Little et al., 2013). Parceling is considered best practice for scales in which there are more than 6 items, as it increases reliability in the construct measurement by augmenting true variance and mitigating measurement error (Little et al., 2013).

To begin, a series of confirmatory factor analyses were conducted for each model variable with all scale items included to obtain the original model fit and factor loadings for all items. See Tables 1 through 6 in Appendix O for the item-level CFAs for each model variable at baseline. For each construct, three parcels per time point were created to use as indicators for their respective latent variables. More specifically, the item-to-construct balancing technique was employed to create the parcels, such that the items with the highest factor loadings were combined with the items with the lowest factor loadings. Given that the scale used to measure PSP contained three subscales (i.e., perfectionistic self-promotion, perfectionistic non-display, perfectionistic non-disclosure), the items used to create each parcel were balanced across subscales in addition to being based on factor loadings (e.g., domain representative parcels; Little et al., 2013). The items combined for each parcel are noted in Tables 1-6 in Appendix O. Once parcels were created, individual measurement models for each construct that included the latent variables for that construct at each time point were conducted and assessed for adequacy of model fit. The following fit indices were used to assess model

fit: a comparative fit index (CFI) greater than or equal to .95 (Hu & Bentler, 1998), a root mean square error of approximation (RMSEA) less than .10 (Browne & Cudeck, 1992), and a standardised root mean square residual (SRMR) less than .08 (Hu & Bentler, 1999). Chi square with degrees of freedom and related significance value were also indicated when reporting model fit. Results from a series of CFAs on the individual measurement models with parcels as indicators for each latent variable indicated that all latent variables demonstrated acceptable model fit (see Tables 1-6 in Appendix O).

Next, a CFA of the overall measurement model was conducted, followed by tests of measurement invariance of the model constructs across time to ensure that equivalent constructs were measured at each time point (Little, 2013). First, a freely estimated configural invariance model was tested, in which all latent variables (i.e., SOP, SPP, PSP, FCS, SCS, DEP) at all three time points were included. This model demonstrated acceptable model fit: $\chi^2(1170) = 1738.92, p < .001, CFI = .97, RMSEA = .04, 95\% CI [.03, .04], p = 1.000, SRMR = .05$. All indicators were statistically significant and positive and ranged from .81 to .94 (see Table 7 in Appendix O for full CFA results for the configural invariance model). A weak invariance model (e.g., factor loadings for each indicator were constrained across time points; Little et al., 2013) and a strong invariance model (e.g., intercepts for each indicator were constrained across time points; Little et al., 2013) were then tested. There was no significant decrement in model fit when either the factor loadings (weak invariance) or intercepts (strong invariance) for each indicator were constrained, indicating that the measurement model was consistent across time (see Table 6.3.3.1).

Table 6.3.3.1.*Tests of Measurement Invariance*

Model	χ^2	df	<i>p</i>	CFI	RMSEA	95% CI	<i>p</i>	SRMR	Model Evaluation
Null	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Configural Invariance	1738.92	1170	.000	.97	.04	[.03, .04]	1.000	.05	Pass
Loading Invariance	1765.49	1194	.000	.97	.04	[.03, .04]	1.000	.05	Pass
Intercept Invariance	1843.85	1230	.000	.96	.04	[.03, .04]	1.000	.05	Pass

6.3.4. Testing Temporal Relationships Between Perfectionism and Depression

The first key aim of Phase Two was to establish temporal precedence in the relationships between perfectionism (i.e., SOP, SPP, PSP) and depression to test whether the current work provides support for the vulnerability model (i.e., perfectionism predicting depression over time), the scar model (i.e., depression predicting depression over time), or the reciprocal-causality model (i.e., perfectionism and depression predicting each other over time). Specifically, these three competing models were tested via cross-lagged structural models using SEM in Mplus version 7.2 (Muthén & Muthén, 1998-2017). Given that all indicators met the assumption of normality, maximum likelihood parameter estimation was used. First, all structural paths (i.e., paths from perfectionism to depression and paths from depression to perfectionism) were included to test the reciprocal causality model. This model had acceptable fit: $\chi^2(218) = 480.96$, $p < .001$, CFI = .96, RMSEA = .06, 95% CI [.05, .07], $p = .027$, SRMR = .05. Next, the paths

from depression to perfectionism were removed and only the paths from SOP, SPP, and PSP to depression were included to test the vulnerability model. This model fit was also acceptable: $\chi^2(48) = 118.81, p < .001, CFI = .98, RMSEA = .06, 95\% [.05, .08], p = .050, SRMR = 0.04$. Nonetheless, a chi-square difference test revealed a significant decrement in fit compared to the reciprocal-causality model, $\Delta\chi^2(170) = 362.15, p < .001$. It is worth noting, however, that there were no marked changes in the other indicators of model fit (i.e., CFI, RMSEA, SRMR). Finally, the scar model (i.e., included paths from depression to perfectionism only) was tested. The model fit was adequate as well: $\chi^2(48) = 141.44, p < .001, CFI = .97, RMSEA = .07, 95\% [.06, .09], p = .003, SRMR = 0.05$. However, as with the vulnerability model, a chi-square difference test revealed a significant decrement in fit compared to the reciprocal-causality model, $\Delta\chi^2(170) = 339.52, p < .001$, despite no other noteworthy differences in CFI, RMSEA, or SRMR values.

Although model fit comparisons indicate the reciprocal-causality model represents the best relative fit of the data, examination of the paths revealed that only the autoregressive paths representing change in the respective constructs over time were significant in this model (see Table 6.3.4.1). Indeed, significant paths in the vulnerability (i.e., SOP \rightarrow Depression, SPP \rightarrow Depression, PSP \rightarrow Depression) and scar models (i.e., Depression \rightarrow SOP, Depression \rightarrow SPP, Depression \rightarrow PSP) became non-significant when the competing structural paths and autoregressive paths were included. Additionally, the path coefficients from depression to SOP and depression to PSP changes from positive to negative in the reciprocal-causality model compared to the scar model. Altogether, this indicated that there was a suppression effect (Palhus et al., 2004) occurring in the reciprocal-causality model, likely due to the high degree of stability in

the constructs across time (see Table 6.3.4.1. for standardized and unstandardized regression coefficients for the autoregressive paths and Table 8 in Appendix O for parcel intercepts across time). Indeed, diagnostic analyses revealed that removing the autoregressive paths from the reciprocal-causality model resulted in significant paths from PSP to depression as well as from depression to SOP, SPP, and PSP (see Table 1 in Appendix P for full results). Further, the path coefficients from depression to SOP and PSP remained positive in the model without the autoregressive paths included. However, the model fit for the reciprocal-causality model without the autoregressive paths included did not meet criteria for adequate fit, $\chi^2(222) = 932.47, p < .001, CFI = .90, RMSEA = .10, 95\% CI [.09, .10], p < .001, SRMR = .18$. Therefore, this model could not be used to inform the final mediational model and is presented here for diagnostic purposes only. Nonetheless, these findings further support that accounting for change in the model constructs across time (or lack thereof, in this case) had a suppression effect on the path model results. As such, meaningful interpretations of temporal precedence in the relationship between perfectionism and depression could not be accurately extrapolated from this model.

Table 6.3.4.1.

Results From Cross-Lagged Structural Equation Models for the Reciprocal-Causality, Vulnerability, and Scar Models of Perfectionism and Depression

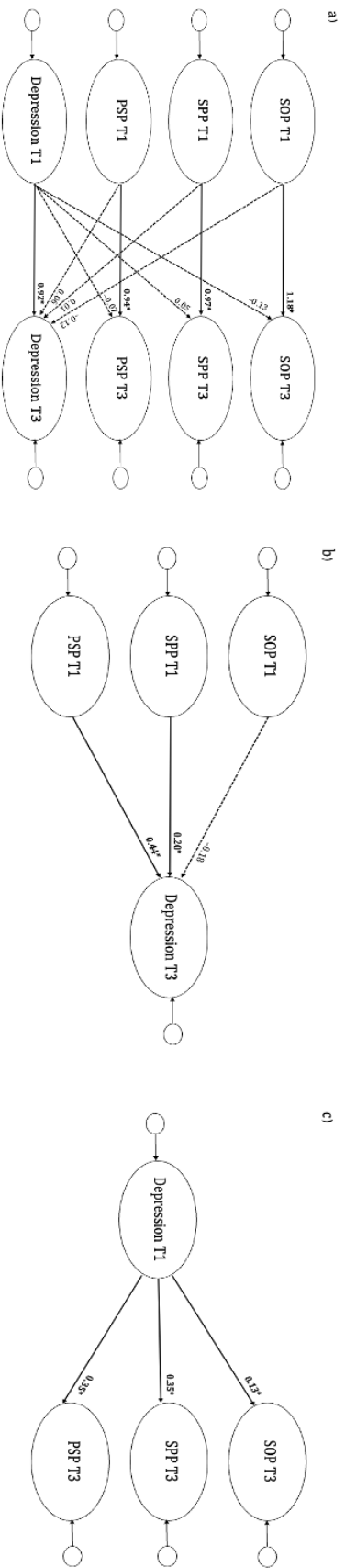
Model	Predictor	SOP T3				SPP T3				PSP T3				DEP T3					
		B	SE	β	95% CI	B	SE	β	95% CI	B	SE	β	95% CI	B	SE	β	95% CI		
Reciprocal-Causality	SOP T1	1.18*	0.11	0.77	[0.96, 1.39]	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
		for B				-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
		0.97*	0.10	0.69	[0.77, 1.17]	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
	SPP T1	-----	-----	-----	-----	0.97*	0.10	0.69	[0.77, 1.17]	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
		for B				-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	PSP T1	-----	-----	-----	-----	-----	-----	-----	-----	0.94*	0.10	0.70	[0.75, 1.14]	-----	-----	-----	-----	-----	-----
		for B				-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	DEP T1	-0.13	0.08	-0.09	[-0.28, 0.02]	0.05	0.08	0.03	[-0.11, 0.20]	-0.07	0.08	-0.05	[-0.23, 0.10]	0.92*	0.11	0.67	[0.70, 1.14]	-----	-----
		for B				-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Vulnerability	SOP T1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
		for B				-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
	SPP T1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
		for B				-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	PSP T1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
		for B				-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	DEP T1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
		for B				-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Scar	SOP T1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
		for B				-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
	SPP T1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
		for B				-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	PSP T1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
		for B				-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	DEP T1	0.13*	0.07	0.13	[0.00, 0.27]	0.35*	0.06	0.35	[0.23, 0.52]	0.35*	0.06	0.35	[0.23, 0.51]	-----	-----	-----	-----	-----	-----
		for B				-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

* $p < .05$

Note. SOP = self-oriented perfectionism; SPP = socially prescribed perfectionism; PSP = perfectionistic self-presentation; DEP = depression

Figure 6.3.4.1.

Results From Cross-Lagged Structural Equation Models for the Reciprocal-Causality, Vulnerability, and Scar Models of Perfectionism and Depression



* $p < .05$

Note: Significant paths are represented by solid lines; Non-significant paths are represented by dotted lines

Note: Covariances among endogenous variables are not shown here for ease of presentation

Note: Unstandardized path coefficients presented

Note: a) Reciprocal-causality model; b) Vulnerability model; c) Scar model

6.3.5. Mediation Model: Perfectionism to Depression Via Online and In-Person Social Connection

The second and third key aims of Phase Two were to test the mediational pathways between perfectionism and depression, via in-person social connection and online social connection, respectively. Given that potential support for alternative temporal models (i.e., scar, reciprocal-causality) was not able to be assessed in a meaningful way due to the stability of the model constructs over time, the longitudinal mediational model was structured in line with the PSDM, which is rooted in the vulnerability model (see Figure 6.1). This model is supported both by theory (e.g., Hewitt et al., 2017b; Sherry et al., 2016) and empirical research (e.g., Goya Arce & Polo, 2017; Magson et al., 2019; Roxborough et al., 2012), as highlighted in the introduction. More specifically, the mediational model in the current work tested whether perfectionism (i.e., SOP, SPP, PSP) at Time 1 predicted depression at Time 3 via online and in-person connection at Time 2. This model was tested both with and without the covariate relevant to the current study (i.e., covid-related worry). There were no significant changes with respect to model fit with or without this covariate, $\Delta\chi^2(12) = 10.98, p = 0.531$, and there were no marked changes to the model results. As such, the model including covid-related worries is presented below in Tables 6.3.5.1 and 6.3.5.2 (see Tables 1 and 2 in Appendix Q for model results without covid-related worry included) as well as Figure 6.3.5.1. Results indicated that there was a significant and positive direct effect between baseline PSP and depression at Time 3. There were no significant direct effects of either baseline SOP or SPP on depression at the third time point. With respect to indirect effects, SOP had a significant, negative indirect effect on depression via in-person connection, such

that higher levels of SOP predicted increased levels of in-person connection which, in turn, predicted lower levels of depression. In contrast, SPP and PSP each demonstrated a significant, positive indirect association with higher levels of depression via lower levels of in-person connection. There were no indirect effects of any facet of perfectionism on depression via online connection.

Finally, moderation analyses were conducted to test whether this model was significantly moderated by gender (i.e., male versus female)⁵ and stage of adolescence (i.e., early versus middle versus late adolescence). To do so, the model fit when the predictive paths were freely estimated across groups was compared to when these paths were constrained to be equal across groups. With respect to gender, there was not a significant decrement in model fit when the predictive paths in the model were constrained to be equal for boys and girls, $\Delta\chi^2(14) = 18.18, p = .199, \Delta CFI < .01, \Delta RMSEA < .01$, indicating that the model did not significantly vary based on participant gender. With respect to stage of adolescence, there was a significant change in the chi-square model fit, $\Delta\chi^2(28) = 46.63, p = .015$, when the predictive model paths were constrained to be equal across early, middle, and late adolescence compared to when they were freely estimated. However, it is worth noting that the decrement in fit indicated by the change in chi-square model fit was not supported by other indicators of model fit. Specifically, there was very little change to the CFI and RMSEA values, $\Delta CFI < .01, \Delta RMSEA < .01$. As such, evidence for moderation should be interpreted with caution. Diagnostic analyses revealed that it appears to be the path between covid-related worry and depression that varies with age, $\Delta\chi^2(2) = 13.26, p = .001, \Delta CFI < .01, \Delta RMSEA <$

⁵ There were not enough adolescents in the present sample who identified as a gender minority (e.g., non-binary, transgender) to include as a unique group for moderation analyses ($n = 14$).

.01. Specifically, in early adolescence, higher levels of covid-related worry predicted lower levels of depression across time whereas increased covid-related worry significantly predicted increased depression over time among middle adolescence. There was no significant model path between covid-related worry at baseline and depression at the third time point for late adolescents.

Table 6.3.5.1*Final Structural Equation Model Results, Including Covariate*

Predictor	FCS T2				SCS T2				DEP T3			
	<i>B</i>	<i>SE</i>	β	95% CI for <i>B</i>	<i>B</i>	<i>SE</i>	β	95% CI for <i>B</i>	<i>B</i>	<i>SE</i>	β	95% CI for <i>B</i>
SOP T1	-0.06	0.09	-0.06	[-0.25, 0.12]	0.20*	0.09	0.18	[0.02, 0.38]	-0.13	0.10	-0.11	[-0.34, 0.07]
SPP T1	0.02	0.09	0.01	[-0.16, 0.19]	-0.22*	0.09	-0.20	[-0.39, -0.05]	0.10	0.10	0.08	[-0.09, 0.29]
PSP T1	-0.26*	0.10	-0.25	[-0.45, -0.08]	-0.39*	0.10	-0.37	[-0.58, -0.21]	0.32*	0.10	0.25	[0.12, 0.52]
CovWor	-0.01	0.07	-0.01	[-0.15, 0.13]	-0.05	0.07	-0.04	[-0.18, 0.09]	-0.02	0.07	-0.01	[-0.16, 0.13]
FCS T2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.05	0.10	-0.04	[-0.24, 0.15]
SCS T2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.52*	0.10	-0.45	[-0.72, -0.32]

* $p < .05$

Note. CovWor = covid-related worry; SOP = self-oriented perfectionism, measured by the CAPS; SPP = socially prescribed perfectionism, measured by the CAPS; PSP = perfectionistic self-presentation, measured by the PSPS-Jr; FCS = online connection, measured by the Facebook Connectedness Scale (adapted for social media); SCS = in-person connection, measured by the Social Connectedness Scale; DEP = depression, measured by the CESD-R

Note. Model fit: $\chi^2(132) = 226.77, p < .001, CFI = .98, RMSEA = .05, 95\% CI [.04, .05], p = .793, SRMR = .04.$

Table 6.3.5.2*Final Mediation Model, Including Covariate*

Predictor	Total	Total indirect	Direct	Specific indirect via FCS	Specific indirect via SCS
SOP → DEP	-0.23* [-0.45, -0.02]	-0.10 [-0.21, 0.01]	-0.13 [-0.34, 0.07]	0.00 [-0.1, 0.02]	-0.10* [-0.20, -0.01]
SPP → DEP	0.21* [0.01, 0.38]	0.11 [0.01, 0.22]	0.10 [-0.09, 0.29]	0.00 [-0.01, 0.01]	0.11* [0.02, 0.21]
PSP → DEP	0.54* [0.32, 0.75]	0.22* [0.10, 0.33]	0.32* [0.12, 0.52]	0.01 [-0.04, 0.06]	0.20* [0.08, 0.32]

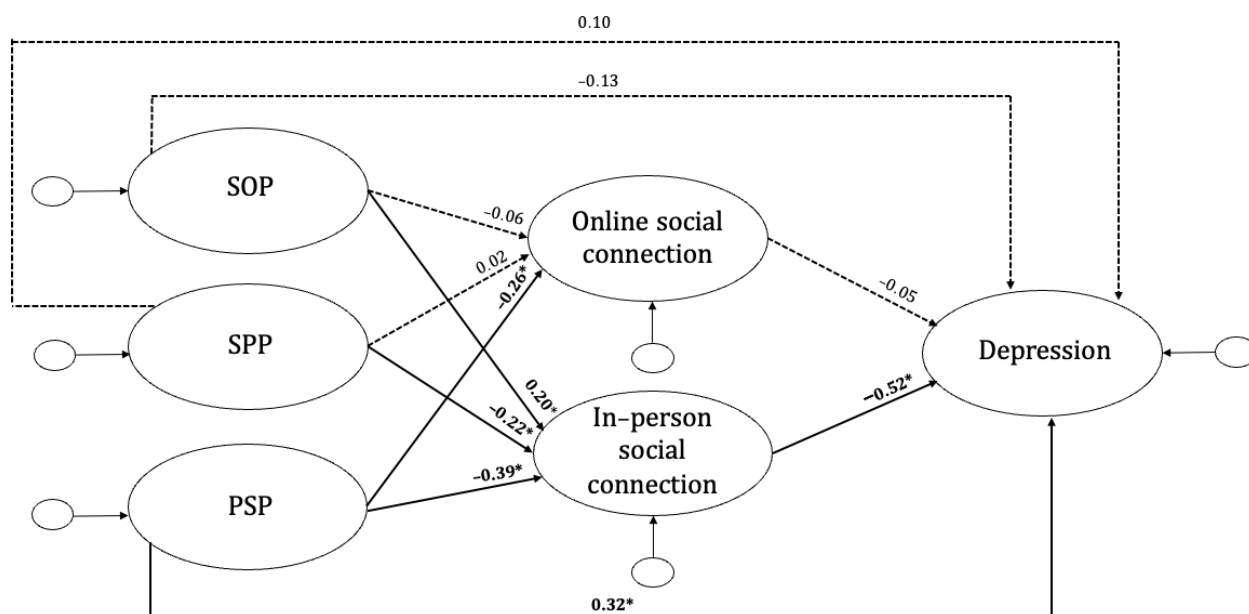
* $p < .05$

Note. SOP = self-oriented perfectionism, measured by the CAPS; SPP = socially prescribed perfectionism, measured by the CAPS; PSP = perfectionistic self-presentation, measured by the PSPS-Jr; FCS = online connection, measured by the Facebook Connectedness Scale (adapted for social media); SCS = in-person connection, measured by the Social Connectedness Scale; DEP = depression, measured by the CESD-R

Note. Model fit: $\chi^2(132) = 226.77$, $p < .001$, CFI = .98, RMSEA = .05, 95% CI [.04, .05], $p = .793$, SRMR = .04.

Figure 6.5.3.1.

Final Structural Equation Model Results, Including Covariate



* $p < .05$

Note. Significant paths are represented by solid lines; Non-significant paths are represented by dotted lines

Note. The covariate (i.e., covid-related worries) and covariances among endogenous variables are not shown here for ease of presentation

Note. Unstandardized path coefficients presented

6.4. Phase Two Discussion

The key aims of Phase 2 of the current work were to (1) examine the temporal nature of the relationships between different forms of perfectionism, (2) to test whether these relationships were explained, at least in part, by levels of social connection across time, and (3) to examine whether feelings of social connection in online spaces plays a key mediating role in these relationships, over and above feelings of social connection in in-person settings. With respect to the former, the current work was not able to provide a comprehensive examination of temporal precedence due to the stability of the model

constructs across the study period. One reason this may be the case is that the time points in the current work were relatively close together. This may not have allowed enough time to elapse between measurement occasions to capture a meaningful level of change. The current study was structured this way purposefully, given the unprecedented nature of the COVID-19 pandemic and the fast-changing landscape of mitigation efforts. However, it is possible that, rather than representing a period of time marked by chaos and change, the pandemic actually had the opposite effect for the adolescents in this study. It could be that the restrictions that came with the COVID-19 pandemic and associated shifts to day-to-day life limited change among the participants in the current work given that very little was changing in their home and school environments. The pandemic may have represented a state of limbo or suspended reality for young people in which their lives seemed to have been put on pause while they waited for a sense of normalcy to return. Had this study taken place earlier on in the pandemic, it is possible that changes may have been captured as teenagers adjusted to this new way of life. However, data collection for the current work began over a year into the pandemic and, as such, it is possible that initial shifts to perfectionism, sense of connection with others, and depression had plateaued before the baseline data was collected. Future work examining well-being and adjustment among adolescents within the context of the COVID-19 pandemic should consider a more marked lag between time points and/or the use of more than 3 time points to attempt to capture more subtle changes (e.g., McGrath et al., 2012).

In line with the PSDM, SPP and PSP were both indirectly linked to higher levels of depression via lower levels of in-person social connection. This provides support for

the notion that interpersonal forms of perfectionism may play a key role in predicting depression, via increased risk for feeling disconnected from those around them (Hewitt et al., 2006; Hewitt et al., 2017b; Sherry et al., 2016) and aligns with empirical evidence supporting role of SPP and PSP in the PSDM among adolescents (Goya Arce & Polo, 2017; Magson et al., 2019; Roxborough et al., 2012). Specifically, these results highlight the self-defeating nature of interpersonal forms of perfectionism with respect to feelings of connectedness to others. It is theorized that these forms of perfectionism are developed, in part, to secure approval and affection from significant others and to gain a sense of belonging (Habke & Flynn, 2002; Hewitt et al., 2003; Hewitt et al., 2006; Hewitt et al., 2017b). However, it appears that individuals who tend to believe that others demand perfection of them and who actively engage in strategies to present the “perfect” image or persona feel distanced from those around them. This may be due to the fact that perfectionistic behavior is perceived as cold, harsh, or hypercompetitive by those around the perfectionistic adolescent, making them seem unrelatable and unapproachable (Hewitt et al., 2017b). However, given that the measures of social connection in the current study solely relied on the self-reported accounts of adolescents, it is possible that the lack of in-person social connection reported by those higher in SPP and PSP was due to a hypersensitivity to rejection and lack of belonging, given how heavily these individuals tend to focus on others’ perceptions of them and how perfect, or imperfect, they are.

Alternatively, these findings may be explained by a combination of actual disconnection from others, due to misguided attempts to secure connection with others by meeting their standards for perfection and by presenting a perfect version of themselves, and an inflated perception of social disconnection, due to a hypersensitivity to signals

from others that they are being rejected in social situations. Indeed, this may represent a vicious cycle whereby adolescents higher in SPP and PSP are more likely to interpret and attend to rejection cues which leads them to increase their perfectionistic behavior in an attempt to course correct. In turn, this may push people away, giving young perfectionists more signals that they do not belong and are distant from their friends and peers, which they are already attuned to.

Interestingly, SOP was also linked to depression via in-person social connection, but in a positive direction. In other words, SOP was linked to higher levels of in-person social connection, which then predicted lower levels of depression. However, it appears that this effect was an example of net suppression (e.g., Palhus et al., 2004), given that the bivariate correlations between SOP and social connection and depression, respectively, demonstrated a similar pattern to SPP and PSP, whereby SOP was linked to lower levels of in-person social connection and higher levels of depression. It was only when the effects of SPP and PSP were accounted for that a more “adaptive” pattern of results emerged (Hill, 2014; Stoeber et al., 2014). However, the adaptive nature of this finding should be interpreted with caution given the fact that SOP does not exist in isolation within individuals and, in fact, tended to accompany SPP and PSP (e.g., within-time bivariate correlations ranging from .45 to .48 and .56 to .60, respectively). Similarly, Hill (2014) cautions perfectionism researchers to interpret the seemingly positive patterns typically associated with perfectionistic strivings, including SOP, once the effects of perfectionistic concerns, including SPP, are controlled for. Specifically, Hill (2014) suggests that some of the features that overlap between these two constructs (e.g., fear of failure, self-criticism) are central to the way that SOP, in this case, manifests in

perfectionists (e.g., Frost et al., 1990; Flett & Hewitt, 2006). Thus, in cases of net suppression, the ability to draw conclusions about patterns of social connection and depression in relation to SOP is lost given that the influence of some of its core characteristics has been removed and the residualized version of SOP more closely represents conscientiousness, rather than perfectionism (e.g., Flett & Hewitt, 2006; Hill, 2014; Lynam et al., 2006).

An additional aim of the current study was to test whether online connection played a mediating role in the relationship between perfectionism and depression, over and above the role of in-person connection. The present results indicated that online connection did not uniquely mediate these relationships once the effects of face-to-face connection were accounted for in the model. However, bivariate correlations indicated that online connection demonstrated a similar pattern to in-person connection with respect to its relationships with perfectionism and depression (e.g., negative relationships with all forms of perfectionism as well as with depression). Additionally, the two forms of social connection were highly correlated (i.e., within-time bivariate correlations ranging from .55 to .60). Taken together, these relationships suggest that feelings of social connection in online contexts tend to emulate those seen in face-to-face settings. This is in line with the hypothesis put forward by Hewitt and colleagues (2017b) whereby the patterns of social connection and disconnection experienced by perfectionists in online spaces would emulate those seen in in-person contexts. Notably, although this is the first study to examine feelings of online and in-person social connection in relation to perfectionism, there is some research that supports the idea that, in general, adolescents tend to use online contexts to extend and sustain the relationships they have forged in

face-to-face settings (e.g., Reich et al., 2012; Subrahmanyam & Greenfield, 2008; Winstone et al., 2021).

Indeed, follow-up analyses testing the predictive paths from perfectionism to depression with online connection as the only mediator revealed that online connection did significantly mediate the relationship between perfectionistic self-presentation and depression (see Tables 1 and 2 in Appendix R), mirroring the pattern seen with in-person social connection in the final analytical model. However, this effect was no longer significant when in-person connection was included in the final model as a mediator, suggesting that any indirect effects via online social connection were explained by the foundation of connectedness teenagers felt that they had in in-person contexts. Although online social connection did not emerge as a significant predictor over and above in-person social connection, this is a critical finding in and of itself in expanding our understanding of how adolescents, and particularly those with perfectionistic tendencies, engage with online platforms to connect with significant others. Specifically, although in-person social connection was the only unique mediator between perfectionism and depression, the current findings indicate that youth with perfectionistic interpersonal tendencies are experiencing impoverished social networks in online spaces that mirror those experienced in in-person settings (e.g., Hewitt et al., 2017b). Importantly, this is the first study to examine how perfectionism is linked with subjective feelings of connectedness to others in online contexts, in either adult or youth samples.

In sum, the present results supported the predictions of the PSDM, by demonstrating that each form of perfectionism was indirectly linked to depression via in-person social connection. Additionally, the current work provides support for the idea

that online contexts are an extension of face-to-face social environments. However, it is important to note that, due to the stability of the model constructs in the present study, temporal precedence could not be assessed in a meaningful way. This is an important area for future work to continue to explore. In conclusion, Phase 2 provided valuable findings that help to enhance our understanding of perfectionism and psychopathology in adolescents within the framework of the PSDM and the context of the COVID-19 pandemic and provide novel insight into the way adolescent perfectionism is linked to online social connection.

7. General Discussion

Altogether, the current study provided a comprehensive and rigorous test of the PSDM among a community sample of adolescents, through the use of multiple methods. In Phase One, an inductive qualitative approach was employed in which the voices of adolescent perfectionists were the key drivers in informing an account of how they experienced connection with others both online and face-to-face. In other words, the theoretical tenets of the PSDM were not imposed on the analyses and instead sought to explore two competing hypotheses. Still, support for the idea that perfectionists are more disconnected compared to their non-perfectionist peers online emerged organically, providing strong evidence for the theoretical underpinnings of the PSDM and pointing to how pervasive these experiences of social disconnection are in the lives of young perfectionists. Additionally, Phase Two offered the first longitudinal test of the PSDM among adolescents, with a relatively large sample, helping to provide support for the theoretical tenets of this model. However, the current findings were limited with respect to establishing temporal precedence among the model variables, given the stability of the constructs included in Phase Two across time. Nonetheless, the stability in perfectionism, social connection, and depression among our participants helped to provide insight into how adolescents were experiencing the COVID-19 pandemic.

Taken together, the current bi-phasic work offers a number of unique insights that help to elucidate our understanding of the PSDM among adolescents, the role of online connection, and the influence of the COVID-19 pandemic on the social experiences and well-being of young people. Each of these contributions is discussed in more detail below.

7.1. The Key Role of Perfectionistic Self-Presentation in the PSDM

When considering the results of both phases holistically, the role of PSP in the PSDM becomes strikingly clear. Indeed, PSP appeared to be the key driver of adolescent perfectionists' experiences of social disconnection in the current work. In Phase One, elements of perfectionistic self-presentation were woven throughout the four key themes. First, the perfectionist group appeared to exhibit tendencies that emulated the strategies involved with a perfectionistic self-presentational style when engaging with social media. First, they made references both to actively presenting the best versions of themselves online (e.g., perfectionistic self-promotion; *'If I'm in public, they could be looking at me from some angle where I would never post that on social media and I'm like 'Oh my God, don't look at me'. Versus on social media, I get to decide how they look at me.'* Perfectionist, Female) as well as holding back in their interactions with others online (e.g., non-disclosure of imperfections; *'Sometimes I read it out loud and my tone is just not like a good tone and I don't like it so I just stop.'* Perfectionist, Non-binary) and in their posts online (e.g., non-display of imperfections; *'I can't have anything look bad on my account. I can't have any mishaps. I can't lose followers because I post this'* Perfectionist, Female). Further, the anxiety and concern surrounding online engagement in the perfectionist group in Phase One seemed to be driven primarily by how others would perceive them online. This seemed to be true both with respect to their performance as actors in specific social interactions and to how people would perceive their personality and identity more broadly. Similarly, the concern over the lack of social feedback in online spaces among perfectionists in Phase One was often linked, in part, to not being able to gauge how others are interpreting their intentions and personality online

as well as the quality of the social interaction. In other words, the perfectionists interviewed in the qualitative portion of the current work expressed prominent feelings of worry in response to not being able to assess how they were presenting themselves in the eyes of others in social situations taking place online.

Although research examining perfectionistic self-presentation online is scarce (see Hellman, 2016, for exception), there is evidence to suggest that online contexts elicit heightened use of self-presentational strategies from users, given the increased opportunities to display information about the self and the sense of a large, ever-present and, at times, judgmental, audience (e.g., Chua & Chang, 2016; Cunningham, 2012; DeAndrea & Walther, 2011; Yau & Reich, 2018). Indeed, an awareness of the importance of how one presents oneself online may be elevated compared to in-person because online spaces are simultaneously public and private spaces in which identity is performed through a variety of mediums, including one-to-one conversations, group chats, friend and follower lists, public posts and comments, and one's profile (Cunningham, 2012). The quotes presented above reflect an awareness of the multiple ways in which others are observing and evaluating their identity online, as they touch on perfectionistic self-presentational strategies in relation to the pictures they post online, the messages they send to others, and the overall impression given off by their social media profiles, respectively. This may help to explain, in part, why perfectionistic self-presentation seemed to be heavily influencing adolescent self-identified perfectionists' experiences with online engagement.

Even in face-to-face contexts, it appeared that the adolescent perfectionists in Phase One had these same self-presentational anxieties but had learned to assuage them

via a hyper-focus on social cues from others to indicate that they are performing well in social contexts. Although they experienced similar concerns with respect to the way they are being perceived in the eyes of others in both contexts, self-presentational concerns appeared to be much more disruptive in online spaces where they felt they could not gauge others' responses to their performances of identity. This finding both aligns with and diverges from previous work examining adolescents' self-presentational efforts online more broadly (i.e., not assessing perfectionistic self-presentation specifically). On the one hand, self-presentation on social media has been linked with a variety of negative outcomes, including need for social approval, insecurity, and low self-esteem, supporting the maladaptive nature of self-presentational efforts (e.g., Chua & Chang, 2016; Meeus et al., 2019; Yau & Reich, 2018). On the other hand, self-presentation has also been linked to a handful of adaptive correlates, including perceived positive appraisals from peers, online popularity, perceived social support, increased self-esteem, and lower levels of depression (e.g., Meeus et al., 2019; Metzler & Scheithauer, 2017; Wang et al., 2019). Taken together, it appears that the impact of more general self-presentational efforts can be either adaptive or maladaptive, depending on the context and content of the self-presentation. However, in the current work, the self-presentational concerns expressed by the perfectionistic participants appeared to be primarily maladaptive in nature, often generating stress surrounding decisions about posting, commenting, and messaging and, at times, impeding socialization efforts with others. This supports the notion that perfectionistic self-presentation is a neurotic and self-defeating self-presentational style, that tends to both produce and maintain interpersonal difficulties (e.g., Hewitt et al., 2003). Future work should continue to examine the ways in which perfectionistic self-

presentation strategies are enacted by adolescents in online spaces as well as associated outcomes with respect to well-being and adjustment.

Indeed, the idea that PSP may be playing a key role in the PSDM among teenagers was supported by the findings of Phase Two. For instance, PSP had the strongest bivariate correlations with both online and in-person connection, relative to SOP and SPP. Further, PSP was the only facet of perfectionism linked to online connection and had the largest indirect effect size via in-person social connection compared to the other facets. Taken together, the results of this biphasic, multi-methods design support the notion that, although PSP may be triggered or amplified in some situations to a greater degree than others (e.g., in online spaces), PSP represents a stable and damaging interpersonal style that pervades across contexts (Hewitt et al., 2003). In sum, the results of Phase One and Phase Two emphasize the critical role of PSP in predicting poorer experiences of social connection online and in-person and, in turn, higher levels of depression.

7.2. Perfectionists' Online Relationships as an Extension of In-Person Relationships

Another key contribution of this study to the adolescent perfectionism literature is that this study is the first, to my knowledge, to examine how perfectionism is linked to adolescents' experiences online. In line with previous research on the nature of online relationships among adolescents (e.g., Reich et al., 2012; Subrahmanyam & Greenfield, 2008; Winstone et al., 2021), the present findings suggest that, for perfectionists, online relationships and interactions largely appear to be an extension of face-to-face relationships. Indeed, the majority of perfectionists in Phase One reported interacting with mostly, or exclusively, people they knew from their day-to-day lives. They also

talked about the importance of having an in-person foundation for a relationship before being able to feel a strong emotional connection to others online. Building on this idea, they also discussed how their sense of connection to others online decreased when they were restricted from seeing their friends face-to-face due to government mandates related to the COVID-19 pandemic. Altogether, these findings suggest that adolescents, including those who identify as perfectionists, use online spaces as a way to build on the social experiences they are having face-to-face and, as such, their feelings of connection online and in-person appear to fluctuate in tandem. Finally, given that online relationships are the extension, it follows that they would feel more connected to others in-person, as this is the epicenter of the relationship in most cases.

However, it is worth noting that, while this held true for the non-perfectionistic adolescents in the current sample, this was not true for all perfectionistic youth in this study. Specifically, perfectionistic youth who perceive that they have been rejected by their face-to-face peers reported using social media to supplement their relative lack of social connection by creating social networks with people they do not know in-person. Overall, the results indicate that perfectionistic youth mirror the patterns seen with more generalized samples of adolescents whereby social media platforms represent a space in which they can build upon their face-to-face relationships. However, when these youth feel that they do not have strong enough relationships with those in their day-to-day lives to transfer to social media, they take an alternative approach to online socialization in which they use social media platforms to seek out connections with people they feel they fit in better with or are less likely to be rejected by.

The results of Phase Two extended the findings of Phase One by demonstrating that online social connection demonstrated identical patterns to in-person social connection with respect to its bivariate relationships with perfectionism and depression and that online connection significantly mediated the path between PSP and depression, before in-person social connection was added into the model as a mediator. Indeed, adding in-person social connection into the analytical model fully explained the indirect effect of PSP on depression via online social connection, providing further support for the idea that connection in online spaces is dependent on connection in in-person contexts. The findings of Phase Two highlight that, although in-person relationships provide the foundation for online connections, this extension does not seem to strengthen the perfectionist's perceived social network, as is often the case for adolescents more generally (e.g., Subrahmanyam & Greenfield, 2008; Winstone et al., 2021). Rather, these findings, in conjunction with the findings from Phase One, suggest that perfectionists are experiencing similar, and sometimes amplified, interpersonal challenges that lead them to feel disconnected to others in both online and face-to-face contexts.

7.3. Lack of Change Across the Pandemic

Finally, the present work provides some novel insights into how adolescents are experiencing the COVID-19 pandemic, particularly with respect to the prolonged impact of the circumstances of the pandemic. This was particularly striking in Phase Two, as evidenced by the stability of the constructs included in the analytical model. Most studies to date examining well-being among adolescents during the pandemic took place earlier on in the pandemic and highlighted preliminary changes to adolescent well-being (e.g., Barendse et al., 2021; Blackburn et al., 2022; Hawke et al., 2020; Magson et al., 2021;

Raviv et al., 2020; Zhou et al., 2020). Thus, the current work answers calls to examine adolescent experiences in the later stages of the pandemic to assess the accumulated effects as it progresses (e.g., Belanger, 2021). The stability of the model constructs in Phase Two of the current study indicates that perhaps the pandemic has represented a sort of suspended reality for young people in which their well-being was neither improving nor declining. Rather than the uncertainty of the pandemic and related restrictions creating a set of circumstances in which mental health and well-being were fluctuating and unstable, it appears adolescents' lives were placed on pause while the pandemic played out. This idea of a societal limbo was supported by several quotes from the perfectionists in Phase One who expressed that there was little happening in their lives to share with their friends:

This is the sense I've got from like my friend group is that with the pandemic came a lot of – a lot of people had mental health issues and that type of stuff as a result from this pandemic and nobody's really excited about anything anymore. Everyone is just kind of blah. And so I think that translates to how they use social media and everyone is just like 'There's nothing to communicate about, nothing exciting is happening in my life, so I don't feel like engaging with different people'. (Perfectionist, Female)

You're disconnected from your family and friends because you can't see them. Everything's virtual. [...] You're just checking up on each other on social media and nothing's really real anymore. The world seems distorted and you feel like you're living in some fake simulation. (Perfectionist, Female)

This suspension effect of the pandemic may have helped, at least in part, to explain why there was little change in perfectionism, social connection, and depression in Phase Two the current study. Future work should continue to examine the prolonged impact of the COVID-19 pandemic on youth peoples' experiences, both with respect to the variables of interest included in this study and to a range of other outcomes, including physical health,

school experiences, and other indicators of mental health, to test whether this suspension effect replicates across multiple samples and multiple contexts.

7.4. Strengths and Limitations

Although the present work offers a number of important and novel contributions to the PSDM literature, there were a number of limitations that are worth mentioning. First, the sample included in the present study was fairly homogenous with respect to sociodemographic characteristics. Specifically, the current sample was made up of predominantly female and white participants. Given the lack of diversity in the current sample, the present findings may not apply to the experiences of all adolescents. Future work should make concerted efforts to recruit samples that are more diverse in terms of race and gender identification to examine how the experiences of perfectionism, social connection, and depression manifest among young people. Additionally, the data used in the analyses for the current study were based solely on self-reported accounts of perfectionism, social connection, and depression. In line with calls from other perfectionism scholars (e.g., Smith et al., 2021), the use of varied data collection techniques, including informant reports and observational research, is encouraged in future work examining the PSDM. Not only could the use of multiple informants and alternative data collection methods strengthen the reliability of the findings, but this would also allow for researchers to tease apart the unique contributions of subjective feelings of disconnection and objective indicators of disconnection to psychopathology, within the framework of the PSDM. Future work should consider the use of parents, friends, peers and/or teachers as informants on participants as well as varied data

collection strategies, such as observational techniques in social situations, to test the theoretical assertions implicated in the PSDM framework.

With respect to Phase One specifically, future researchers should carefully consider the utility of a non-perfectionist comparison group (Lindsay, 2019). For instance, Mallinson-Howard et al. (2018) suggested that the experiences of young perfectionist athletes outlined in their work are likely representative of the experiences of young athletes more generally, to some extent, and that assessing similar themes in a larger, more representative sample would help to gauge to what extent. However, in the current work, the key themes from the perfectionist group were striking and would have emerged as notable trends throughout the transcripts, regardless of whether or not these trends were compared to the non-perfectionist reference group. Although the reference group did offer confirmation that these trends were unique to adolescent perfectionists, which has been argued by some scholars to bolster rigor and reduce bias to qualitative findings (Lindsay, 2019; Morse, 2004), the inclusion of non-perfectionists in the Phase One analyses did not add further nuance to the current findings. Further, it is worth noting that including a reference group as a way to improve reliability and reduce bias is largely rooted in quantitative-positivist notions and may not always be appropriate when conducting qualitative work (Braun & Clarke, 2021). In this specific case, the labor spent interviewing, transcribing, coding, and analyzing the non-perfectionist participants would have been better spent on additional participants who identified as perfectionists. The inclusion of additional perfectionists may have helped to reveal further layers and complexities to the findings, particularly with respect to the subgroup of perfectionists who were using online social networks in a compensatory fashion. Indeed, qualitative

work that has focused solely on perfectionists (i.e., the population of interest) have made important contributions that have helped to advance our understanding of how perfectionism is experienced and understood by perfectionists (e.g., Hill et al., 2015; Mallinson-Howard et al., 2018).

However, this is not to say that a non-perfectionist comparison group should never be considered. In the current study, the non-perfectionist group did not add much complexity to the findings given that the only thing they had in common was an absence of perfectionistic tendencies. Indeed, a handful of the non-perfectionistic participants indicated that they did not use social media thus the comparison group did not even have the identity of social media user in common. In other words, the non-perfectionist group did not represent a cohesive comparison group, but rather a collection of individuals who did not have a clear common experience or shared aspect of identity (Morse, 2004). As such, the responses in this group tended to be quite varied and the themes that did emerge tended to be weaker compared to the perfectionist group. This may not be the case in a more targeted sample in which the comparison group shares some sort of characteristic or experience. For instance, using the example of Mallinson-Howard and colleagues' (2018) work, comparing the experiences of young perfectionistic athletes to young athletes who do not identify as perfectionists may prove to be more informative, as the experience of being an athlete would act as a common thread in the experiences of the non-perfectionistic youth. Future researchers are encouraged to reflect on the shared characteristics of a potential non-perfectionist comparison group and whether the inclusion of such a group would make meaningful contributions to the aims of the study and to our understanding of a particular context in which perfectionism influences the

experiences of youth. Should a comparison group be deemed to be appropriate, inclusion and exclusion criteria should be carefully outlined to ensure cohesion among the perfectionist group. In the case of the current work, requiring all participants to be social media users may have helped to focus the accounts of the non-perfectionist group in a way that would have been more meaningful to the current research aims. However, the design of the qualitative component of the present study was such that participants completed a series of three-part interviews, which covered social media use, perfectionism, and school experiences during COVID-19. Although this proposed inclusion criteria would have strengthened the sample for the purposes of the first component of these interviews, which was the focus of the current work, it may have biased the responses of the perfectionist and non-perfectionist groups in the remaining two sections. As such, the broad inclusion criteria for interview participation required by the multifaceted nature of the interview guide represents a limitation of the current work.

Finally, the stability of the model constructs in the present work was a notable limitation of Phase 2. Due to this stability, the current work was not able to provide meaningful insight with respect to temporal precedence in the relationships between perfectionism and depression. This is a critical issue to further explore given that much of our knowledge of the development and consequences of perfectionism are derived from research with adult samples (Flett & Hewitt, 2022) and emerging evidence supporting alternative temporal models of perfectionism and psychopathology among adolescents (Akram et al., 2015; Asseraf & Vaillancourt, 2015; Einstein et al., 2000; Spadafora et al., 2022). However, it is worth noting that the theoretical model outlined by the PSDM was still able to be tested as posited, garnering additional support for the tenability of the

model among adolescents. Future work should continue to employ rigorous longitudinal designs in research examining the PSDM among youth to further elucidate our understanding of how this model functions across time.

Despite these limitations, the current work has a number of notable methodological strengths. First, the current work analyzed a community-based sample, which represents a key strength in the adolescent PSDM literature, given that all other studies examining this model among this age group have examined specialized samples (e.g., minority youth, early adolescents, psychiatric samples; Goya Arce & Polo, 2017; Magson et al., 2019; Roxborough et al., 2012). Although these studies have provided an important foundation for the current work, the community-based nature of the present sample supports the generalizability of the findings presented above. Additionally, the sample sizes used for each phase in the current study were relatively large for their respective methodological approaches, which speaks to the credibility of the current findings.

Arguably the most substantial strength of the study presented above was its multi-method, biphasic design, which allowed for a rigorous test of the theoretical tenets of the PSDM. First, the primarily qualitative design of Phase One allowed for a bottom-up understanding of how social connection manifests among young perfectionists in both face-to-face and online contexts. By allowing these themes to emerge organically, these findings provide compelling support for the idea that perfectionism among adolescents is a key risk factor for experiences of disconnection across contexts. Further, by allowing adolescents to speak about their experiences on their own terms via semi-structured interviews, the current work was not only able to assess patterns of social connection in

various contexts but was also able to capture a key explanatory mechanism that helps to explain such patterns (i.e., anxiety and concern surrounding social interactions), that was not hypothesized a priori. Finally, the qualitative analysis employed in Phase One allowed for a subgroup of perfectionists to emerge who use social media differently than both their non-perfectionists and the majority of their perfectionist peers. Given the small number of participants who followed this pattern, their experiences would not have been captured by purely quantitative methods. However, their experiences are important to acknowledge and provide valuable insights to how perfectionistic youth cope with their sensitivity to rejection in social situations, depending on the feedback they are receiving. In sum, by allowing these experiences to emerge through a qualitative approach, the current work was able to assess how perfectionistic adolescents cope with these feelings and what tends to happen when these coping mechanisms stop working. Future work examining perfectionism, including its antecedents and related outcomes, among adolescents should continue to consider the use of qualitative methods, both to allow for adolescent voices to directly inform the work examining their experiences and for unexpected nuances and complexities within these experiences to emerge (Denzin & Lincoln, 2011; Levitan, 2019; Woodgate et al., 2020).

Notably, not only did Phase One findings inform the predictions for Phase Two, as expected, but the findings of Phase Two helped to support the findings of Phase One (e.g., the driving role of PSP in adolescents' experiences of connection) and Phase One helped to contextualize some emergent findings from Phase Two (e.g., stagnancy during the COVID-19 pandemic). The bidirectional manner in which the results from each phase informed each other was unexpected and a key strength of the current study.

7.5. Implications

The findings of the current work have a number of important implications for both theory and intervention efforts with young perfectionists. With respect to theoretical contributions, one of the most notable takeaways from the current study was the centrality of self-monitoring in the social experiences of adolescent perfectionists. Indeed, the results of Phase One indicate that young perfectionists are constantly engaged in self-monitoring processes, including attending to and interpreting social cues as well as adjusting one's behaviour as a result of these interpretations with the goal of creating a certain public image (e.g., Snyder, 1974; Hoyle & Sowards, 1993), in both in-person and online social interactions. These evaluations appeared to become more salient in online spaces for the participants in our sample, as the logistical context of popular social media platforms often made it more difficult for them to attend to and interpret social feedback. However, their discussions of why the online context was more distressing for them in terms of interacting with friends and peers (e.g., no social feedback to guide their social performance) revealed the degree to which adolescent perfectionists appear to rely on self-monitoring processes to structure their face-to-face interactions and social behaviours as well as soothe their anxieties related to in-person social situations.

This raises questions surrounding the adaptive versus maladaptive nature of self-monitoring processes reflecting perfectionistic self-presentational strategies among adolescents. On the one hand, the subjective accounts of the perfectionists in this study indicate that this is a strategy that is effective in offering them a sense of control over their in-person social interactions which, in turn, soothes their fears of being rejected or evaluated negatively by others. Indeed, the processes involved in self-monitoring (e.g.,

Hoyle & Sowards, 1993) are closely aligned with appraisal-coping models of social anxiety (e.g., Trower et al., 1990). On the other hand, there is reason to believe that this strategy may not be as adaptive as it may appear on the surface. First, given the impossibly high standards upheld for social situations by individuals with perfectionistic tendencies, whether influenced by their own personal expectations or the perceived expectations of others (e.g., Alden et al., 1994), it is possible that self-monitoring processes may form a never-ending feedback loop to which perfectionists are constantly attuned. This was supported by the accounts of the perfectionists in Phase One who indicated that they were constantly seeking out cues from others about how they were being perceived in social interactions so that they could make adjustments to their behaviour, if necessary. Further, the distress experienced by the perfectionists in the current work when their ability to rely on self-monitoring was restricted by online contexts suggests that they may have become over-reliant on self-monitoring processes as a coping strategy for social fears and anxieties. Finally, research suggests that perfectionistic self-presentational efforts are noticed by others, suggesting that these strategies may not be as effective at presenting a flawless social image as the perfectionistic individual may think (e.g., Hewitt et al., 2003).

Altogether, these findings suggest that, although self-monitoring demonstrates some adaptive potential as a coping strategy for social anxieties, it is likely that adolescent perfectionists are employing this strategy in a maladaptive way such that their worries are never fully resolved, they are overdependent on this approach which does not appear to be equally effective across contexts, and, despite their intentions, their self-presentational efforts are not having a positive impact on their public image. Future work should

continue to examine experiences of self-monitoring in social situations among adolescents with perfectionistic tendencies and associated outcomes. Despite the emphasis in the present work of the centrality of self-monitoring in the experiences of adolescent perfectionists and posited theoretical links between perfectionism and self-monitoring (e.g., Hewitt et al., 2003), there is very little empirical research examining the relationships between perfectionism and self-monitoring. Indeed, to my knowledge, only Hewitt and colleagues (2003) have tested the relationship between perfectionistic self-presentation and self-monitoring. Given the degree to which young perfectionists appear to be engaging in these processes, enhancing our understanding of how self-monitoring is linked with perfectionism among adolescents, as well as possible outcomes related to such behaviours, remains a critical area for future research in the context of the PSDM.

Additionally, the aforementioned findings with respect to self-monitoring leads to questions of temporal precedence in the experiences of perfectionism and social disconnection. The possibility that self-monitoring processes lead to a constant cycle of interpreting feedback and adjusting self-presentational strategies accordingly suggests that it is possible that perfectionism, and particularly PSP, is linked to feelings of social disconnection in a bidirectional and reciprocal manner, at least in adolescents. This is in line with emerging work supporting alternative temporal models between perfectionism and adjustment (e.g., scar model, reciprocal-causality model; Akram et al., 2015; Asseraf & Vaillancourt, 2015; Einstein et al., 2000; Spadafora et al., 2022). Future work should aim to test the temporal nature of the relationships between different forms of perfectionism and social (dis)connection to shed light on why interpersonal facets of a

perfectionistic personality style are linked to feelings of distance and isolation from others.

The current work also carries important implications for treatment and intervention efforts for perfectionistic youth, particularly those that are experiencing interpersonal difficulties including heightened interpersonal sensitivity and a depleted sense of connection to others. In the long term, the most effective course of treatment is to work with the individual to reduce their levels of perfectionism and address problematic correlates a perfectionistic personality style (Flett & Hewitt, 2014; Hewitt et al., 2006). With respect to the current study and in line with previous clinical recommendations (e.g., Hewitt et al., 2008; Hewitt et al., 2015), the present findings suggest that adolescent perfectionists may benefit particularly from interventions that target perfectionistic self-presentation and various indicators of interpersonal sensitivity (e.g., need for approval, social anxiety, fear of negative social evaluation).

One important challenge to keep in mind is that although individuals high in interpersonal forms of perfectionism may be prime candidates for benefitting from therapeutic intervention efforts, they may also be unwilling to seek help due to the perception of needing support as a critical imperfection (Flett & Hewitt, 2013; 2014). Indeed, research has demonstrated associations between PSP and negative attitudes towards help-seeking in both adult (e.g., Hewitt et al., 2008; Dang et al., 2020) and adolescent samples (e.g., DeRosa, 2000). Although direct, therapeutic interventions would be ideal, one way to circumvent a lack of willingness to seek help among adolescent perfectionists is to implement universal programs, perhaps delivered through public schooling, that take a positive psychology approach to promoting resilience among

all children and youth, rather than singling out perfectionistic youth specifically (Flett & Hewitt, 2014). Further, when adolescent perfectionists do present for professional psychological help, clinicians working must take care to acknowledge and address the defensive interpersonal style of such patients in order to establish a secure and productive therapeutic relationship (Hewitt et al., 2008).

8. Conclusion

The current work offers a rigorous and in-depth test of the PSDM among a community sample of adolescents. The qualitative design of Phase One allowed for a nuanced picture of perfectionistic adolescents' experiences with social experiences on online platforms. Importantly, Phase One highlights a heightened interpersonal sensitivity among perfectionistic youth that applies in both in-person and online settings. It appears these adolescents have learned to use self-monitoring, via interpretation of social cues and perfectionistic self-presentational strategies, to cope with distress related to this interpersonal sensitivity in in-person contexts. However, when social feedback is limited in online spaces, perfectionists are unable to soothe their social anxieties, leading to a more profound sense of disconnection from others relative to online. Interestingly, there was a subgroup of perfectionists in Phase One who reported feeling more connected to online friends than they do to their face-to-face peers. These participants appeared to have used the same self-monitoring processes but have received indicators that they were being rejected by their peers at school and in extra-curricular activities. In response, these youth seem to have withdrawn from their face-to-face peers and sought out online communities where they felt that they belonged. In sum, Phase One provided important insights about the social experiences of perfectionistic youth in both online and face-to-face contexts, the unique challenges they face in online spaces, and how some perfectionistic youth may rely on online social networks to supplement their sense of connection to significant others in response to rejection from face-to-face peers.

Phase Two built upon the findings of Phase One by providing a large-scale quantitative test of the PSDM, with indicators of both online and in-person social

connection as hypothesized mediators. The results indicated that interpersonal forms of perfectionism (SPP, PSP) play a driving role in the PSDM among adolescents, given that they were linked to increased depression via depleted in-person levels of social connection. Specifically, the results indicated that PSP was the strongest predictor of maladjustment in the context of the PSDM. Although online social connection did not emerge as a unique mediator, it appeared that experiences of online social connection were fully explained by experiences of in-person social connection. Finally, examination of the model constructs across time indicated a high degree of stability, indicating that perfectionism, social connection, and depression were neither increasing nor decreasing over a year into the COVID-19 pandemic.

Altogether the findings of the current support the central role of PSP fueling social disconnection experiences among adolescents, provide evidence for the notion that the negative effects of perfectionism seen on in-person social connection extend to feelings of social connection online, and suggest that the pandemic seems to have represented a period of suspended reality for youth in which very little, including their experiences of perfectionism, connection, and depression, was changing. With respect to theoretical implications, the current work points to a critical need to further examine the self-monitoring processes of perfectionistic youth in social situations as well as temporal relationships between perfectionism and social disconnection. With respect to therapeutic implications, the present findings indicate the importance of targeting perfectionistic self-presentation and associated interpersonal correlates, such as heightened interpersonal sensitivity.

9. Afterword: Reflections on the Research Process -- Balancing Qualitative and Quantitative Traditions

The multi-method design of the current work was a key strength and allowed for a number of important insights to emerge. However, the integration of qualitative and quantitative methods also presented a number of challenges as I navigated the current project. The common thread between these challenges was attempting to strike a balance between the research assumptions and traditions of each approach. My reflections on these challenges and how I found ways to reconcile them throughout the research process are outlined below.

The first challenge I faced in the current work was adjusting to the inductive methods inherent to qualitative research. As a perfectionist myself, there was a great deal of uncertainty and, in turn, discomfort, surrounding what may emerge from the data and how my analyses would be structured at the beginning of my project. I often feel more comfortable conducting quantitative research where the approach to analysis tends to offer a greater sense of structure. Although there are still important decision points that require critical thinking as well as a certain degree of creativity and imagination in quantitative approaches, there is far less grey area in these decisions and there is a clear sequence of metaphorical boxes to be checked in creating your plan for analysis. For instance, my plan for analysis and hypotheses in Phase Two were structured based on the theoretical framework of the PSDM. Following a well-established and support theory to set up my study allowed me to set expectations for how the research process for Phase Two would likely unfold.

In contrast, the qualitative approach employed in Phase One felt much more like stepping into the unknown. Throughout the process, I continually tried to enact the affective sense of control offered to me historically by quantitative methods. For example, I structured Phase One as an examination of two competing and mutually exhaustive possibilities for how perfectionists engage with and experience connection on online platforms, rather than fully leaning into the bottom-up nature of qualitative approaches and framing this phase as an exploratory examination of the social experiences of adolescent perfectionists online. Although the wording is essentially synonymous, the subtle differences in language exemplify my resistance towards letting go of my desired sense of control over the research process. In line with this, I also continually asked Dr. Zinga if I could choose not to analyze certain questions from the interview guide since I did not perceive them to be relevant to my research aims. At the time, I had a rigid idea of what variables I considered to be most important to address my research questions and did not see the values of analyzing what I perceived to be extraneous constructs. Despite my attempts to “trim the model”, so to speak, she continually reminded me that I had to “let the data speak for itself” and pointed out that even if on the surface, certain questions did not appear to be relevant, there may emerge overarching tendencies and themes across questions and by ignoring certain questions, I would be limiting my ability to gain a deep understanding of these overarching themes. Now, at the end of my project, I am thankful Dr. Zinga continued to encourage me to trust the qualitative process and did not allow me to slip into the familiar pattern of structuring a clear *a priori* plan for analysis rooted in my previous experiences with quantitative research and perfectionistic tendencies. Had I focused my analyses too early

on, I may have closed myself off from cultivating a deep understanding of the self-monitoring processes employed by adolescent perfectionists in social situations and the striking examples of interpersonal sensitivity highlighted by their accounts. These were not constructs I sought to examine in designing the study but given their apparent centrality in the social experiences of young perfectionists, I would have been remiss to not discuss them in the current work. Although initially I struggled with taking a broad and unstructured approach to understanding the experiences of young perfectionists, the value of the findings of Phase One far surpassed my feelings of discomfort and allowed for critical insights into key aspects of these experiences that are currently overlooked in the youth perfectionism literature. This was an important learning experience for me and underscores the importance of allowing youth voices to inform the research that directly implicates them (Denzin & Lincoln, 2011; Levitan, 2019; Woodgate et al., 2020).

The other key challenge I faced in attempting to integrate qualitative and quantitative methods into a singular study was where my experience and positionality as a researcher should be incorporated, if at all. In line with qualitative traditions (Guba & Lincoln, 1981), I wrote up my Phase One methods using first-person, proprietary language which allowed me to position myself as an integral part of the research process. However, without realizing it, I then went on to write up my Phase Two results using the same perspective. One of the main comments I got on my first draft of this thesis was to reduce my use of proprietary language as it implies bias to my findings. With respect to the quantitative results, this criticism was well-warranted given that it is in keeping with traditional quantitative methods. However, as I worked through my draft to remove such language, I realized that not only was this language appropriate for the qualitative

components of my thesis, but that there was a degree of reflexivity required for qualitative research missing from my work. This represents a unique challenge of integrating qualitative and quantitative research, given that the positioning of the researcher as an integral and influential component of the research process simultaneously strengthens the trustworthiness of qualitative findings while negatively impacting the perceived reliability of quantitative findings.

This challenge is one that I have not fully resolved. In fact, the current reflection was the compromise reached on incorporating my positionality and experience as a researcher into the current work. Even still, I do not know that reflecting at the end of the current work fully satiates the typical requirements of either qualitative or quantitative approaches. For instance, given my self-identification as a perfectionist, a traditional qualitative approach would have entailed a detailed reflection on my role as an insider-outsider in the analyses in Phase One (Adeagbo, 2021; Chhabra, 2020; Dew et al., 2019; Dwyer & Buckle, 2009; Kwame, 2017). With respect to my status as an outsider, it was clear throughout the interviews that there were cohort differences in my experiences with social media as a teenager and what youth today were experiencing. Throughout the process, I had to remain open to learning about the ways in which adolescents today engage with and express themselves on social media. With respect to my status as an insider, I was able to resonate with many of the experiences of the perfectionistic participants with social connection, both in online and face-to-face contexts. Although I tried to be mindful of my own perspectives, my own historical experiences as an adolescent perfectionist cannot be extricated from the way in which I interpreted and understood the perfectionists' data. Further, I conducted many of these interviews myself.

On the one hand, I was able to use my own experiences and understanding of what it is like to be a perfectionist, both as a teenager and presently, to establish strong rapport with the perfectionistic participants specifically. However, on the other hand, this represents yet another way in which my identity and positionality as a researcher may have shaped the data, that would typically be considered in the methods section of qualitative work (Greenbank, 2003; Holmes, 2020; May & Perry, 2017; Rowe, 2014). However, given that Phase One inherently trickled down into Phase Two, I was unable to find a way to include these reflections on my identity as a perfectionistic researcher conducting research on perfectionism earlier on in my thesis, without having it take away from the credibility of my quantitative findings when the work is considered holistically.

This remains a point of contention for me as I wrap up this project, as I see the importance and value of acknowledging how the aspects of my own identity as a researcher and as a person more broadly impact the way I approach and understand research. Although the importance of researcher identity is perhaps amplified in qualitative methods, my identity has clearly shaped the way I engage in all forms of research, as exhibited most clearly by my initial preference for quantitative methods. Even more broadly, I have long acknowledged, albeit in a more anecdotal manner, that conducting perfectionism research represents a self-reflective process for me in which I am able to both learn more about myself and use my own experiences to guide my research and understanding of adolescent experiences with perfectionism. However, there does not seem to be a clear place for such reflection and positionality in work with a substantial quantitative component. Although I was not fully able to resolve the tension related to the place of researcher reflexivity in my current work, it pushed me to think

critically about my identity as both a person and as a researcher and how that shapes the way I engage with the research process. These are important issues and questions that I will continue to consider as I move forward in my work as a perfectionism researcher.

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Appendix A: OSF Registration – Study Information

Niagara Adolescent Personality and Social Connection Study

Study Information

1. **Title (required)**

Niagara Adolescent Personality and Social Connection Study

2. **Authors (required)**

Danielle S. Molnar
Dawn Zinga
Melissa Blackburn

3. **Description (optional)**

This multimethod prospective longitudinal study will examine the roles of a range of intrapersonal (e.g., perfectionism, HEXACO personality traits, social comparison, motivation for learning) and interpersonal (e.g., social connection, school environment) factors related to mental health, adjustment, and well-being among students during the COVID-19 pandemic. Further, we will examine how these factors changes across time (e.g., intrapersonal factors, interpersonal factors, mental health, adjustment, well-being). We plan on testing the potential moderating role of transition year status (e.g., whether the adolescent is in grades 8, 9, 12 or first year of post-secondary), gender identity, age, and perceived control within these relationships. With respect to personality (i.e., perfectionism), we will be testing three competing theoretical models linking perfectionism and mental health, adjustment, and well-being outcomes (i.e., vulnerability model, scar model, reciprocal model). We will also be testing potential explanatory mechanisms in the relationship between personality and mental health, adjustment, and well-being (e.g., stress, social connection, social comparison, motivation/strategies for learning). We will also test the unique predictive utility of perfectionism with respect to mental health, adjustment, and well-being over and above broader personality traits (i.e., HEXACO). Not all models and variables will be tested at the same time. Half-longitudinal quantitative designs will be tested when data from two time points have been

collected, and full longitudinal designs will be tested when data from all three timepoints have been collected.

Using qualitative research methods (e.g., semi-structured interviews), we will be exploring the lived experiences of a subset of our participants, including their experiences of the COVID-19 pandemic, definitions of and experiences with perfectionism, and the ways in which they use online and in person social connection during the pandemic. We plan on linking these interview transcripts to their survey responses to examine whether youth experiences during the pandemic vary as a function of gender identity, age and/or whether they self-identify as a perfectionist or not. We also plan on examining their responses to the perfectionism scales included in our survey to support their identification (or not) as a perfectionist. Qualitative analysis will begin once the first round of interviews has been completed.

4. Hypotheses (required)

Models of Temporal Precedence and Explanatory Pathways

A key aim of our study will be to test three competing theoretical models linking personality (e.g., trait and behavioural perfectionism) with mental health, well-being, and adjustment over time. Specifically, we will be testing and comparing the vulnerability model (i.e., personality predicts changes in mental health, well-being, and adjustment over time), the scar model (i.e., mental health, well-being, and adjustment predict changes in personality over time), and the reciprocal model (i.e., personality and mental health, well-being, and adjustment predict changes in one another over time). Given strong theoretical support and empirical support for the vulnerability model, we hypothesize that we will find support for the vulnerability model in which perfectionism predicts poorer mental health, adjustment, and well-being. However, it must be noted that there has been mixed support for these three alternative models in youth samples. Thus, we will test the three competing models linking personality to mental health, adjustment, and well-being. Specifically, we expect higher levels of socially prescribed perfectionism (SPP) and perfectionistic self-presentation (i.e., perfectionistic self-promotion (PSP), nondisplay of imperfection (NONDISP), nondisclosure of imperfection (NONDISC) to be associated with poorer mental health, adjustment, and well-being. While we expect self-oriented perfectionism (SOP) to be related to mental health, adjustment, and well-being our hypothesis is nondirectional given mixed evidence concerning these relationships. We also hypothesize that perfectionism will demonstrate unique predictive utility with

respect to mental health, adjustment, and well-being over and above broader personality traits (HEXACO).

- Personality indicators to be tested: Trait perfectionism (SOP, SPP), behavioural perfectionism (PSP, NONDISP, NONDISC), honesty-humility, emotionality, extraversion, agreeableness, conscientiousness, openness
- Mental health, well-being, and adjustment indicators to be tested: anxiety, depression, anhedonia, subjective well-being (positive affect, negative affect, satisfaction with life) and self-reported grades.

We are further interested in the potential mediating roles of social connection, perceived stress, and social comparison in these temporal relationships.

- Based in the Perfectionism Social Disconnection Model (PSDM), we expect that the dimensions of SPP, PSP, NONDISP, and NONDISC will be linked with poorer mental health, adjustment, and well-being via higher levels of social disconnection. Although we expect SOP to be related to mental health, well-being, and adjustment via social connection we do not have a directional hypothesis given that the literature is mixed with respect to this dimension of perfectionism.
 - This study will also examine the role of online social connection within the context of the PSDM; Given the dearth of literature examining perfectionism and online social connection in conjunction with the unique context of the COVID-19 pandemic, our hypotheses will be informed by findings from our qualitative analyses of interviews with respect to adolescents use of online forms of social connection.
- We expect that higher levels of perfectionism (SOP, SPP, PSP, NONDISP, and NONDISC) will be linked with poorer mental health, greater adjustment problems and poorer well-being via high levels of stress.
- Given that individuals with elevated perfectionism exhibit a tendency to engage in upward social comparisons and that these kinds of comparisons tend to be related to a range of maladaptive outcomes, we expect that higher levels of perfectionism (SOP,

SPP, PSP, NONDISP, NONDISC) will be linked to decreased mental health, well-being, and adjustment via increased levels of upward social comparison.

- We expect that individuals with elevated levels of SPP and perfectionistic self-presentation (i.e., PSP, NONDISP, NONDISC) will exhibit lower levels of self-regulated motivation for learning which, in turn, will be related to poorer adjustment, well-being, and mental health. We expect SOP to be associated with higher levels of self-regulated motivation for learning which, in turn, will be related to better mental health, well-being, and adjustment.
- Similarly, we expect that individuals with elevated levels of SPP and perfectionistic self-presentation (i.e., PSP, NONDISP, NONDISC) will exhibit less adaptive strategies for learning which, in turn, will be related to poorer adjustment, well-being, and mental health. We expect SOP to be associated with more adaptive strategies for learning which, in turn, will be related to better mental health, well-being, and adjustment.

Finally, we are interested in the potential moderating roles of transition year, age, gender identity, and perceived control within these relationships.

- Transition year: Based in the diathesis-stress model, we expect that the relationships delineated above will be moderated by transition year (with respect to their educational experiences). That is, we expect that perfectionism, stress, social comparison, and social disconnection will be associated with the most detrimental outcomes when adolescents are in a transition year compared to when they are not in a transition year.
- Age: Exploratory
- Gender identity: Exploratory
- Perceived control: We expect that the relationships delineated above will be moderated by perceived control, such that perfectionism, stress, social comparison, and social disconnection will be associated with the most detrimental outcomes when adolescents have lower levels of perceived control compared to

when they have higher levels of perceived control. We also expect that this will be especially true for SPP.

- Stage of lockdown: We expect that the relationships delineated above will be moderated by stage of outcome, such that perfectionism, stress, social comparison, and social disconnection will be associated with the most detrimental outcomes when adolescents are under more stringent lockdown rules than when these rules are more relaxed.

Trajectories

Is perfectionism (trait and behavioural dimensions) changing over time?

Consistent with Flett and Hewitt (2020) we hypothesize that trait perfectionism and perfectionistic self-presentation will change as the pandemic progresses. However, the direction of this change is not hypothesized a priori given that individuals with pre-existing perfectionistic tendencies could increase their perfectionistic ways as a coping mechanism to regain a sense of control due to the uncertainty of the pandemic or alternatively, decrease their perfectionism because they learned to embrace positive changes during the pandemic (Flett & Hewitt, 2020). Further, given the fast-changing landscape of the pandemic it is impossible to predict future lockdowns or sudden changes in course so it is unclear whether overall changes across the sample will be linear or quadratic at this point in time. We will test for both possibilities. We also hypothesize that there will be individual differences or significant variability in the trajectories of each perfectionism dimension. We expect that perfectionism will change as a function of lockdown restrictions. These analyses will be exploratory. We will create a variable from our time-stamped data and information on restrictions from the Ontario government (where our participants will be residing) to ascertain the level of restrictions due to COVID-19. We hypothesize that individuals who are lower in perceived control, higher in social comparison (upward social comparisons), those in a transition year, those who have been more directly affected by COVID-19 (diagnosed as positive, know people who have been diagnosed as positive, or lost income due to COVID-19) will have higher levels of perfectionism at Time 1 and will exhibit an increasing rate of change in perfectionism across time (Times 2 and 3). We will also test associations with gender identity and age. However, those analyses will be exploratory.

Personality indicators to be tested: Trait perfectionism (SOP, SPP), perfectionistic self-presentation (PSP, NONDISP, NONDISC)

- *Individual level variables (assuming we are able to capture change):*
 - *Transition year*
 - *Gender identity*
 - *Age*
 - *Perceived control*
 - *Social comparison*
 - *Stage of lockdown*

How are mental health, well-being, and adjustment changing over time?

Literature emerging from the pandemic context suggests that mental health, adjustment, and well-being have changed throughout the pandemic with poorer outcomes reported since the onset of the pandemic. We hypothesize that mental health, adjustment, and well-being will change as the pandemic progresses. However, the direction of this change is not hypothesized a priori given that there is also evidence that lockdown restrictions are linked to poorer mental health, well-being, and adjustment across time. Restrictions in Ontario are beginning to be lifted (as of the time of writing; June 14th, 2021), thus, we expect that mental health will begin to improve. However, due to the rapidly changing landscape of the pandemic it is unclear what level of restrictions our participants will be living with which makes predictions about the overall trajectory of mental health, adjustment, and well-being difficult to postulate a priori. Further, it is unclear whether changes will be linear or quadratic at this point in time. We will test for both possibilities. We hypothesize that there will be individual differences or significant variability in the trajectories of mental health, adjustment, and well-being. We expect that mental health, well-being, and adjustment will change as a function of lockdown restrictions such that periods of time with increased COVID-19 restrictions will be linked to poorer mental health, adjustment, and well-being and times of decreased COVID-19 restrictions will be linked to better mental health, adjustment, and well-being. We will create a variable from our time-stamped data and information on restrictions from the Ontario government (where our participants will be residing) to ascertain the level of restrictions due to COVID-19. We also expect that individuals with higher levels of trait dimensions and behavioural dimensions of perfectionism will exhibit poorer mental health, adjustment, and well-being than those with lower levels of perfectionism at Time 1 and will demonstrate either a decrease in mental health, adjustment, and well-being or less of an increase in mental health, adjustment, and well-being depending on the overall trajectory compared to those who are

lower in perfectionism. We expect that the impact of perfectionism on mental health, adjustment, and well-being will vary by transition year such that the combination of perfectionism and transition year will be associated with the poorest outcomes. We also expect that the combination of higher levels of perfectionism (especially SPP) and lower levels of perceived control will be related to the poorest outcomes with respect to mental health, well-being and adjustment. Other potential moderators of the relationship between perfectionism and mental health, adjustment, and well-being trajectories will be explored such as age and gender-identity. Given that anxiety and depression tend to increase from early to late adolescence and then stabilize in early adulthood, we expect to see greater changes in mental health, well-being, and adjustment among early adolescents compared to later adolescents. Given no clear direction from the literature or theory with respect to differences in terms of gender-identity, we have no specific hypotheses at this time. We also expect perfectionism to uniquely predict changes in mental health, adjustment, and well-being over and above the HEXACO personality dimensions, particularly emotionality and conscientiousness, which have been robustly linked with perfectionism, mental health, well-being, and adjustment.

Mental health, well-being, and adjustment indicators to be tested: anxiety, depression, anhedonia, subjective well-being (positive affect, negative affect, satisfaction with life), grades

- *Potential moderators:*
 - *Transition year*
 - *Gender identity*
 - *Age*
 - *Perceived control*
 - *Stage of lockdown*

How are feelings of social connection, both in-person and online, shifting across time?

Given the unique circumstances of the COVID-19 pandemic, our hypotheses will be exploratory. It is possible that as restrictions in Ontario begin to be lifted, feelings of social connection will begin to increase as adolescents are increasingly able to return to their regular social activities (e.g., extracurriculars, school, hanging out with friends). Alternatively, it is possible that feelings of disconnection and loneliness will increase with lifted restrictions as adolescents see their peers connecting with others, incurring a feeling of missing out. We

hypothesize that social connection will change as the pandemic progresses. However, the direction of this change is not hypothesized a priori. It is unclear whether changes will be linear or quadratic at this point in time. We will test for both possibilities. We expect that social connection will change as a function of lockdown restrictions. These analyses will be exploratory. We will create a variable from our time-stamped data and information on restrictions from the Ontario government (where our participants will be residing) to ascertain the level of restrictions due to COVID-19. We hypothesize that there will be individual differences or significant variability in the trajectories of social connection. We also expect that individuals with higher levels of SPP and perfectionistic self-presentation (i.e., PSP, NONDISP, NONDISC) will exhibit poorer social connection than those with lower levels of perfectionism at Time 1 and will demonstrate either a decrease in social connection or less of an increase in social connection depending on the overall trajectory compared to those who are lower in perfectionism. While we expect SOP to predict social connection our hypothesis is nondirectional given mixed evidence. We expect that the impact of perfectionism on social connection will vary by transition year such that the combination of perfectionism and transition year will be associated with the poorest outcomes. We also expect that the combination of perfectionism and lower perceived control will result in poorer social connection. We further expect individuals lower in agreeableness, lower in extraversion, and lower in emotionality will have lower levels of social connection at Time 1 and will exhibit either a decrease in social connection or less of an increase in social connection depending on the overall trajectory that we find compared to those higher in agreeableness, higher in extraversion, and higher in emotionality.

- *Indicators of social connection to be tested: loneliness, social connectedness (in-person contexts), social connectedness (online contexts), social support (online contexts), social support (in-person contexts)*
- *Potential moderators:*
 - *Transition year*
 - *Gender identity*
 - *Age*
 - *Perceived control*
 - *Stage of lockdown*

COVID-19

We will explore the lived experiences of adolescents during the pandemic. Specifically, we will be asking adolescents in our study, through both survey and interview questions, about their school and extracurricular experiences during the COVID-19 pandemic as well as their experiences with and feelings towards the COVID-19 pandemic more generally (including vaccinations). Given the unprecedented and quickly changing nature of the COVID-19 pandemic, we have no directional hypotheses in relation to these research questions.

We are interested in the relationship between school delivery format (i.e., online, blended, in-person) and mental health, adjustment, and well-being. Based on preliminary research emerging from our lab, we expect that students who are engaged in in-person or blended forms of learning will have more adaptive outcomes in relation to mental health, adjustment, and well-being compared to those who are engaged in online learning.

We are interested in how adolescents are utilizing online platforms to interact with others throughout the COVID-19 pandemic and the implications that has for their sense of connection with significant others. Given the unique circumstances of the COVID-19 pandemic, this analysis will be exploratory.

- *Potential moderators:*
 - *Transition year: Exploratory*
 - *Gender identity: Exploratory*
 - *Age: Exploratory*
 - *Perceived control: Exploratory*
 - *Self-identified perfectionist status: There are two competing lines of thought regarding perfectionism and online connection. It could be the case that perfectionists experience a lower sense of connection to others online compared to their non-perfectionist peers, mirroring the patterns seen with face-to-face connection. Alternatively, perfectionists may utilize online platforms as a way to connect with others to supplement the lack of connection they feel in other areas of their lives, thus experiencing an elevated sense of connection to others online compared to their non-perfectionist peers. Given the dearth of literature testing these competing hypotheses, our exploration of how perfectionists are using online platforms will be exploratory and our preliminary results will be used to inform our work testing the Perfectionism Social Disconnection Model that will emerge from this project.*

Finally, we are interested in the prediction of COVID-19 vaccination status among youth. Specifically, we are interested in whether personality factors such as perfectionism and the HEXACO model of personality) will predict whether an individual has chosen (or will choose) to be vaccinated against COVID-19. We predict that higher levels of honesty-humility, agreeableness, conscientiousness, openness to experience, and emotionality will predict greater likelihood of getting vaccinated or more positive attitudes towards vaccination. We also predict that SOP will predict greater likelihood of getting vaccinated or more positive attitudes towards vaccination. Our hypotheses concerning SPP and perfectionistic self-presentation (i.e., PSP, NONDISP, NONDISC) remain non-directional. We will also explore demographic variables that may predict vaccination status such as gender identity, age, SES, and race. We have no apriori hypotheses concerning gender identity. However, we expect older adolescents to be more favourable towards vaccination than younger adolescents. We will also explore qualitative responses to factors that youth consider when deciding whether to get vaccinated or not. In light of emerging evidence we hypothesize that youth will consider whether others around them are getting vaccinated or not, the type of vaccine offered, the timing of the vaccination, and government restrictions concerning vaccination.

Qualitative Exploration of Perfectionism

We plan on qualitatively examining adolescents' definitions of and experiences with perfectionism. These analyses will be exploratory in nature.

0. What are the lived experiences of adolescents during the COVID-19 pandemic?
0. Are there differences in mental health, well-being, and adjustment with respect to school delivery format (e.g., online, blended, in-person)?
3. How do adolescents define and experience perfectionism?
 - a. Does this vary as a function of transition year status, gender identity, age, perceived control, or whether they identify as a perfectionist or not?
4. How are adolescents utilizing online platforms (e.g., social media, online gaming) to interact with others during the COVID-19 pandemic and what implications does this have for their sense of connection with others?

a. Does this vary as a function of transition year status, gender identity, age, perceived control, or whether they identify as a perfectionist or not?

- Potential moderators:
 - Transition year: Exploratory
 - Gender identity: Exploratory
 - Age: Exploratory
 - Perceived control: Exploratory
 - Self-identified perfectionist status: We expect that adolescents who identify as perfectionists will be more heavily influenced by societal standards and expectations and less likely to identify drawbacks associated with perfectionism compared to those who do not self-identify as perfectionists

Appendix B: OSF Registration – Design Plan

Niagara Adolescent Personality and Social Connection Study

Design Plan

In this section, you will be asked to describe the overall design of your study. Remember that this research plan is designed to register a single study, so if you have multiple experimental designs, please complete a separate preregistration.

5. Study type (required)

- 5.1. Experiment – A researcher randomly assigns treatments to study subjects, this includes field or lab experiments. This is also known as an intervention experiment and includes randomized controlled trials.
- 5.2. Observational Study – Data is collected from study subjects that are not randomly assigned to a treatment. This includes surveys, natural experiments, and regression discontinuity designs.
- 5.3. Meta-Analysis – A systematic review of published studies.
- 5.4. **Other: We are employing a mixed methods prospective longitudinal design whereby participants will complete surveys at baseline and then approximately 2 months follow up and approximately 4 months follow up. We will also interview a subset of participants at each timepoint as will be described below.**

6. Blinding (required)

- 6.1. Blinding describes who is aware of the experimental manipulations within a study. Mark all that apply.
 - 6.1.1. No blinding is involved in this study.
 - 6.1.2. For studies that involve human subjects, they will not know the treatment group to which they have been assigned.
 - 6.1.3. Personnel who interact directly with the study subjects (either human or non-human subjects) will not be aware of the assigned treatments. (Commonly known as “double blind”)
 - 6.1.4. Personnel who analyze the data collected from the study are not aware of the treatment applied to any given group.
 - 6.1.5. **OTHER: There is no treatment effect in our study. Consequently, no blinding is required for the survey portion of the study. However, please see below in additional blinding for how we are using blinding to select our interview participants.**

7. Is there any additional blinding in this study?

Participants will be selected from our survey sample to be given interviews. At baseline, study participants will be given the opportunity to indicate their interest in participating in the interview portion of the study. We will use survey data to determine a participant's status in each of the six groups necessary for the interview portion of the study (perfectionist/elementary student, non-perfectionist/elementary student, perfectionist/secondary student, non-perfectionist/secondary student, perfectionist/post-secondary student, non-perfectionist/post-secondary student). A researcher who will not be conducting interviews will assign an equal number of perfectionists and non-perfectionist to each of the education level categories (elementary/secondary/post-secondary). The interviewers will not be aware of the level of education or perfectionist status of their interviewees.

8. Study design (required)

Our study is a mixed methods prospective longitudinal study. Participants will complete a survey at three timepoints, one approximately every two months. Up to 48 selected participants (selection process described above) will have the opportunity to complete three interviews, one approximately every two months. Every effort will be made to collect longitudinal qualitative data; however, from our experience, that is not always possible.

9. Randomization (optional)

We will use survey data to determine a participant's status in each of the six groups necessary for the interview portion of the study (perfectionist/elementary student, non-perfectionist/elementary student, perfectionist/secondary student, non-perfectionist/secondary student, perfectionist/post-secondary student, non-perfectionist/post-secondary student). For every 20 participants that complete the survey and indicate that they are interested in participating in an interview, 6 will be randomly selected to participate. This process will continue until we have 4 interviews in each of the six groups highlighted above, at which point we will assess for saturation. From there, we will conduct additional interviews until we have reached saturation (up to 48 interviews). These participants will be randomly selected then screened for eligibility to ensure that we meet saturation.

Sampling Plan

In this section we'll ask you to describe how you plan to collect samples, as well as the number of samples you plan to collect and your rationale for this decision. Please keep in mind that the data described in this section should be the actual data used for

analysis, so if you are using a subset of a larger dataset, please describe the subset that will actually be used in your study.

10. **Existing data (required)**

10.1. Preregistration is designed to make clear the distinction between confirmatory tests, specified prior to seeing the data, and exploratory analyses conducted after observing the data. Therefore, creating a research plan in which existing data will be used presents unique challenges. Please select the description that best describes your situation. Please do not hesitate to contact us if you have questions about how to answer this question (prereg@cos.io).

10.1.1. Registration prior to creation of data: As of the date of submission of this research plan for preregistration, the data have not yet been collected, created, or realized. Ethics clearance has been provided for the study at this point.

11. **Data collection procedures (required)**

11.1. Please describe the process by which you will collect your data. If you are using human subjects, this should include the population from which you obtain subjects, recruitment efforts, payment for participation, how subjects will be selected for eligibility from the initial pool (e.g. inclusion and exclusion rules), and your study timeline. For studies that don't include human subjects, include information about how you will collect samples, duration of data gathering efforts, source or location of samples, or batch numbers you will use.

A research advertisement will be shared on relevant social media sites and in the media. This study will also use passive snowballing where we will not be asking people to share our posts, but our posts will be made sharable so they can be shared by individuals if they wish to do so. The advertisement will also be posted on the lab websites. Invitation letters will be sent to individuals who consented to be included in our participant pool. Survey Component: Participants will receive an Amazon gift card in the amount of \$20.00 CAD at each timepoint. Interview Component: Participants will receive an Amazon gift card in the amount of \$25.00 CAD at each timepoint.

12. **Sample size (required)**

- 12.1. Describe the sample size of your study. How many units will be analyzed in the study? This could be the number of people, birds, classrooms, plots, interactions, or countries included. If the units are not individuals, then describe the size requirements for each unit. If you are using a clustered or multilevel design, how many units are you collecting at each level of the analysis?

Our target sample size is 500 adolescents for the survey portion of this study. From these 500 we hope to interview up to 48 adolescents at each time point with the participants roughly divided as equally as possible among elementary, secondary and post-secondary students and roughly equal between perfectionists and non-perfectionists (self-identified).

13. Stopping rule (optional)

- 13.1. If your data collection procedures do not give you full control over your exact sample size, specify how you will decide when to terminate your data collection.

We will stop collecting the first wave of survey data on November 1st, 2021. We based this decision on the length of time it took us to collect data for previous studies of similar designs. Logistically, this should be enough time to collect 500 adolescents, but it should not be so long as to introduce unnecessary heterogeneity due to the rapidly changing landscape of the pandemic.

Interviews will be scheduled until we hit 4 interviews from each of our 6 groups of interest. At that point, we will assess the waitlist and increase by two interviews per group if we don't feel like we've hit saturation until we reach our target of 48 interviews at each time point. Some elements of the study may only analyze certain age groups.

Analysis Plan

You may describe one or more confirmatory analysis in this preregistration. Please remember that all analyses specified below must be reported in the final article, and any additional analyses must be noted as exploratory or hypothesis generating.

A confirmatory analysis plan must state up front which variables are predictors (independent) and which are the outcomes (dependent), otherwise it is an exploratory

analysis. You are allowed to describe any exploratory work here, but a clear confirmatory analysis is required.

1. Statistical models (required)

- a. What statistical model will you use to test each hypothesis? Please include the type of model (e.g. ANOVA, multiple regression, SEM, etc) and the specification of the model (this includes each variable that will be included as predictors, outcomes, or covariates). Please specify any interactions, subgroup analyses, pairwise or complex contrasts, or follow-up tests from omnibus tests. If you plan on using any positive controls, negative controls, or manipulation checks you may mention that here. Remember that any test not included here must be noted as an exploratory test in your final article.

Structural Equation Modeling (SEM)

To assess the hypotheses concerning temporal precedence and mediation, we will conduct structural equation modeling (SEM) with Maximum Likelihood estimation (ML) if variables meet the assumption of normality and with maximum likelihood with robust standard errors (MLR) if assumptions of normality are not met. We will use skewness and kurtosis values of outside of +/- 2 to indicate normality and inspect histograms of each continuous variable. Our models will use a half-longitudinal design when two timepoints of data are complete and a longitudinal model when our study is complete and we have all three timepoints. Latent variables will be created for each of the primary variables and covariates when possible. For latent variable identification, the fixed-factor method (e.g., pre-setting each latent construct's variance to 1.0) will be used to create a metric (i.e., standardized) scale. Confirmatory factor analyses of our measurement variables and tests of measurement invariance of our constructs across time will be conducted to ensure that we are measuring the same constructs at all timepoints (Little, 2013).

Prior to the confirmatory factor analyses of the latent variables, parceling (i.e., calculating the mean of two or more items) will be employed for SOP, SPP, PSP, NONDISP, NONDISC, HEXACO personality dimensions, anxiety, depression, social comparison, stress, social connection variables (both online and in person), motivation for learning, and anhedonia. Parceling is considered preferred practice when there are more than six items, as it increases reliability through increasing true variance and decreasing error (Little et al., 2002; 2013). Specifically, we will use the item-to-construct balancing technique to create parcels when a construct does not have subscales, such that the items with the highest loadings are combined with those with the lowest loadings (Little et al., 2013). A similar technique will be employed for constructs with subscales, such that we will create domain representative parcels, where items will be combined based on loadings but also across subscales (e.g., one item from each subscale

in each parcel; Little et al., 2013). Modification indices will be assessed to assess potential improvements in fit. However, the original model fit will be presented and only theoretically justifiable alternations will be made to the model. All modifications will be reported in the paper so that readers will be aware when modification indices were used.

To assess mediation

Indirect effects will be tested via the biased-corrected bootstrap method, which provides a more accurate balance between Type 1 and Type 2 errors than other methods used to test indirect effects (MacKinnon, Lockwood, & Williams, 2004). The significance of indirect effects was tested using 10000 bootstrap samples and the 95% bias-corrected confidence intervals (Cis).

To assess moderation

Dichotomous moderators (e.g., whether in a transition year or not) will be tested using multiple groups comparisons. Specifically, the consistency of the path model results will be tested such that model fit indices will be compared between a path model in which all predictive paths are freely estimated within the two samples, and a constrained model, in which corresponding predictive paths are set equal across samples. Small, nonsignificant changes in the model fit indices (i.e., non-significant ΔX^2 , $\Delta CFI > .01$, $\Delta RMSEA > .01$) will indicate that the assumption of equality in corresponding predictive paths across samples is tenable (Kline, 2005). Should the omnibus test indicate that the groups are statistically significantly different then an iterative approach will be taken such that equality constraints will be placed on individual paths to assess which specific paths are significantly different from one another.

The latent moderated structural equations (LMS) approach (Klein & Moosbrugger, 2000) will be used for continuous moderators (e.g., perceived control). As described above, first, confirmatory factor analyses (CFAs) will be performed to determine the adequacy of fit to the data for our proposed measurement models. Second, we will test our main effects and indirect effects structural models. Finally, a structural model including main effects and the latent interaction terms (e.g., SOP by perceived control; SPP by perceived control) will be tested. The LMS method is a widely used approach and has been supported by simulation work (Little et al., 2006; Marsh et al., 2004).

Potential covariates will include: demographic variables such as age, gender-identity, whether in a transition year or not, (if they are not moderators), race, SES, the extent to which an adolescent was directly affected by COVID-19, loss

of income due to COVID-19, how worried the person is about COVID-19 or not. Potential covariates will be tested in a block and only those that are statistically significant will be retained in the model that includes covariates as final models without and with covariates will be presented.

MULTILEVEL MODELING (MLM)

We will employ multilevel growth modeling using hierarchical linear modeling to assess trajectories of change over time in personality, mental health, adjustment, and well-being. Repeated measures of each of these constructs will be modeled continuously as a function of time (Level 1) and nested in individuals (Level 2). We will make a composite variable for subjective well-being (SWB) by first reverse scoring life satisfaction and then computing z scores for the reverse-scored negative affect, life satisfaction, and positive affect. We will then create a composite score for SWB by computing the mean of the standardized scores for negative affect, positive affect, and life satisfaction. All other outcomes (i.e., depression, anhedonia, anxiety, SOP, SPP, PSP, NDIS, NDISC) will have composite scores created according to the scoring instructions of the measure. Self-reported grades will be a single item. Time will be centered at baseline and will be entered into models uncentered to predict linear and quadratic effects of time on our outcomes of interest. An iterative procedure will be used in the estimation of all models. For example, for each outcome first a means-only model predicting each outcome will be tested to allow for the calculation of an intraclass correlation coefficient. Second, an unconditional model including the intercept, linear, and quadratic effects of wave will be estimated predicting each outcome. Third, demographic, individual difference (as specified by each hypothesis above), and/or contextual variables (as specified by each hypothesis above) will be added to the unconditional models to identify significant associations. Fourth, hypotheses concerning moderation above will be tested by adding in interaction terms between the hypothesized variables prior to MLM and then entering those interaction terms (iteratively) into the models while accounting for the main effects of each variable. Variables will be centered prior to creating the interaction terms (Aiken & West, 1991). To improve model parsimony and stability (Raudenbush & Bryk, 2002), nonsignificant terms will be trimmed from final models, but reporting will be transparent so that the reader knows what was tested at each step. Potential covariates (see above) will be tested in a block and only those that are statistically significant will be retained in the model that includes covariates as final models without and with covariates will be presented. Grand-mean centering will be used to assess between person effects and person-centered centering will be used to assess within-person effects.

Independent sample t tests will be used to assess differences with respect to demographic and self-identified perfectionist status when there are two groups present. One-Way ANOVAs will be used to assess differences with respect to demographics and school delivery. Post-hoc tests will be used to follow up significant omnibus effects, Tukey's pairwise comparison will be used when the assumption of the homogeneity of variance is met and Games Howell pairwise comparison will be used when the assumption of homogeneity of variances is not met. Chi square tests of independence will be used to assess association among categorical demographic variables.

Bivariate correlations will be conducted between continuous variables and will include the bias-corrected 95% confidence intervals. These correlations will be presented in all manuscripts that report MLM or SEM results.

2. Inference criteria

Significance values ($p < .05$) will be used to ascertain statistical significance. Effect sizes will be reported when appropriate (e.g., Cohen's d for t tests) along with 95% confidence intervals.

Model Fit Indices for SEM models:

We will use the following fit indices to assess model fit: a comparative fit index (CFI) greater than or equal to .95 (Hu & Bentler, 1998), a standardized root mean square residual (SRMR) less than .08 (Hu & Bentler, 1999), and a root mean square error of approximation (RMSEA) less than .10 (Browne & Cudeck, 1992). We will also report chi square with degrees of freedom and related significance value.

Data Exclusion

Outliers will be operationally defined as values falling outside of +/- 3 standard deviations. Outliers will be Winsorized so that they fall within +/- 3 standard deviations, but will retain ranking. Multivariate outliers will be identified using the criteria of Cook's Distance > 1 ; (Stevens, 1996). Models will be conducted with and without multivariate outliers and if there are no meaningful changes in the results then we will retain the multivariate outliers. If there are meaningful differences in the results then we will not delete the multivariate outliers from the analyses.

Qualitative analysis plan

Inductive and deductive thematic analysis as appropriate (depending on the question).

Mixed methods analysis plan: Convergence

Appendix C: OSF Registration – Study Variables

Niagara Adolescent Personality and Social Connection Study

Variables

In this section you can describe all variables (both manipulated and measured variables) that will later be used in your confirmatory analysis plan. In your analysis plan, you will have the opportunity to describe how each variable will be used. If you have variables which you are measuring for exploratory analyses, you are not required to list them, though you are permitted to do so.

14. Measured variables (required)

- 14.1. Describe each variable that you will measure. This will include outcome measures, as well as any predictors or covariates that you will measure. You do not need to include any variables that you plan on collecting if they are not going to be included in the confirmatory analyses of this study.

Variables created by the principal investigators for the purposes of this study:

Demographics

- What is your age? (11, 12, 13, 14, 15, 16, 17, 18, 19, 20, Prefer not to say)
- What is your gender? (Male, female, male to female trans, female to male trans, non-binary/gender non-conforming, other, prefer not to say)
- What is your race? (Indigenous Peoples in Canada, Black/African Canadian, White/Caucasian, Latin Canadian, Asian Canadian, Other, Prefer not to say)
- What most accurately represents your current level of school? (Elementary school, High school, College/university, Prefer not to say)
- Which of the following best describes your average grade from last year? (All A's, All B's, All C's, All D's, Mix of A's and B's, Mix of B's and C's, Mix of C's and D's, I was not in school last year, Prefer not to say)
- Compared to the average Canadian, do you think your family is (choose one): (a lot less rich, less rich, about the same, more rich, a lot more rich, prefer not to say)
- Are you currently: Not working (unaffected by COVID-19), Not working due to COVID-19, Working part-time, Working full-time, Too ill to work, Prefer not to say)
- Were you born in Canada? (yes/no, Prefer not to say)
- Were your parents born in Canada? (yes/no, Prefer not to say)
- Have one or both of your parents received a post-secondary education? (yes/no, Prefer not to say)

- Have one of your older siblings gone to post-secondary? (yes/no, Prefer not to say)
- Which of the following best describes your current living situation (I live at home with my parents as I always have (bio, step), I moved back with my parents because of COVID, with my partner, by myself, with roommates, prefer not to say)

Pilot Study Questionnaire

- If you were asked to hypothetically participate in this study how likely would you be to do the following knowing that you would receive a \$100 gift card:
 - Visit the lab in person to complete a questionnaire on the computer (yes, no, maybe, prefer not to say)
 - Provide a vial of blood with a professional nurse (yes, no, maybe, prefer not to say)
 - Provide saliva by spitting into a test tube (yes, no, maybe, prefer not to say)
 - Provide a small sample of hair (a pencil width) (yes, no, maybe, prefer not to say)
 - Provide a urine sample (yes, no, maybe, prefer not to say)
 - Provide a blood spot via a finger prick (yes, no, maybe, prefer not to say)

Self and Other Perfectionism Identification Questions

- Do you consider yourself to be a perfectionist? (Yes/No/Prefer not to say)
- Do other people in your life consider you to be a perfectionist? (Yes/No/Prefer not to say)

Internet Behaviour Questionnaire

- Are you allowed to use social media? (Yes/No, Prefer not to say)
- Which social media platforms do you use?
 - Facebook (yes/no, Prefer not to say)
 - If yes: how many friends
 - Instagram (yes/no, Prefer not to say)
 - If yes: how many followers
 - Snapchat (yes/no, Prefer not to say)
 - If yes: how many friends
 - TikTok (yes/no, Prefer not to say)
 - If yes: how many followers
 - YouTube (yes/no, Prefer not to say)
 - If yes: Do you post videos? (yes/no, Prefer not to say)
 - If yes: How many subscribers
 - If yes: How many channels do you have? (0, 1, 2, 3, 4, 5, 6, 7, more than 7, Prefer not to say)
 - If yes: Do you primarily watch or post content? (I use YouTube primarily to watch videos, I use YouTube primarily to post videos, I use YouTube equally to watch and to post videos, prefer not to say)
 - Twitter (yes/no, Prefer not to say)
 - If yes: How many followers
- On average, how many hours a day do you spend on social media? (drop down with hours)
- On average, how many days per week do you use social media? (drop down with 1-7 days)
- Do you play online video games? (Yes/No)
 - *If yes:* Do you play with friends that you would normally hang out with in-person? (Yes/No, Prefer not to say)
 - Do you play with friends you met through videogaming? (Yes/No, Prefer not to say)
 - Do you play with strangers? (Yes/No, Prefer not to say)
 - Do you play against the computer? (Yes/No, Prefer not to say)
 - On average, how many hours a day do you spend playing online video games (drop down with hours)

- On average, how many days per week do play online videogames? (drop down with 1-7 days)
- **Before the pandemic,** on an average weekday, how much time were you spending... (Drop down menu for each option: 0-24 hours)
 - Socializing with your friends on social media in real time (e.g., Facetime or other forms of video calls, Netflix connections)?
 - Socializing with your friends on social media when it's not live (e.g., texting/messaging, tagging your friends in posts)?
 - Scrolling passively on social media (e.g., looking at pictures/videos but not interacting with them)?
 - Using online video gaming to connect with your friends?
- **Before the pandemic,** on an average weekend day, how much time were you spending... (Drop down menu for each option: 0-24 hours)
 - Socializing with your friends on social media in real time (e.g., Facetime or other forms of video calls, Netflix connections)?
 - Socializing with your friends on social media when it's not live (e.g., texting/messaging, tagging your friends in posts)?
 - Scrolling passively on social media (e.g., looking at pictures/videos but not interacting with them)?
 - Using online video gaming to connect with your friends?
- **During the pandemic,** on an average weekday, how much time were you spending... (Drop down menu for each option: 0-24 hours)
 - Socializing with your friends on social media in real time (e.g., Facetime or other forms of video calls, Netflix connections)?
 - Socializing with your friends on social media when it's not live (e.g., texting/messaging, tagging your friends in posts)?
 - Scrolling passively on social media (e.g., looking at pictures/videos but not interacting with them)?
 - Using online video gaming to connect with your friends?
- **During the pandemic,** on an average weekend day, how much time were you spending... (Drop down menu for each option: 0-24 hours)
 - Socializing with your friends on social media in real time (e.g., Facetime or other forms of video calls, Netflix connections)?
 - Socializing with your friends on social media when it's not live (e.g., texting/messaging, tagging your friends in posts)?
 - Scrolling passively on social media (e.g., looking at pictures/videos but not interacting with them)?
 - Using online video gaming to connect with your friends?
- How important are likes on your social media posts? (1 = not important at all – 7 = very important, Prefer not to say)
- After posting content, how often are you checking your content for likes? (never, once a day, every 2-3 hours, once an hour, more than once an hour, Prefer not to say).
- When you post a picture of yourself are you using filters? (Yes/No, Prefer not to say)
- How often do you use filters when you post a picture of yourself? (Always, Usually, About Half the Time, Seldom, Never, Prefer not to say)
- How many times a day are you checking social media? (never, once a day, every 2-3 hours, once an hour, more than once an hour, Prefer not to say).
- How long do you spend checking social media each time? (less than 5 minutes, five minutes, 10-15 minutes, 20-30 minutes, 40 minutes-1 hour, 1.5-2 hours, 2-3 hours, more than 3 hours, Prefer not to say)

- Do you feel more connected to others in person or online (-10 = in person, 0 = connected to both equally, +10 online, Prefer not to say)
- How connected do you feel to other people online? (Not at all connected, a little bit connected, neutral, moderately connected, totally connected, prefer not to say)
- How connected do you feel to other people in-person? (Not at all connected, a little bit connected, neutral, moderately connected, totally connected, prefer not to say)
- Please refer to your screen time report to answer the following questions. To find your screen report on an iPhone, go to Settings \blacklozenge Screen Time \blacklozenge See all activity \blacklozenge Last week. To find your screen report on an Android, go to Settings \blacklozenge Digital Wellbeing \blacklozenge Select the weekly report symbol in the top right hand corner
 - Last week, what was your average daily screen time? (Open response)
 - Last week, what were your top three most used apps?
 - 1: (open response)
 - 2: (open response)
 - 3: (open response)
 - Please enter the total amount of time spent on each of your three most used apps last week:
 - 1: (open response)
 - 2: (open response)
 - 3: (open response)

General Experiences and Attitudes during COVID-19

- Are your parents/guardians still going to work outside your home? (Yes/No, Prefer not to say)
- Are your parents/guardians working remotely? (Yes/No, Prefer not to say)
- Have your parents/guardians been laid off or are no longer working due to COVID-19? (Yes/No, Prefer not to say)
- Have you been vaccinated? (Yes/no, Prefer not to say)
 - If no to above: Do you plan on getting vaccinated in the future (yes/no, Prefer not to say)
 - If yes to above When?
 - As soon as I am able to
 - Once I feel there is enough information available about the vaccine (including side effects, how effective it is)
 - Once I know other people who have gotten it
 - Once my parents/family members tell me I should
 - Once it is approved by a medical professional that I trust (e.g., my family doctor)
 - Other (open ended)
- What factors did you consider or would you consider before deciding whether to vaccinated? (Select all that apply)
 - Type of vaccine (e.g., Pfizer, Moderna, Astra Zeneca, etc.)
 - Amount of information available on potential short term effects (e.g., from the media, available research)
 - Amount of information available on potential long term effects (e.g., from the media, available research)
 - Amount of information available on how effective COVID-19 vaccines are (e.g., from the media, available research)
 - Advice from family and friends
 - Advice from my doctor
 - Public health recommendations
 - Your own health considerations

- Health considerations of your loved ones
- Health considerations of the general public
- Other (text box)
- How worried are you about COVID-19? (Likert scale: 1 = not at all worried □ 5 = very worried, Prefer not to say)
- Have you been exposed to COVID-19? (Yes/No, Prefer not to say)
- Do you know anyone who has been exposed to COVID-19? (Yes/No, Prefer not to say)
- How many people do you know that have tested positive for COVID-19 (0, 1, 2, 3, 4, 5, more than 6, Prefer not to say).
- Have you ever tested positive for COVID-19? (Yes/No, Prefer not to say)
- If yes to above : Did you experience: a) no symptoms b)mild symptoms (remained at home) c)moderate symptoms (remained at home) d)severe symptoms (hospitalized), Prefer not to say
- How worried are you about your family's finances (losing money) due to COVID-19? (Likert scale: 0= not at all worried, 5= very worried, prefer not to say)
- How worried are you about your family's health due to COVID-19? (Likert scale: 0= not at all worried, 5= very worried, Prefer not to say)
- Please select the number on the slider that best describes how you would rate your mental health at these different times. (Before the COVID-19 pandemic, Two months ago, Now, Two months from now) (Scale of 1-10)
- Please select the number on the slider that best describes how you would rate your physical health at these different times. (Before the COVID-19 pandemic, Two months ago, Now, Two months from now) (Scale of 1-10)
- Please select the number on the slider that best describes how you would rate your social life at these different times. (Before the COVID-19 pandemic, Two months ago, Now, Two months from now) (Scale of 1-10)
- Please select the number on the slider that best describes how you would rate your closeness to your family during these different times. (Before the COVID-19 pandemic, Two months ago, Now, Two months from now) (not close at all, extremely close) (Scale of 1-10)
- Please select the number on the slider that best describes how you would rate your closeness to your friends during these different times. (Before the COVID-19 pandemic, Two months ago, Now, Two months from now) (not close at all, extremely close) (Scale of 1-10)
- Please select the number on the slider that best describes how you would rate your learning and academic achievement during these different times. (Before the COVID-19 pandemic, Two months ago, Now, Two months from now) (not close at all, extremely close) (Scale of 1-10)

Experiences of school during COVID-19 – general

- How did you return to school in September 2020? (in person, online, blended (in person and online), I did not return to school in the fall, prefer not to say)
- What factors played into this decision? (Select all that apply)
 - School policy
 - Government restrictions
 - My own health concerns
 - Health concerns of my loved ones
 - I prefer in-person/online
 - I perform better in-person/online
 - I wanted to see my friends and/or have in-person interactions
 - Other (Open ended)
- Who was responsible for making the decisions about how you would attend school? Myself , Parents/guardians, Combination (the decision was made based on discussions between

myself and my parents/guardians), It was my school's policy, Other (open ended), Prefer not to say

- How comfortable are you the decisions you have made to regarding how you are attending school? 1 = Not at all comfortable, 2 = Somewhat comfortable, 3 = Neutral, 4 = Comfortable, 5 = Very comfortable, Prefer not to say
- Did this decision change in fall 2020 (not including government mandated school shutdowns)? (Yes/No, Prefer not to say)
 - If yes to above : How did it change? (From online to in person, from in person to online, from in person only to blended, from online only to blended, from blended to online only, Prefer not to say)
- Did your method of schooling change in the winter (not including government mandated school shutdowns) (Yes/No, Prefer not to say)
 - If yes to above: How did it change? (From online to in person, from in person to online, from in person only to blended, from online only to blended, from blended to online only, Prefer not to say)
- If given the option, how do you plan on returning to school in the fall 2021? (in person, online, blended (in person and online), I do not plan on returning to school in the fall, prefer not to say)
- How are you presently attending school? (in person, online, blended (in person and online), I did not return to school in the fall, prefer not to say)

Experiences of school during COVID-19 (in person learners)

- Approximately how many hours per day are you at school? (1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or more, Prefer not to say)
- Approximately how many days per week are you at school? (1, 2, 3, 4, 5, Prefer not to say)
- Approximately how many hours a day do you spend on homework? (1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or more, Prefer not to say)
- How does the education you are receiving now compare to the education you were receiving before the pandemic? (It is a lot better now, it is slightly better now, there is no difference, it is slightly worse now, it is a lot worse now, Prefer not to say).
- How many students are in your class? (less than 10, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, more than 30, Prefer not to say)
- I feel excited to be at school. (Slider) (0 = not at all – 100 = totally, Prefer not to say)
- I feel nervousness/anxiety surrounding being at school right now. (Slider) (0 = not at all – 100 = totally, Prefer not to say)
- I feel safe at school right now (Slider) (0 = not at all – 100 = totally, Prefer not to say)
- How careful are you about following the new protocol and rules at school? (1 = Not careful at all, 2 = Somewhat not careful, 3 = Neutral, 4 = Somewhat careful, 5 = Very careful, Prefer not to say)
- Are you more or less careful about following the protocols now compared to September? (1 = Much less careful now, 2 = slightly less careful now, 3 = I am as careful now as I was before, 4 = slightly more careful now, 5 = much more careful now, Prefer not to say)
- What precautions have been put into place in your school. Check all that apply.
 - Social distancing
 - Temperature checks
 - Assessment of COVID-19 symptoms
 - Frequent hand sanitizing
 - Reduced class sizes
 - Sanitizing classrooms between classes
 - Desks spaced further apart than they were before the pandemic
 - Limited access to common areas (library, lunch rooms, etc.)

- Face masks required
- Parents/guardians not allowed in the school
- Separate areas outside for each class
- Other (open response)
- I do not know what precautions were taken
- Prefer not to say
- How well do you think the rules and protocol related to COVID-19 are enforced at school? (1 = Not at all enforced/none of the time, 2 = Enforced some of the time, 3 = Neutral, 4 = Almost always enforced, 5 = Enforced entirely/all the time, Prefer not to say)

Experiences of school during COVID-19 (online learners)

- Approximately how many hours per day are you in online school? (1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or more, Prefer not to say)
- Approximately how many days per week are you in online school? (1, 2, 3, 4, 5, Prefer not to say)
- Approximately how many hours per day do you spend on homework? (1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or more, Prefer not to say)
- How many hours do you spend on synchronous learning? (1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or more, Prefer not to say)
- How many hours do you spend on asynchronous learning? (1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or more, Prefer not to say)
- How does the education you are receiving now compare to the education you were receiving before the pandemic? (It is a lot better now, it is slightly better now, there is no difference, it is slightly worse now, it is a lot worse now, Prefer not to say).
- Do you feel connected to your teachers during online learning? (1 = Not connected at all, 2 = Somewhat not connected, 3 = Neutral, 4 = Somewhat connected, 5 = Very connected, Prefer not to say)
- Do you feel connected to your peers during online learning? (1 = Not connected at all, 2 = Somewhat not connected, 3 = Neutral, 4 = Somewhat connected, 5 = Very connected, Prefer not to say)
- How well are the school/class websites working? (1 = Working very poorly, 2 = Working somewhat poorly, 3 = Neutral, 4 = Working somewhat well, 5 = Working very well, Prefer not to say)
- How well are the devices (computer/tablet) you have been using to access online learning working? (1 = Working very poorly, 2 = Working somewhat poorly, 3 = Neutral, 4 = Working somewhat well, 5 = Working very well, Prefer not to say)
- How easy is it to handle/use the technology you use for online learning? (1 = Very difficult, 2 = Somewhat difficult, 3 = Neutral, 4 = Somewhat easy, 5 = Very easy, Prefer not to say)
- If you have had issues with your technology/devices, how easy was it to access help/support fixing those issues? (1 = Very difficult, 2 = Somewhat difficult, 3 = Neutral, 4 = Somewhat easy, 5 = Very easy, Prefer not to say)
- Do you have enough technological support at home? (Yes, No, Other (open ended), prefer not to say)
- Do you have a dedicated computer at home for schoolwork? (Yes, No, Other (open ended), prefer not to say)
- How is the quality of your WIFI connection? (1 = Very poor, 2 = Somewhat poor, 3 = Neutral, 4 = Somewhat strong, 5 = Very strong, Prefer not to say)
- I feel excited to be doing online school. (Slider) (0 = not at all – 100 = totally, Prefer not to say)
- I feel nervousness/anxiety about being in school online. (Slider) (0 = not at all – 100 = totally, Prefer not to say)

- I feel satisfied to be going to school online. (Slider) (0 = not at all – 100 = totally, Prefer not to say)

Experiences of school during COVID-19 (blended learners)

- Approximately how many hours per day are you at school? (1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or more, Prefer not to say)
- Approximately how many days per week are you at school? (1, 2, 3, 4, 5, Prefer not to say)
- Approximately how many hours a day do you spend on homework? (1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or more, Prefer not to say)
- How does the education you are receiving now compare to the education you were receiving before the pandemic? (It is a lot better now, it is slightly better now, there is no difference, it is slightly worse now, it is a lot worse now, Prefer not to say).
- How many students are in your class? (less than 10, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, more than 30, Prefer not to say)
- I feel excited to be at school. (Slider) (0 = not at all – 100 = totally, Prefer not to say)
- I feel nervousness/anxiety surrounding being at school right now. (Slider) (0 = not at all – 100 = totally, Prefer not to say)
- I feel safe at school right now (Slider) (0 = not at all – 100 = totally, Prefer not to say)
- How careful are you about following the new protocol and rules at school? (1 = Not careful at all, 2 = Somewhat not careful, 3 = Neutral, 4 = Somewhat careful, 5 = Very careful, Prefer not to say)
- Are you more or less careful about following the protocols now compared to September? (1 = Much less careful now, 2 = slightly less careful now, 3 = I am as careful now as I was before, 4 = slightly more careful now, 5 = much more careful now, Prefer not to say)
- What precautions have been put into place in your school (Check boxes)
 - Social distancing
 - Temperature checks
 - Assessment of COVID-19 symptoms
 - Frequent hand sanitizing
 - Reduced class sizes
 - Sanitizing classrooms between classes
 - Desks spaced further apart than they were before the pandemic
 - Limited access to common areas (library, lunch rooms, etc.)
 - Face masks required
 - Parents/guardians not allowed in the school
 - Separate areas outside for each class
 - Other (open response)
 - I do not know what precautions were taken
 - Prefer not to say
- How well do you think the rules and protocol related to COVID-19 are enforced at school? (1 = Not at all enforced/none of the time, 2 = Enforced some of the time, 3 = Neutral, 4 = Almost always enforced, 5 = Enforced entirely/all the time, Prefer not to say)
- Approximately how many hours per day are you in online school? (1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or more, Prefer not to say)
- Approximately how many days per week are you in online school? (1, 2, 3, 4, 5, Prefer not to say)
- Approximately how many hours per day do you spend on homework? (1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or more, Prefer not to say)
- How many hours do you spend on synchronous learning? (1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or more, Prefer not to say)

- How many hours do you spend on asynchronous learning? (1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or more, Prefer not to say)
- Do you feel connected to your teachers during online learning? (1 = Not connected at all, 2 = Somewhat not connected, 3 = Neutral, 4 = Somewhat connected, 5 = Very connected, Prefer not to say)
- Do you feel connected to your peers during online learning? (1 = Not connected at all, 2 = Somewhat not connected, 3 = Neutral, 4 = Somewhat connected, 5 = Very connected, Prefer not to say)
- How well are the school/class websites working? (1 = Working very poorly, 2 = Working somewhat poorly, 3 = Neutral, 4 = Working somewhat well, 5 = Working very well, Prefer not to say)
- How well are the devices (computer/tablet) you have been using to access online learning working? (1 = Working very poorly, 2 = Working somewhat poorly, 3 = Neutral, 4 = Working somewhat well, 5 = Working very well, Prefer not to say)
- How easy is it to handle/use the technology you use for online learning? (1 = Very difficult, 2 = Somewhat difficult, 3 = Neutral, 4 = Somewhat easy, 5 = Very easy, Prefer not to say)
- If you have had issues with your technology/devices, how easy was it to access help/support fixing those issues? (1 = Very difficult, 2 = Somewhat difficult, 3 = Neutral, 4 = Somewhat easy, 5 = Very easy, Prefer not to say)
- Do you have enough technological support at home? (Yes, No, Other (open ended), prefer not to say)
- Do you have a dedicated computer at home for schoolwork? (Yes, No, Other (open ended), prefer not to say)
- How is the quality of your WIFI connection? (1 = Very poor, 2 = Somewhat poor, 3 = Neutral, 4 = Somewhat strong, 5 = Very strong, Prefer not to say)
- I feel excited to be doing online school. (Slider) (0 = not at all – 100 = totally, Prefer not to say)
- I feel nervousness/anxiety about being in school online. (Slider) (0 = not at all – 100 = totally, Prefer not to say)
- I feel satisfied to be going to school online. (Slider) (0 = not at all – 100 = totally, Prefer not to say)

Experiences of extracurriculars during COVID-19

- Are you participating in extracurricular activities or sports (in school or outside of school)? (Yes/No/Prefer not to say)
 - *If yes*, please tell us which one(s) (open ended)
 - How many hours per week on average do you spend in your extracurricular activities total? (1-30 hours, Prefer not to say)
 - How comfortable do you feel participating in your extracurricular activity or sport with the precautions that have been implemented? (1 = Not at all comfortable, 2 = Somewhat comfortable, 3 = Neutral, 4 = Moderately comfortable, 5 = Very comfortable, Prefer not to say)
 - Rate your satisfaction with your extracurricular activity or sport this year. (Slider) (0 = not satisfied at all – 100 = totally satisfied, Prefer not to say)
 - How connected to you feel to your friends/peers in your extracurricular or sport this year? (1 = Not at all connected, 2 = Somewhat connected, 3 = Neutral, 4 = Moderately connected, 5 = Very connected, 6 = Prefer not to say)
 - *If no*, Why are you not participating in any extracurricular activities or sports? Check all of the reasons that apply:
 - Extracurricular activities and sports were cancelled due to COVID-19
 - I am not comfortable participating

- My family is not comfortable with me participating
- I do not usually participate
- I am not interested in my activity/sport due to the new COVID-19 restrictions being implemented
- Other (open ended)
- Prefer not to say

Open ended COVID-19 Questions

- If you were in charge of the provincial government and had to decide on COVID restrictions, what would you do differently or the same (who gets vaccinated when, masking, what should be closed, school closings etc.)
- What are you most grateful for these days?

Measures from External Sources

Child-Adolescent Perfectionism Scale (CAPS) – 22 items (Flett et al., 2016)

Perfectionistic Self-Presentation Scale Junior Form (PSPS-Jr) – 18 items (Hewitt et al., 2011)

Center for Epidemiologic Studies Depression Scale (CES-D) – 20 items (Radloff, 1977)

Revised Children’s Manifest Anxiety Scale—2nd edition (RCMAS-2) – 49 items (Reynolds & Richmond, 2008)

Multidimensional Adolescent Anhedonia Scale (MAAS) – 24 items (Zareian, B., Hewitt, J., Hewitt, P. L., Smith, M., Ge, S., & LeMoult, J. (2021, March 18))

The HEXACO Personality Inventory – Revised (HEXACO-PI-R) – 60 items (Ashton & Lee, 2009)

Positive and Negative Affect Schedule – Child Version – 30 items (Adapted from Watson & Clark, 1999)

UCLA Loneliness Scale – 20 items (Russell et al., 1978)

Social Support Questionnaire – Shortened version – 6 items (Sarason et al., 1987; adapted by principal investigators to specify online contexts)

Social Support Questionnaire – Shortened version – 6 items (Sarason et al., 1987; adapted by principal investigators to specify in-person contexts)

Perceived Stress Scale (PSS) – 10 items (Cohen et al., 1983)

Facebook Social Connectedness Scale – 20 items (Grieve et al., 2013; Adapted by principal investigators for social media contexts more generally)

Social Connectedness Scale – 20 items (Lee et al., 2001; Adapted by principal investigators to specify in-person contexts)

Iowa-Netherlands Comparison Orientation Measure – 11 items (Gibbons & Buunk, 1999)

Satisfaction With Life Scale – Child (SWLS-C) – 5 items (Gadermann et al., 2010)

Cantril's Self-Anchoring Ladder – 4 items (Cantril, 1965)

Perceived Control Scale (Chipperfield et al., 2004; Ruthig et al., 2007)

Motivated Strategies for Learning Questionnaire (MSLQ) – 33 items (Duncan & McKeachie, 2005)

- Selected subscales: Intrinsic goal orientation, extrinsic goal orientation, control of learning beliefs, self-efficacy for learning and performance, time and study environment management, test anxiety
- Adapted for elementary, secondary and post-secondary contexts (version presented depends on participant response to level of schooling question)

Interview Guide

Ice Breaker Questions

G1. How old are you?

G2. What grade are you in?

G3. How likely are you to try something new? (Ask why, elaborate, etc., based on response)

Social Media

S1. How do you connect with others online? (Social media, online gaming)

If they indicate online gaming only, adjust questions below to apply to online gaming

If they indicate both social media and online gaming, make sure to touch on both

S2. What impact has the pandemic had on your social media use and the role of social media in your life?

S3. Do you think your engagement will change once the pandemic is over? If so, how?

S4. Please describe your use of social media.

S4a. Which social media platforms do you use?

S4b. Are there platforms you use more than others?

S4c. Do you use them for different reasons?

S4d. Do you have a private Instagram account (finsta) or private Snapchat story? If so, can you tell me more about it? (Why do you have one, what makes it different from your “regular” feed, how do you decide who is able to see your posts, etc.)

S5. How would you describe your connection, or lack of connection, to others on these platforms?

S6. How engaged are you when you are using these platforms? (E.g., posting/messaging/interacting with other posts versus passively scrolling)

S7. Is there a difference between your face-to-face interactions and your interactions using social media? Please describe.

S7a. Do you prefer interacting with others online or in-person? Why?

S7b. Do you find it easier or more difficult to connect with others online compared to in-person?

Please explain.

S7c. Do you feel more or less in control of your interactions on social media or in-person? Tell me more about that.

S8. Are the people you interact with online your real-life friends? Or do you have a separate group of people that you interact with online?

S9. How often do you post on social media?

S9a. How do you decide what to post?

S9b. Do you post to express yourself?

S9c. Do you post to receive positive feedback from others?

S10. How much time and effort are you putting into your posts?

S10a. Time spent editing

S10b. Thinking about captions/hashtags

S10c. Thinking about how to message/reply to others

S11. What do you think about the use of filters, pre-sets, and editing apps?

S11a. Do you use them?

If yes:

S11b. Which ones do you use?

S11c. Why are you using them?

S12. After posting content, how often are you checking your content for likes?

S12a. Are likes important to you?

S12b. Do you consider likes when you are deciding what to post? Why?

S13. Do you consider time of day when you are posting content? Why?

S14. When you use social media, how important is it to control the image you are presenting (e.g., posts, messages, profile pictures, etc.)? Is it important to you to appear perfect?

Perfectionism

- P1. What does perfectionism mean to you, or how would you define it?
 P1a. Can you give me some examples of what perfectionism is?
- P2. Do you think that perfection can ever be reached? Why or why not?
- P3. Would you call yourself a perfectionist or has anyone else called you a perfectionist? Why or why not?
If yes:
 P3a. (If self-identified): How would you feel about being labelled a perfectionist?
 P3b. (If others have called them a perfectionist): How does it make you feel to be labelled a perfectionist by others?
 P3c. Would you be the same if your perfectionism got taken away?
 P3d. If you could take away your perfectionism, would you choose to? Why or why not?
If no to P3:
- P4. Without saying their name, do you know anyone who is a perfectionist?
 P4a. Tell me about them – What makes them a perfectionist? Does it affect their life? If so, how?
- P5. Do you think perfectionism affects all areas of people's lives or some parts more than others? (Domain specificity)
- P6. Do you feel there is pressure to be perfect?
 P6a. If so, do you feel like there is pressure from other people to be perfect? (Examples if they need them: society, social media, parents, teachers, friends)
 P6b. Do you feel like you put pressure on yourself to be perfect?
- P7. Is it more important to be perfect or to appear perfect to others? Is there a difference?
 P7a. Is it important to you that other people think you are perfect?
 P7b. What about when you accomplish something you have been working really hard for? Is it enough that you know that you did it or is it better if other people know that you achieved that goal?
 P7c. Is it important to you to impress other people?
 P7d. Is this different on social media?
- P8. Do you think there is a difference between wanting to do well and needing to be perfect? Please explain.
 P8a. Do you think needing to be perfect versus wanting to do well leads to different outcomes?
- P9. Do you feel like the label of perfectionism has a positive or negative connotation? Or both? Or neither?
- P10. Do you think there are advantages associated with perfectionism? If so, please explain/give some examples.
- P11. Has your life ever been negatively affected by perfectionism? Can you give me an example?
 P11a. What about your friends and family, have they ever mentioned anything?
 P11a. What about [someone else they have identified as a perfectionist]? Do you think their life is ever negatively affected?

P12. Do you think perfectionism impacts relationships with other people? If so, how?

P13. How do you feel when you reach your goals? What role, if any, does reaching a goal play in setting a new goal? (e.g., celebrate, immediately set the next goal)

COVID-19

C1. Can you describe your school experience this year?

If it doesn't come up: How have you been attending school this year?

C2. How do you feel about your school work and online learning?

C2a. What is the quality of your education like this year compared to before the pandemic?

C2b. What is your workload like this year compared to before the pandemic?

C2c. What is the most challenging part of being in school this year?

C2d. What is the best part of being in school this year?

C3. Are you at all worried about losing progress in school due to the COVID-19 pandemic? Why or why not?

C4. Are you at all worried about losing any special skills that you have been developing in extracurricular activities (e.g., dance, sports, music training, etc.)?

C5. Have you been able to learn new things or try new hobbies during this time? If so, can you tell me more about that?

C6. If you were in charge of the provincial government and had to decide on COVID-19 restrictions, what would you do differently and what would you do the same? (Vaccination rollout, masking, what should be closed versus open, school closures, etc.)

C7. Do you have a typical routine for your days? Does it vary?

C7a. How important is it for you to stick to this routine?

Ending

E1. Is there anything we haven't spoken about that you would like to add?

Appendix D: Child and Adolescent Perfectionism Scale (Flett et al., 2016)

This is a chance to find out about yourself. It is not a test. There are no right or wrong answers, and everyone will have different answers. Be sure that your answers show how you actually are. Please do not talk about your answers with anyone else. We will keep your answers private and not show them to anyone. When you are ready to begin, read each sentence and select how true each statement is of you.

You are now ready to begin. Please be sure to answer all of these sentences on the following scale:

False – not at all true of me (1), Mostly false (2), Neither true nor false (3), Mostly true (4), Very true of me (5), Prefer not to say (6)

1. I try to be perfect in everything I do
2. I want to be the best at everything I do
3. My parents don't always expect me to be perfect in everything I do
4. I feel that I have to do my best all the time
5. I feel there are people in my life who expect me to be perfect
6. I always try for the top score on a test
7. It really bothers me when I don't do my best all the time
8. My family expects me to be perfect
9. I don't always try to be the best
10. People expect more from me than I am able to give
11. I get mad at myself when I make a mistake
12. Other people think I have failed if I do not do my very best all the time
13. Other people always expect me to be perfect
14. I get upset if there is even one mistake in my work
15. People around me expect me to be great at everything
16. When I do something, it has to be perfect
17. My teachers expect my work to be perfect
18. I do not have to be the best at everything I do
19. I am always expected to do better than others
20. Even when I pass, I feel that I have failed if I didn't get one of the highest marks in the class
21. I feel that people ask too much of me
22. I can't stand to be less than perfect

Appendix E: Perfectionistic Self-Presentation Scale Junior (Hewitt et al., 2011)

Below are a group of statements. Please rate your agreement with each of the statements using the following scale. If you strongly agree, circle 5. If you disagree, circle 1. If you feel somewhere in between, circle any one of the numbers between 1 and 5. If you feel neutral or undecided the middle point is 3.

1	2	3	4	5	6
Strongly disagree		Neutral		Strongly agree	Prefer not to say

1. I think a lot about the mistakes that I have made in front of other people
2. I always have to look as good as I can
3. I do not let other people know when I fail at something
4. It is important to act perfectly around other people
5. I always have to look perfect
6. I feel bad about myself when I make mistakes in front of other people
7. I have to look perfect around other people
8. I should always keep my problems secret
9. I want others to know about it when I do something well
10. I should fix my own problems rather than telling them to other people
11. Mistakes are worse when others see me make them
12. I never let others know how hard I work on things
13. If I seem perfect, other people will like me more
14. I do not want my friends to see even one of my bad points
15. I have to look like I always do things perfectly
16. It would be bad if I made a fool of myself in front of other people
17. I try hard to look perfect around other people
18. I like trying to look perfect to other people

Appendix F: Social Connectedness Scale (Lee et al., 2001)

Directions: Following are a number of statements that reflect various ways in which we view ourselves. Rate the degree to which you agree or disagree with each statement using the following scale (1 = Strongly Disagree and 6 = Strongly Agree). There is no right or wrong answer. Do not spend too much time with any one statement and do not leave any unanswered.

1 = Strongly Disagree, 2 = Disagree, 3 = Mildly Disagree, 4 = Mildly Agree, 5 = Agree, 6 = Strongly Agree, 7 = Prefer not to say

1. I feel comfortable in the presence of strangers
2. I am in tune with the world
3. Even among my friends, there is no sense of brother/sisterhood
4. I fit in well in new situations
5. I feel close to people
6. I feel disconnected from the world around me
7. Even around people I know, I don't feel that I really belong
8. I see people as friendly and approachable
9. I feel like an outsider
10. I feel understood by the people I know
11. I feel distant from people
12. I am able to relate to my peers
13. I have little sense of togetherness with my peers
14. I find myself actively involved in people's lives
15. I catch myself losing a sense of connectedness with society
16. I am able to connect with other people
17. I see myself as a loner
18. I don't feel related to most people
19. My friends feel like family
20. I don't feel I participate with anyone or any group

Appendix G: Facebook Connectedness Scale (Grieve et al., 2013) - adapted for social media more generally (13-item)

Following are a number of statements that reflect various ways in which we view ourselves. Rate the degree to which you agree or disagree with each statement using the following scale

1 = Strongly Disagree, 2 = Disagree, 3 = Mildly Disagree, 4 = Mildly Agree, 5 = Agree, 6 = Strongly Agree, 7 = Prefer not to say

There are no right or wrong answers. Do not spend too much time with any one statement and do not leave any unanswered.

1. I feel comfortable in the presence of strangers on social media.
2. I am in tune with the world of social media.
3. Even among my friends/followers on social media, there is no sense of brother/sisterhood.
4. I fit in well in new situations on social media.
5. I feel close to people on social media.
6. I feel disconnected from the world of social media.
7. Even around friends/followers on social media I know, I don't feel that I really belong.
8. I see friends/followers on social media as friendly and approachable.
9. I feel like an outsider when I'm on social media.
10. I feel understood by the people I know when I'm on social media.
11. I feel distant from friends/followers on social media.
12. I am able to relate to my friends/followers on social media.
13. I have little sense of togetherness with my friends/followers on social media.
14. I find myself actively involved in the lives of my friends/followers on social media.
15. I catch myself losing a sense of connectedness with society when I am on social media.
16. I am able to connect with other people on social media.
17. I see myself as a loner when I am on social media.
18. I don't feel related to most people on social media.
19. My friends/followers on social media feel like family.
20. I don't feel I participate with anyone or any group on social media.

Appendix H: Internet Behavior Questionnaire

1. Are you allowed to use social media? (Yes/No, Prefer not to say)
2. Which social media platforms do you use?
 - a. Facebook (yes/no, Prefer not to say)
 - i. If yes: how many friends
 - b. Instagram (yes/no, Prefer not to say)
 - i. If yes: how many followers
 - c. Snapchat (yes/no, Prefer not to say)
 - i. If yes: how many friends
 - d. TikTok (yes/no, Prefer not to say)
 - i. If yes: how many followers
 - e. YouTube (yes/no, Prefer not to say)
 - i. If yes: Do you post videos? (yes/no, Prefer not to say)
 1. If yes: How many subscribers
 2. If yes: How many channels do you have? (0, 1, 2, 3, 4, 5, 6, 7, more than 7, Prefer not to say)
 - ii. If yes: Do you primarily watch or post content? (I use YouTube primarily to watch videos, I use YouTube primarily to post videos, I use YouTube equally to watch and to post videos, prefer not to say)
 - f. Twitter (yes/no, Prefer not to say)
 - i. If yes: How many followers
3. On average, how many hours a day do you spend on social media? (drop down with hours)
4. On average, how many days per week do you use social media? (drop down with 1-7 days)
5. Do you play online video games? (Yes/No)
 - a. *If yes:* Do you play with friends that you would normally hang out with in-person? (Yes/No, Prefer not to say)
 - b. Do you play with friends you met through videogaming? (Yes/No, Prefer not to say)
 - c. Do you play with strangers? (Yes/No, Prefer not to say)
 - d. Do you play against the computer? (Yes/No, Prefer not to say)
 - e. On average, how many hours a day do you spend playing online video games (drop down with hours)
 - f. On average, how many days per week do play online videogames? (drop down with 1-7 days)
6. **Before the pandemic**, on an average weekday, how much time were you spending... (Drop down menu for each option: 0-24 hours)
 - a. Socializing with your friends on social media in real time (e.g., Facetime or other forms of video calls, Netflix connections)?

- b. Socializing with your friends on social media when it's not live (e.g., texting/messaging, tagging your friends in posts)?
 - c. Scrolling passively on social media (e.g., looking at pictures/videos but not interacting with them)?
 - d. Using online video gaming to connect with your friends?
7. **Before the pandemic.** on an average weekend day, how much time were you spending... (Drop down menu for each option: 0-24 hours)
- a. Socializing with your friends on social media in real time (e.g., Facetime or other forms of video calls, Netflix connections)?
 - b. Socializing with your friends on social media when it's not live (e.g., texting/messaging, tagging your friends in posts)?
 - c. Scrolling passively on social media (e.g., looking at pictures/videos but not interacting with them)?
 - d. Using online video gaming to connect with your friends?
8. **During the pandemic.** on an average weekday, how much time were you spending... (Drop down menu for each option: 0-24 hours)
- a. Socializing with your friends on social media in real time (e.g., Facetime or other forms of video calls, Netflix connections)?
 - b. Socializing with your friends on social media when it's not live (e.g., texting/messaging, tagging your friends in posts)?
 - c. Scrolling passively on social media (e.g., looking at pictures/videos but not interacting with them)?
 - d. Using online video gaming to connect with your friends?
9. **During the pandemic.** on an average weekend day, how much time were you spending... (Drop down menu for each option: 0-24 hours)
- a. Socializing with your friends on social media in real time (e.g., Facetime or other forms of video calls, Netflix connections)?
 - b. Socializing with your friends on social media when it's not live (e.g., texting/messaging, tagging your friends in posts)?
 - c. Scrolling passively on social media (e.g., looking at pictures/videos but not interacting with them)?
 - d. Using online video gaming to connect with your friends?
10. How important are likes on your social media posts? (1 = not important at all – 7 = very important, Prefer not to say)
11. After posting content, how often are you checking your content for likes? (never, once a day, every 2-3 hours, once an hour, more than once an hour, Prefer not to say).
12. When you post a picture of yourself are you using filters? (Yes/No, Prefer not to say)
13. How often do you use filters when you post a picture of yourself? (Always, Usually, About Half the Time, Seldom, Never, Prefer not to say)
14. How many times a day are you checking social media? (never, once a day, every 2-3 hours, once an hour, more than once an hour, Prefer not to say).

15. How long do you spend checking social media each time? (less than 5 minutes, five minutes, 10-15 minutes, 20-30 minutes, 40 minutes-1 hour, 1.5-2 hours, 2-3 hours, more than 3 hours, Prefer not to say)
16. Do you feel more connected to others in person or online (-10 = in person, 0 = connected to both equally, +10 online, Prefer not to say)
17. How connected do you feel to other people online? (Not at all connected, a little bit connected, neutral, moderately connected, totally connected, prefer not to say)
18. How connected do you feel to other people in-person? (Not at all connected, a little bit connected, neutral, moderately connected, totally connected, prefer not to say)
19. Please refer to your screen time report to answer the following questions. To find your screen report on an iPhone, go to Settings & Screen Time & See all activity & Last week. To find your screen report on an Android, go to Settings & Digital Wellbeing & Select the weekly report symbol in the top right hand corner
 - a. Last week, what was your average daily screen time? (Open response)
 - b. Last week, what were your top three most used apps?
 - i. 1: (open response)
 - ii. 2: (open response)
 - iii. 3: (open response)
 - c. Please enter the total amount of time spent on each of your three most used apps last week:
 - i. 1: (open response)
 - ii. 2: (open response)
 - iii. 3: (open response)

Appendix I: Center for Epidemiologic Studies Depression Scale (Radloff, 1977)

Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way during the past week.

- 0 = Rarely or none of the time (less than 1 day)
- 1 = Some or a little of the time (1-2 days)
- 2 = Occasionally or a moderate amount of time (3-4 days)
- 3 = Most or all of the time (5-7 days)
- 4 = Prefer not to say

- 1. I was bothered by things that usually don't bother me.
- 2. I did not feel like eating; my appetite was poor.
- 3. I felt that I could not shake off the blues even with help from my family or friends.
- 4. I felt I was just as good as other people.
- 5. I had trouble keeping my mind on what I was doing.
- 6. I felt depressed.
- 7. I felt that everything I did was an effort.
- 8. I felt hopeful about the future.
- 9. I thought my life had been a failure.
- 10. I felt fearful.
- 11. My sleep was restless.
- 12. I was happy.
- 13. I talked less than usual.
- 14. I felt lonely.
- 15. People were unfriendly.
- 16. I enjoyed life.
- 17. I had crying spells.
- 18. I felt sad.
- 19. I felt that people dislike me.
- 20. I could not get "going."

Appendix J: Additional Tables for Phase One Methods

Table 1

Descriptive Statistics for Social Connection and Social Media Variables for Total Sample

	<i>M</i>	<i>SD</i>	Min	Max
FCS	79.89	15.72	45.00	109.00
SCS	84.94	17.15	41.00	116.25
Platforms	3.70	1.79	0.00	7.00
Friends	803.61	983.61	7.00	3741.00
Hours	3.95	2.28	1.00	10.00
LikeCheck	2.41	1.46	1.00	5.00
Filters	2.14	1.11	1.00	5.00
SMCheck	3.76	1.24	1.00	5.00
SMCheckDur	3.18	1.49	1.00	8.00
LikeImp	1.82	1.01	1.00	5.00
SynChangeWd	0.51	1.86	-4.00	5.00
SynChangeWe	0.08	2.17	-6.00	5.00
AsyChangeWd	1.21	1.44	-2.00	4.10
AsyChangeWe	0.69	1.64	-4.00	5.00

Note. FCS = Online connection, measured by the Facebook Connectedness Scale (adapted for social media); SCS = Face-to-face connection, measured by the Social Connectedness Scale; Platforms = Total number of social media platforms used; Friends = Total number of friends on social media, across platforms; Hours = Total number of hours spent on social media, per day; LikeCheck = How often they are checking for likes; Filters = How often they use filters; SMCheck = How often they are checking social media; SMCheckDur = How long they are on social media each time they check; LikeImp = How important likes are to them; SynChangeWd = Change in amount of time spent interacting with friends in a synchronous manner on weekdays following the onset of the pandemic, in hours; SynChangeWe = Change in amount of time spent interacting with friends in a synchronous manner on weekends following the onset of the pandemic, in hours; AsyChangeWd = Change in amount of time spent interacting with friends in an asynchronous manner on weekdays following the onset of the pandemic, in hours; AsyChangeWe = Change in amount of time spent interacting with friends in an asynchronous manner on weekends following the onset of the pandemic, in hours

Table 2*Original Response Categories for Emergent Codes, Perfectionist Group*

Emergent Code	Original Categories
A – Online Connection and Relationships	Pandemic references Connecting with friends/family/acquaintances Connecting with broader communities Exclusively online friendships (or lack thereof) Feeling close to others/good connection online Distance/lack of connection online Anxiety/worry surrounding online connections and interactions
B – In-person Connection and Relationships	Pandemic references Good connection in-person/relatively better than online Lack of connection in-person
C – Online Positives/In-person Negatives	Pandemic references Tool for connecting with others Curated/controlled presentation and interactions More comfortable/easier to say what you want Source of information Entertainment
D – Online Negatives/In-person Positives	Pandemic references Anxiety/worry surrounding online interactions (including miscommunication concerns) Social cues/feedback More meaningful and engaged in-person More comfortable/easier in-person More control in-person Less edited in-person No delay in-person
E – Positive Feedback Online	Validation via likes Validation via comments Wanting to make a good/positive impression

	Likes as meaningless/not important Reluctance to admit seeking positive feedback
F – Negative Feedback Online	Avoiding offending others Avoiding giving off a negative impression Concern over/fear of judgment Receiving negative feedback/an absence of feedback
G – Preferences for Online Versus In-person	Preference for in-person
H – Privacy and Safety	Don't like to post too much Don't interact with/problems with interacting with strangers online Privacy settings/strategies Parental restrictions Feelings of safety
I – Insecurity Versus Confidence	Pandemic references Insecurity references Validation references Confidence references
J – Fitting In	Posting to fit in Toxicity online Fitting in with online communities Not fitting in in-person
K – Self Expression, Sharing, and Identity	Pandemic references Identity-based expression (Seeking validation; Highlight reel; Authentic/free expression online; Holding back online; Curated online presence) Self-expression limited by online context Content-based expression
L – Image	Wanting to portray a certain image Public versus private self Wanting to be authentic/true to self Concern over others putting up a front online
M – Control	Control over expression Control over accounts/settings Control over conversations

	Lack of control online
N – Etiquette and Social Rules	Rules for posting Rules for interacting Rules about platforms Resistance towards rules
O – Pandemic References	Lack of connection and social interaction Changes to social media use

Table 3*Original Response Categories for Emergent Codes, Non-perfectionist Group*

Emergent Code	Original categories
A – Online Connection and Relationships	Connecting with friends/family Exclusively online friendships (or lack thereof) Feeling close to others/good connection online Distance/lack of connection online
B – In-person Connection and Relationships	Good connection in-person Lack of connection in-person
C – Online Positives/In-person Negatives	Pandemic references Sense of community online Easy to connect/say what you want online More control online Eliminates logistical obstacles
D – Online Negatives/In-person Positives	Pandemic references More meaningful interactions in-person Social cues More things to do in-person More comfortable/easier in-person Added logistical problems online
E – Positive Feedback Online	Validation via likes Validation via comments Likes as meaningless/not overly important
F – Negative Feedback Online	Wanting to avoid presenting a negative image Not affected by negative feedback
G – Preferences for Online Versus In-person	Preference for in-person
H – Privacy and Safety	Don't like to post too much Don't interact with strangers online Privacy settings/strategies
I – Insecurity Versus Confidence	Insecurity references Validation references Confidence references
J – Fitting In	Posting to fit in

K – Self Expression, Sharing, and Identity	Identity-based expression (Seeking validation online; Highlight reel; Authentic/free expression online; Holding back online; Fake or curated presence) Content-based expression
L – Image	Trying to portray a certain image Wanting to be authentic/true to the self
M – Control	Control over expression Control over accounts/settings
N – Etiquette and Social Rules	Rules for posting Rules for interacting
O – Pandemic References	Lack of connection/social interaction Changes to social media use

Table 4*Original Response Categories for Interview Questions, Perfectionist Group*

Interview Question	Original Categories
S2 – What impact has the pandemic had on your social media use and the role of social media/video games in your life?	Amount of use Maintaining communication/relationships Filling time/boredom Decreased connection/communication with others Passive use
S3 – Do you think your engagement with social media will change once the pandemic is over?	No change/no significant change Decrease Increase Back to in-person interaction Back to regular schedules/activities Decreasing social media during the pandemic
S4c – Do you use them (different platforms) for different reasons?	Entertainment/boredom/education Posting/creating content Communicating/connecting with family and friends Getting updates on family and friends Keeping up with news and trends
S4d – Do you have a private Instagram account or private Snapchat story? If so, can you tell me more about it? (E.g., why do you have one, what makes it different from your regular feed, how do you decide who is able to see your posts?)	No private story/account Has a private story/account More personal More control Niche interests Other Close friends only
S5 – How would you describe your sense of connection, or lack of connection, to others on these platforms?	Well-connected online Poor connection online Less connected now than before (i.e., now compared to pre-pandemic) Depends on the person
S6 – How engaged are you when you are using these platforms?	Primarily interacting Primarily scrolling/passive use Equal mix of both

S7 – Is there a difference between your face-to-face interactions and your interactions using social media?	Easier/more comfortable to talk in-person More non-verbal cues in-person More genuine/personal in-person Timing issues online Easier to talk/express yourself online No significant difference
S7a – Do you prefer interacting with others online or in-person? Why?	Online In-person No preference
S7b – Do you find it easier or more difficult to connect with others online compared to in-person?	Easier online/more difficult in-person More difficult online/easier in-person No difference
S7c – Do you feel more or less control of your interactions on social media compared to in-person?	More control online/less control in-person Less control online/more control in-person No difference
S8 – Are the people you interact with online your real-life friends? Or do you have a separate group of people you interact with online?	Real-life friends only Mix of both Descriptions of online relationships
S9 – How often do you post on social media?	Often Not often Depends on real-life events Depends on the platform
S9a – How do you decide what do post?	Confidence/personal preference Other peoples' perceptions/social rules Random/spontaneous/capturing the moment Life events Content-based (e.g., trends, memes, etc.)
S9b – Do you post to express yourself?	Yes No Depends
S9c – Do you post to receive positive feedback from others?	Yes No Depends
S12 – After posting content, how often are you checking your content for likes?	Checking often Checking casually/with notifications Infrequently/not very often

S12a – Are likes important to you?	Yes Somewhat/a little bit No
S12b – Do you consider likes when deciding what to post?	Yes No
S14 – When you use social media, how important is it to control the image you are presenting? Is it important to your to appear perfect online?	Very important/pretty important to control Kind of important/a little important to control Not important to control Yes – important to be perfect Sometimes important to be perfect Not important to be perfect

Note. Questions were only included here when relevant for the current analyses – See

Appendix C for a full list of interview questions

Table 5*Original Response Categories for Interview Questions, Non-perfectionist Group*

Interview Question	Original Categories
S2 – What impact has the pandemic had on your social media use and the role of social media/video games in your life?	Amount of use Maintaining communication/relationships Filling time/boredom
S4c – Do you use them (different platforms) for different reasons?	Entertainment/boredom/education Creating content Communicating/connecting with family and friends Getting updates on family and friends Keeping up with news/trends
S4d – Do you have a private Instagram account or private Snapchat story? If so, can you tell me more about it? (E.g., why do you have one, what makes it different from your regular feed, how do you decide who is able to see your posts?)	No private story/account Has a private story/account More personal More control For close friends only
S5 – How would you describe your sense of connection, or lack of connection, to others on these platforms?	Well-connected online More connected in-person than online Less connected now than before (i.e., now compared to pre-pandemic) Depends on the platform
S6 – How engaged are you when you are using these platforms?	Primarily interacting with others Primarily scrolling/passive use Mix of both
S7 – Is there a difference between your face-to-face interactions and your interactions using social media?	More authentic in-person Easier/more comfortable to talk in-person Easier to talk online No significant differences
S7a – Do you prefer interacting with others online or in-person? Why?	In-person
S7b – Do you find it easier or more difficult to connect with others online compared to in-person?	Easier online/more difficult in-person More difficult online/easier in-person No difference

S7c – Do you feel more or less control of your interactions on social media compared to in-person?	More control online/less in-person Less control online/more in-person No difference
S8 – Are the people you interact with online your real-life friends? Or do you have a separate group of people you interact with online?	Real-life friends only Mix of both Descriptions of online relationships
S9 – How often do you post on social media?	Not often Depends
S9a – How do you decide what do post?	Confidence Other peoples' perceptions/social rules Life events Content-based (e.g., trends, memes, etc.)
S9b – Do you post to express yourself?	Yes No Depends
S9c – Do you post to receive positive feedback from others?	Yes No Depends
S12a – Are likes important to you?	Yes No
S14 – When you use social media, how important is it to control the image you are presenting? Is it important to you to appear perfect online?	Very important/pretty important to control Kind of important/a little important to control Not important to control Not important to be perfect

Note. Questions were only included here when relevant for the current analyses – See

Appendix C for a full list of interview questions

Table 6

Response Categories Merged Across Emergent Codes and Interview Questions,

Organized by Research Question, Perfectionist Group

Research Question	Merged categories	Emergent Codes	Questions
1) How connected do adolescent perfectionists feel on online platforms compared to non-perfectionists? Does this differ from their sense of connection in in-person contexts?	References to feeling well-connected online References to poor connection online References to feeling well-connected in-person References to lack of connection in-person	A, B, D	S5
2) Are adolescent perfectionists using online platforms differently than adolescents who do not identify as perfectionists in ways that impact their sense of connection online?	Reasons for using social media Private stories Who are they interacting with online? What are they posting? Curated/controlled presentation and interactions	A, C, H, K, M	S4c, S4d, S6, S7c, S8, S9, S12b
3) How do adolescent perfectionists versus adolescent non-perfectionists think about their interactions with others online compared to in-person?	Anxiety/concern about interactions and relationships Anxiety/concern about impression and identity management Lack of social cues Need an in-person foundation for a sense of connection online Lack of control online Preference for in-person versus online Preference for online versus in-person How do they decide what to post? Importance (or not) of likes	A, C, D, E, F, G, H, I, J, K, L, M, N	S7, S7a, S7b, S7c, S9a, S9b, S9c, S12, S12a, S12b S14

	Validation via likes and comments Reluctance to admit seeking validation/valuing positive feedback			
4) How has the COVID-19 pandemic impacted the way adolescents connect with others online? Does this differ as a function of whether the individual identifies as a perfectionists or not?	Amount of use Social media as a tool to connect during the pandemic Connection during the pandemic	A, B, C, D, K, O		S2, S3, S5
5) How does self-identified perfectionists status align with scores on validated measures of trait and behavioural perfectionism?	N/A	N/A		N/A

Table 7

Response Categories Merged Across Emergent Codes and Interview Questions,

Organized by Research Question, Non-perfectionist Group

Research Question	Merged categories	Emergent Codes	Questions
0) How connected do adolescent perfectionists feel on online platforms compared to non-perfectionists? Does this differ from their sense of connection in in-person contexts?	References to feeling well-connected online References to poor connection online References to feeling well-connected in-person	A, B, C, D	S5
2) Are adolescent perfectionists using online platforms differently than adolescents who do not identify as perfectionists in ways that impact their sense of connection online?	Reasons for using social media Private stories Who are they interacting with online? What are they posting? Curated/controlled presentation and interactions	A, H, K, M	S4c, S4d, S6, S8, S9, S9a
3) How do adolescent perfectionists versus adolescent non-perfectionists think about their interactions with others online compared to in-person?	Anxiety/concern about interactions and relationships Anxiety/concern about impression and identity management Need an in-person foundation for a sense of connection online Lack of control online Logistical problems (general) Logistical advantages Preference for online versus in-person Advantages to online	A, B, C, D, E, F, G, I, J, L, M, N	S5, S7, S7a, S7b, S7c, S9a, S9b, S9c, S12a, S14

	How do they decide what to post? Importance (or not) of likes Validation via likes and comments		
4) How has the COVID-19 pandemic impacted the way adolescents connect with others online? Does this differ as a function of whether the individual identifies as a perfectionists or not?	Amount of use Social media as a tool to connect during the pandemic Connection during the pandemic	C, D, O	S2, S5
5) How does self-identified perfectionists status align with scores on validated measures of trait and behavioural perfectionism?	N/A	N/A	N/A

Appendix K: Initial Codebook for Phase One Qualitative Interview Coding

MB Thesis Phase 1 – Initial Codebook

Name	Description
A Online Connection and Relationships (Outside of S5)	References to how connected they feel to others online, including the depth and quality of these connections and relationships; Include any descriptions of Snapchat streaks
B In Person Connection and Relationships (Outside S5)	References to how connected they feel to others in person, including the depth and quality of these connections and relationships
C Online Benefits	Benefits to interacting and connecting with others online (e.g., I can say things I would be too shy to in person)
D Online Challenges	Challenges associated with online connections and relationships (e.g., people don't get back to you right away, hard to tell what people really mean)
E In Person Benefits	Benefits associated with interacting with others in person (e.g., the conversation flows more naturally)
F In Person Challenges	Challenges associated with interacting with others in person (e.g., I get really anxious interacting with others in person)
G Positive Feedback Online (Outside of S9c)	Can be references to actual feedback they have received or what they are hoping to/expecting to receive; Include actual/anticipated reactions as well (e.g., I want people to look at my caption and think I'm funny); Include references to feedback they give others and reactions they have to others' posts as well
H Negative Feedback Online	Can be references to actual feedback they have received or what they worry about receiving, anticipate receiving, want to avoid receiving; Include actual/anticipated reactions as well (e.g., I worry that people will look at my caption and think it is stupid); Include references to feedback they give others and reactions they have to others' posts as well; Fear of judgment and judgment of others online goes here
I Preference for Online vs In Person (Outside of P7a)	References to having a preference for either online or in person; Cost-benefit analysis goes here too (e.g., if they are talking about both having pros and cons but don't settle on a preference)
J Other Positive Aspects of Social Media	Positive aspects of social media outside the context of social connections/relationships (e.g., gives me something to do with my time, I can share my art/photography online)
K Other Negative Aspects of Social Media	Negative aspects of social media outside the context of social connections/relationships (e.g., waste of time, bad for mental health)
L Privacy and Safety	Can be any references to privacy or safety either online or in person

M Insecurity vs Confidence	Can be any references to insecurity or confidence either online or in person
N Fitting In	Any references to either fitting in with peers or not fitting in with peers; Can be either online or in person; Examples: keeping up with trends, having to censor themselves to fit in, sense of belonging
O Self Expression, Sharing and Identity (Outside of S9b)	Can be either online or in person; Can be expression of identity, personality or emotions; Can be references to content-based expression; Can be in the context of feeling like they can express themselves or can't express themselves
P Image (Outside of S14)	Can be either online or in person; References to how they present themselves, attempt to present themselves, how they think other people see them; If they make reference to the idea that their image is either congruent or incongruent with their true identity, put it here and in O Self Expression and Identity
Q Control (Outside of S7c)	Can be either online or in person; Including, but not limited to, references to time (outside of S10, including S10a-c), control of the conversation, lack of control in either context
R Etiquette and Social Rules	Can be either online or in person; Examples: needing to be more polite in either context, worrying about offending people online, evaluations of what is appropriate/inappropriate in either context
S Pandemic References (Outside of S2 and S3)	Any references to the influence or impact of the pandemic
T Age References	Any references to age or age-related changes
U Gender Differences	Any references to gender differences

Appendix L: Final Codebook for Phase One Qualitative Interview Coding

MB Thesis Phase 1 – Final Codebook

Name	Description
A Online Connection and Relationships (Outside of S5)	References to how connected they feel to others online, including the depth and quality of these connections and relationships; Include references to Snapchat streaks and parasocial relationships (I.e., feeling connected to people online they don't know like influencers or Tik Tokers)
B In Person Connection and Relationships (Outside S5)	References to how connected they feel to others in person, including the depth and quality of these connections and relationships
C Online Positives or In Person Negatives	Any positive aspects of using social media or other forms of online communication (including video games, texting, Facetime, etc); Any negative aspects of in-person communication and socialization
D Online Negatives or In Person Positives	Any negative aspects of using social media or other forms of online communication (including video games, texting, Facetime, etc); Any positive aspects of in-person communication and socialization
E Positive Feedback Online	Can be references to actual feedback they have received or what they are hoping to/expecting to receive; <u>Include actual/anticipated reactions as well</u> (e.g., I want people to look at my caption and think I'm funny); Include references to feedback they give others and reactions they have to others' posts as well
F Negative Feedback Online	Can be references to actual feedback they have received or what they are hoping to/expecting to receive; <u>Include actual/anticipated reactions as well</u> (e.g., I worry that people will look at my caption and think it is stupid); Include references to feedback they give others and reactions they have to others' posts as well; Fear of judgment and judgment of others online goes here
G Preference for Online vs In Person (Outside of S7a)	References to having a preference for either online or in person; Cost-benefit analysis goes here too (e.g., if they are talking about both having pros and cons but don't settle on a preference); Include consideration of preference shifting by context
H Privacy and Safety	Any references to privacy or safety, either online or in-person; References to private Snapchat story access and restrictions outside of S4d
I Insecurity vs Confidence	Any references to insecurity or confidence, either online or in-person; Go broader with this code, include subtle indications of insecurity or confidence

J Fitting In	Any references to either fitting in with peers or not fitting in with peers; Can be online or in person; Examples: keeping up with trends, having to censor themselves to fit in, sense of belonging; Go broader with this code
K Self Expression, Sharing and Identity (Outside of S9b)	Can be either online or in person; Can be expression of identity, personality or emotions; Can be content-based expression; Can be in the context of feeling like they can express themselves or can't express themselves
L Image (Outside of S14)	Can be either online or in person; References to how they present themselves, attempt to present themselves, how they think other people see them; If they make reference to the idea that their image is either congruent or incongruent with their true identity, put it here and in O Self Expression and Identity
M Control (Outside of S7c)	Can be either online or in person; Including, but not limited to, references to time to respond (Outside of S10, including S10a-c), control of the conversation, lack of control in either context
N Etiquette and Social Rules	Can be either online or in person; Examples: needing to be more polite in either context, worrying about offending people online, evaluations of what is appropriate/inappropriate in either context
O Pandemic References (Outside of S2 and S3)	Any references to the influence or impact of the pandemic
P Age References	Any references to age or age-related changes
Q Gender Differences	Any references to gender differences

Appendix M: Additional Information to Support Phase One Results

Before any statistical analyses were conducted for Phase 1, all continuous variables were checked for univariate outliers as well as relevant assumptions (i.e., normality, homogeneity of variance). Univariate outliers were defined as falling more than ± 3.29 SDs away from the mean. Based on this definition, there was univariate outlier identified on the variable labelled WdAsyDif, which measured the difference in time spent engaging in asynchronous interactions with friends via social media use pre-pandemic compared to at the time of baseline survey completion. Specifically, the participant Y0269-1 had a raw score of 9 on this variable, which fell more than 4 SDs above the mean (z -score = 4.13). As such, this score was Winsorized such that the score was adjusted to represent a z score that would have been within the parameter of ± 3 SDs from the mean, while maintaining rank order to one decimal place (Field, 2018). Specifically, I changed their original score of 9 to a Winsorized score of 4.1.

Normality was assessed via skewness and kurtosis values (i.e., normal values defined as falling between ± 2 ; Field, 2018) as well as through visual inspection of histograms for deviation from the normal curve. Most outcome variables had skewness and kurtosis values that fell within the specified range. However, Friends, SMCheckDur, and LikeImp had kurtosis values above 2. See Table 1 for skewness and kurtosis values for each outcome variable. Additionally, many of the histograms demonstrated notable deviations from the normal curve. See Figures 1 through 17 for histograms for each outcome variable. However, it is worth noting that Phase One entailed a relatively small sample size, which may explain the variation in the visual depictions of the outcome

distributions. As such, the results of the t-tests presented in Phase One should be interpreted with caution and are meant to be supplementary to the qualitative analyses.

Homogeneity of variance was assessed through the use of the Levene's Test for Equality of Variances generated when conducting independent samples t-tests in SPSS. All outcome variables met the assumption of homogeneity of variance. See Table 2 for statistics to support this conclusion.

Table 1*Skewness and Kurtosis Values for All Outcome Variables Used in Phase One T-Tests*

Variable	Skewness	Kurtosis
SOP	-0.52	-0.77
SPP	0.24	-0.81
PSP	-0.04	-0.34
FCS	-0.44	-0.45
SCS	-0.69	0.15
Platforms	-0.66	0.09
Friends	1.72	2.07
Hours	0.59	-0.18
LikeCheck	0.65	-1.01
Filters	0.75	-0.21
SMCheck	-0.60	-0.65
SMCheckDur	1.1	2.5
LikeImp	1.72	3.50
SynChangeWd	-0.01	1.35
SynChangeWe	-0.85	1.60
AsyChangeWd	0.42	-0.10
AsyChangeWe	0.04	1.52

Note. SOP = self-oriented perfectionism, measured by the CAPS; SPP = socially prescribed perfectionism, measured by the CAPS; PSP = perfectionistic self-presentation, measured by the PSPS-Jr; FCS = Online connection, measured by the Facebook Connectedness Scale (adapted for social media); SCS = In-person connection, measured by the Social Connectedness Scale; Platforms = Total number of social media platforms used; Friends = Total number of friends on social media, across platforms; Hours = Total number of hours spent on social media, per day; LikeCheck = How often they are checking for likes; Filters = How often they use filters; SMCheck = How often they are checking social media; SMCheckDur = How long they are on social media each time they check; LikeImp = How important likes are to them; SynChangeWd = Change in amount of time spent interacting with friends in a synchronous manner on weekdays following the onset of the pandemic, in hours; SynChangeWe = Change in amount of time spent interacting with friends in a synchronous manner on weekends following the onset of the pandemic, in hours; AsyChangeWd = Change in amount of time spent interacting with friends in an asynchronous manner on weekdays following the onset of the pandemic, in hours; AsyChangeWe = Change in amount of time spent interacting with friends in an asynchronous manner on weekends following the onset of the pandemic, in hours

Table 2*Levene's Test for Equality of Variances*

Variable	<i>F</i>	<i>p</i>
SOP	1.98	.167
SPP	0.00	.969
PSP	0.61	.440
FCS	3.08	.088
SCS	0.03	.875
Platforms	0.12	.734
Friends	1.70	.201
Hours	0.74	.397
LikeCheck	1.56	.220
Filters	0.10	.758
SMCheck	0.41	.526
SMCheckDur	0.99	.327
LikeImp	1.19	.282
SynChangeWd	2.86	.099
SynChangeWe	1.34	.254
AsyChangeWd	1.81	.187
AsyChangeWe	0.07	.794

Table 3

Independent Samples T-tests Comparing Perfectionists and Non-perfectionists on Measures of Social Connection

	Independent Samples T-test					Cohen's <i>d</i>		
	<i>df</i>	<i>t</i>	<i>p</i>	95% Cis		Estimate	95% Cis	
				LLCI	ULCI		LLCI	ULCI
FCS	35	1.82	.077	-1.06	19.66	.61	-0.07	1.28
SCS	40	0.63	.531	-7.49	14.29	.20	-0.42	0.81

Note. FCS = Online connection, measured by the Facebook Connectedness Scale; SCS = In-person connection, measured by the Social Connectedness Scale; See Table 5.1.1.1. in Section 5.1.1. for group descriptive statistics for these variables.

Note. Given that multiple independent samples t-tests were conducted simultaneously using the same sample, a Bonferroni correction was applied to reduce Type 1 error. As such, a *p* value of .003 was used to determine significance in the results presented above (i.e., alpha of .05/17 statistical tests = .003)

Table 4

Independent Samples T-tests Comparing Perfectionists and Non-perfectionists on Social Media Variables

	Independent Samples T-test					Cohen's <i>d</i>		
	<i>df</i>	<i>t</i>	<i>p</i>	95% Cis		Estimate	95% Cis	
				LLCI	ULCI		LLCI	ULCI
Platforms	41	-0.61	.546	-1.47	0.79	-0.19	-0.79	0.42
Friends	36	-0.85	.404	-932.16	383.81	-0.28	-0.92	0.37
Hours	37	-0.45	.656	-1.86	1.18	-0.15	-0.78	0.49
LikeCheck	35	-0.47	.640	-1.24	0.77	-0.16	-0.81	0.50
Filters	35	-0.01	.994	-0.77	0.76	0.00	-0.66	0.65
SMCheck	36	-0.58	.565	-1.07	0.60	-0.19	-0.84	0.46
SMCheckDur	37	-0.41	.687	-1.19	0.79	-0.13	-0.77	0.51
LikeImp	36	-0.40	.690	-0.82	0.55	-0.13	-0.78	0.52
SynChangeWd	37	-0.38	.705	-1.48	1.01	-0.12	-0.76	0.52
SynChangeWe	37	-0.03	.973	-1.47	1.43	-0.01	0.65	0.63
AsyChangeWd	37	-0.07	.943	-1.00	0.93	-0.02	-0.66	0.62
AsyChangeWe	37	-0.21	.834	-1.21	0.98	-0.07	-0.71	0.57

Note. Platforms = Total number of social media platforms used; Friends = Total number of friends on social media, across platforms; Hours = Total number of hours spent on social media, per day; LikeCheck = How often they are checking for likes; Filters = How often they use filters; SMCheck = How often they are checking social media; SMCheckDur = How long they are on social media each time they check; LikeImp = How important likes are to them; SynChangeWd = Change in amount of time spent interacting with friends in a synchronous manner on weekdays following the onset of the pandemic, in hours; SynChangeWe = Change in amount of time spent interacting with friends in a synchronous manner on weekends following the onset of the pandemic, in hours; AsyChangeWd = Change in amount of time spent interacting with friends in an asynchronous manner on weekdays following the onset of the pandemic, in hours; AsyChangeWe = Change in amount of time spent interacting with friends in an asynchronous manner on weekends following the onset of the pandemic, in hours

Note. Given that multiple independent samples t-tests were conducted simultaneously using the same sample, a Bonferroni correction was applied to reduce Type 1 error. As such, a *p* value of .003 was used to determine significance in the results presented above (i.e., alpha of .05/17 statistical tests = .003)

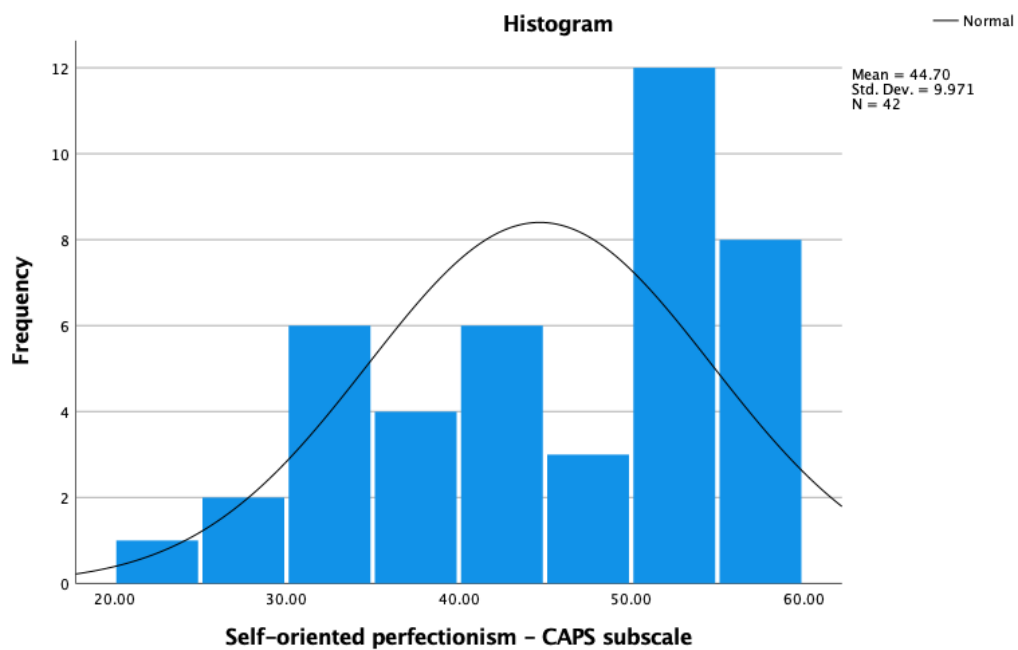
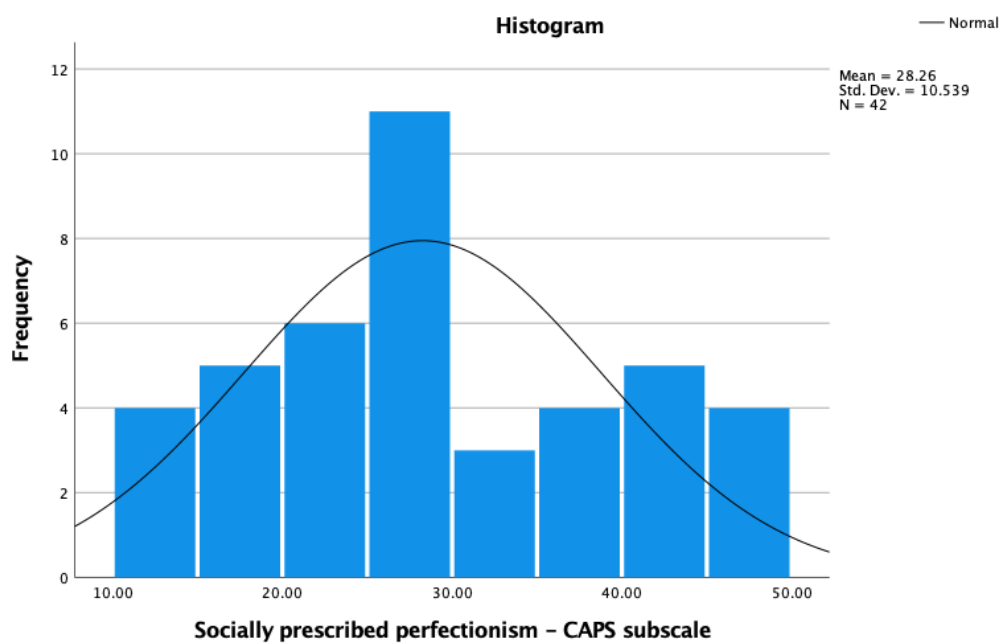
Figure 1*Histogram for Self-Oriented Perfectionism – Phase 1***Figure 2***Histogram for Socially Prescribed Perfectionism – Phase 1*

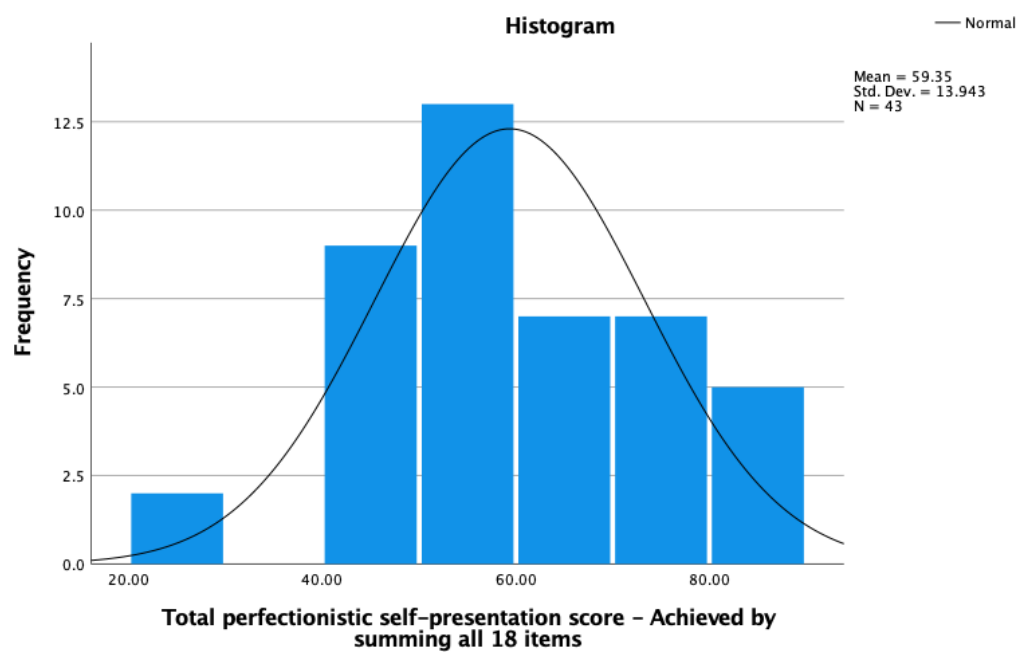
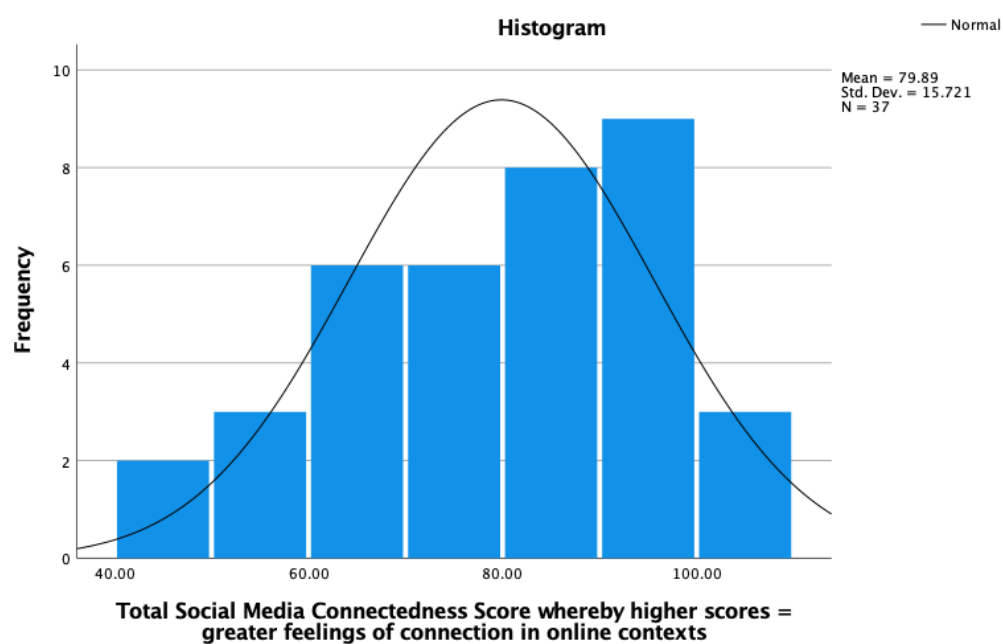
Figure 3*Histogram for Perfectionistic Self-Presentation – Phase 1***Figure 4***Histogram for Online Connection (FCS) – Phase 1*

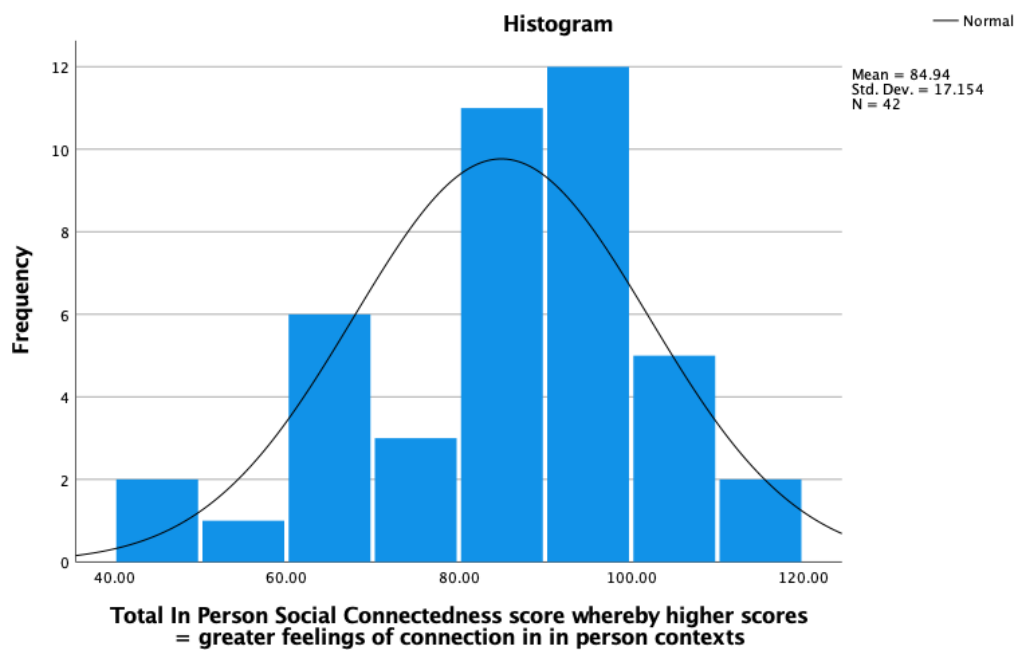
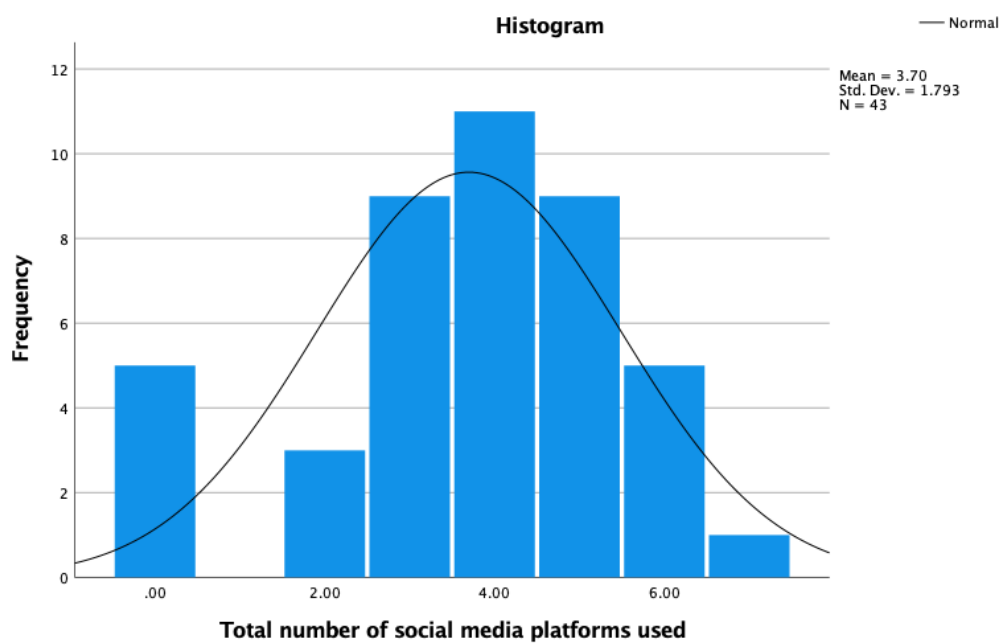
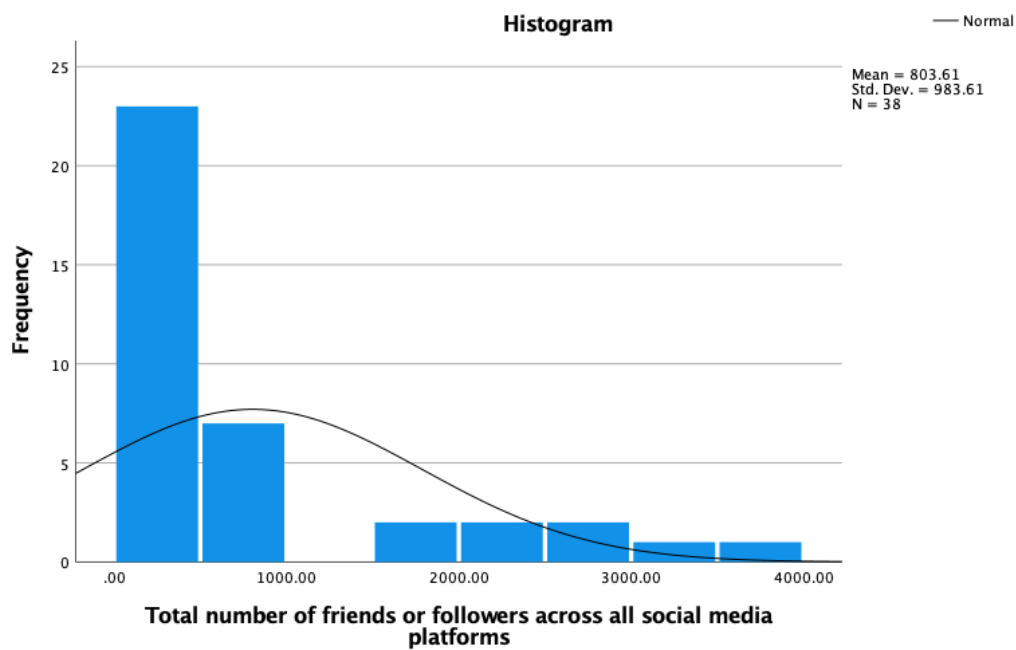
Figure 5*Histogram for In-Person Connection (SCS) – Phase 1***Figure 6***Histogram for Social Media Platforms (Platforms) – Phase 1*

Figure 7

Histogram for Friends on Social Media, Across Platforms (Friends) – Phase 1

**Figure 8**

Histogram for Hours on Social Media Per Day (Hours) – Phase 1

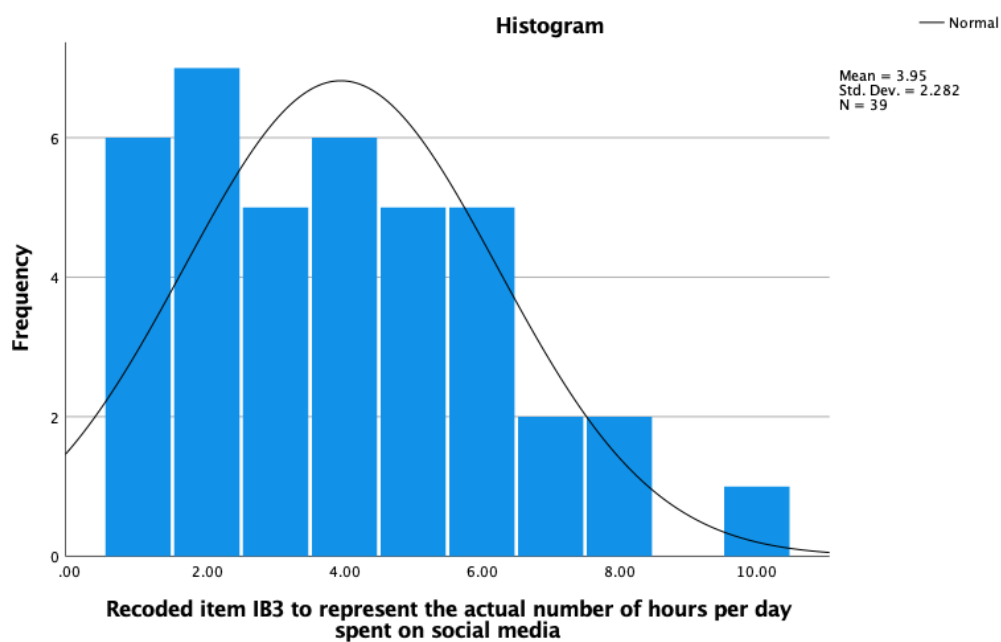


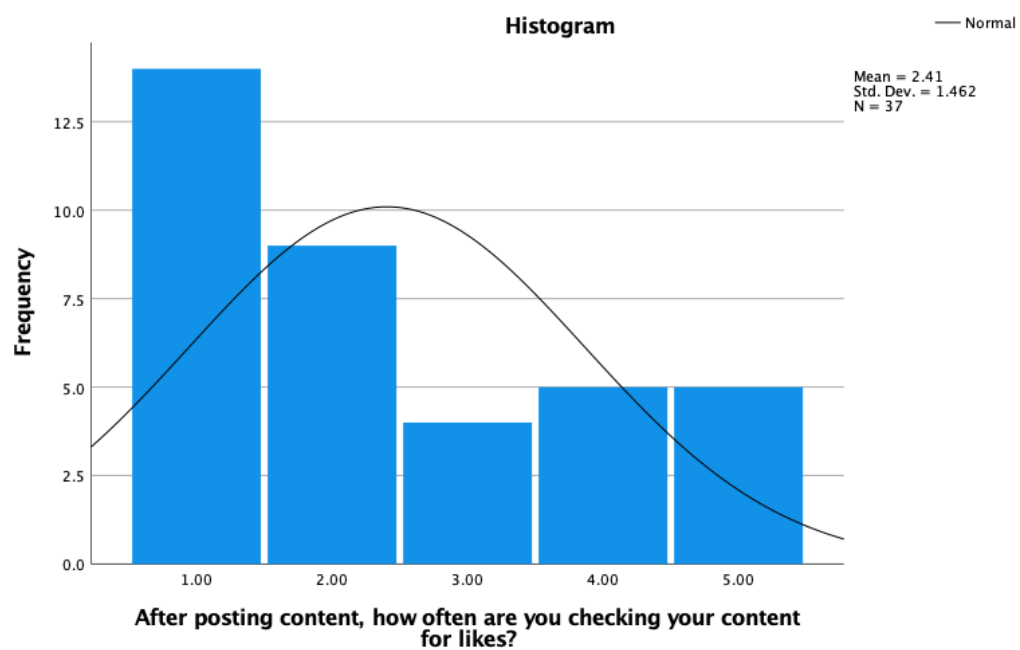
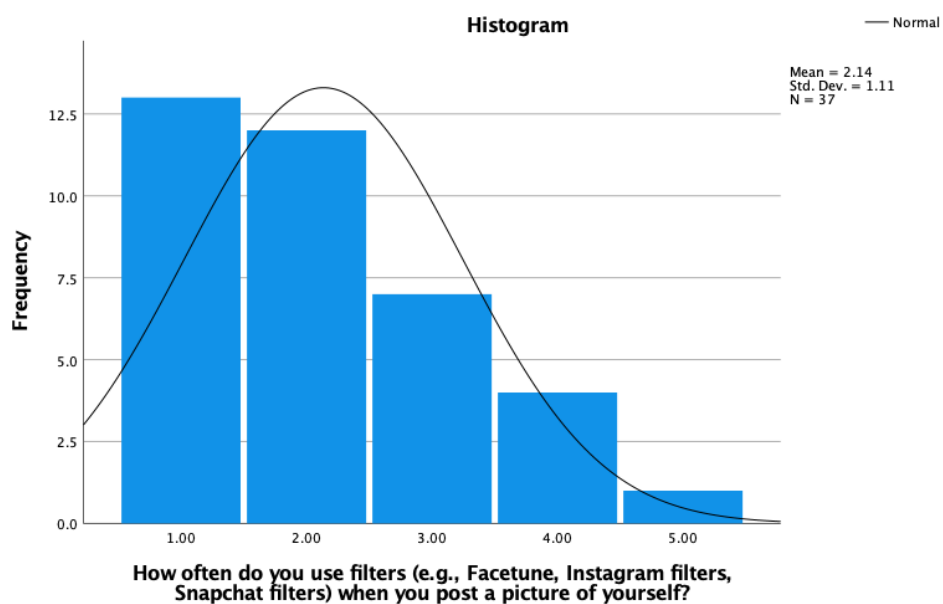
Figure 9*Histogram for Checking for Likes (LikeCheck) – Phase 1***Figure 10***Histogram for Filter Use (Filters) – Phase 1*

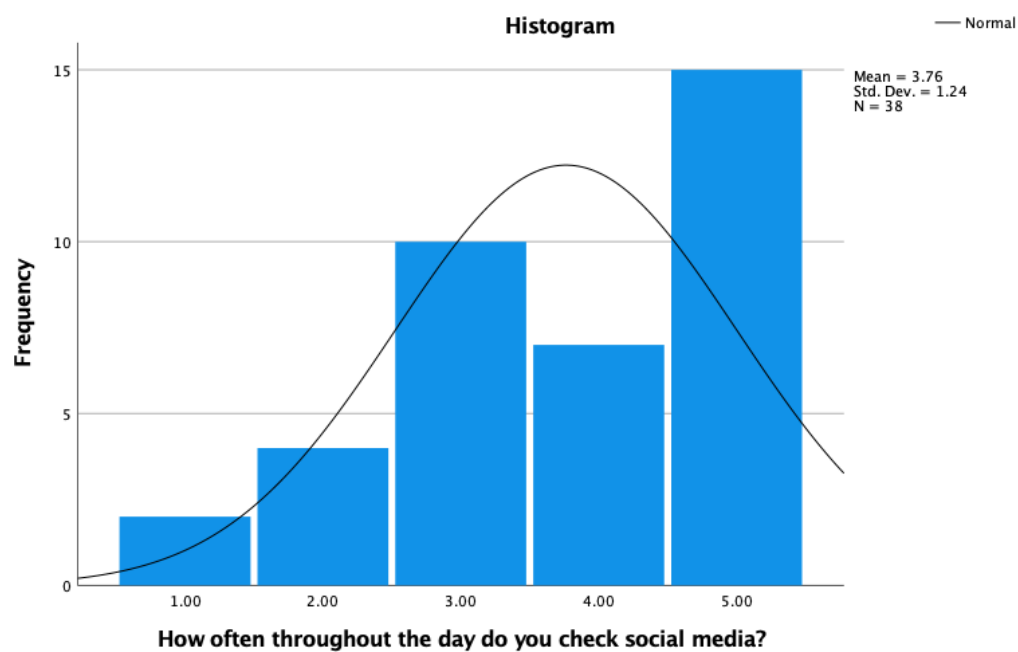
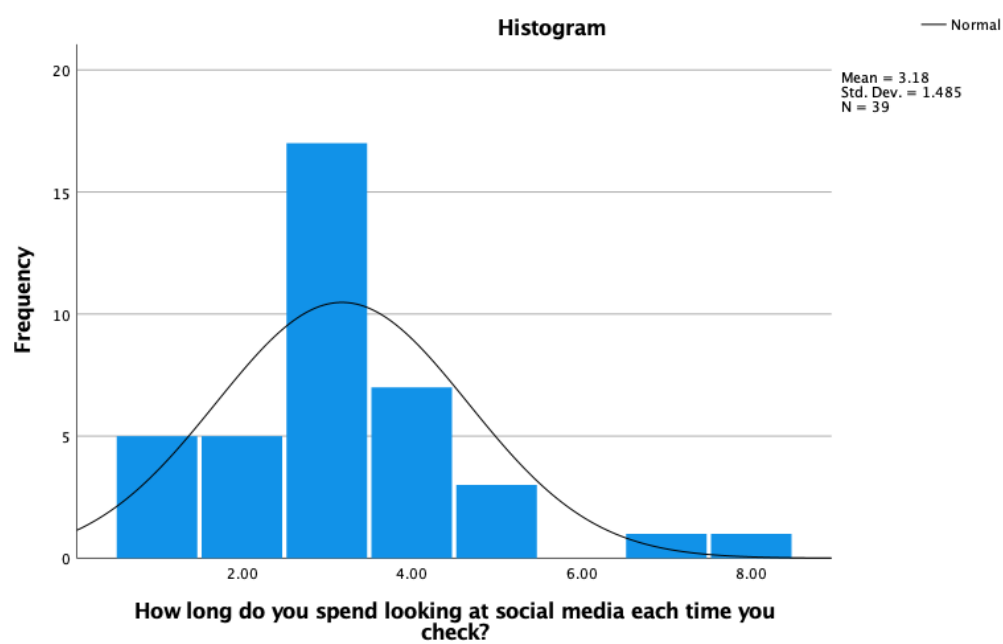
Figure 11*Histogram for Checking Social Media (SMCheck) – Phase 1***Figure 12***Histogram for Duration of Social Media Checks (SMCheckDur) – Phase 1*

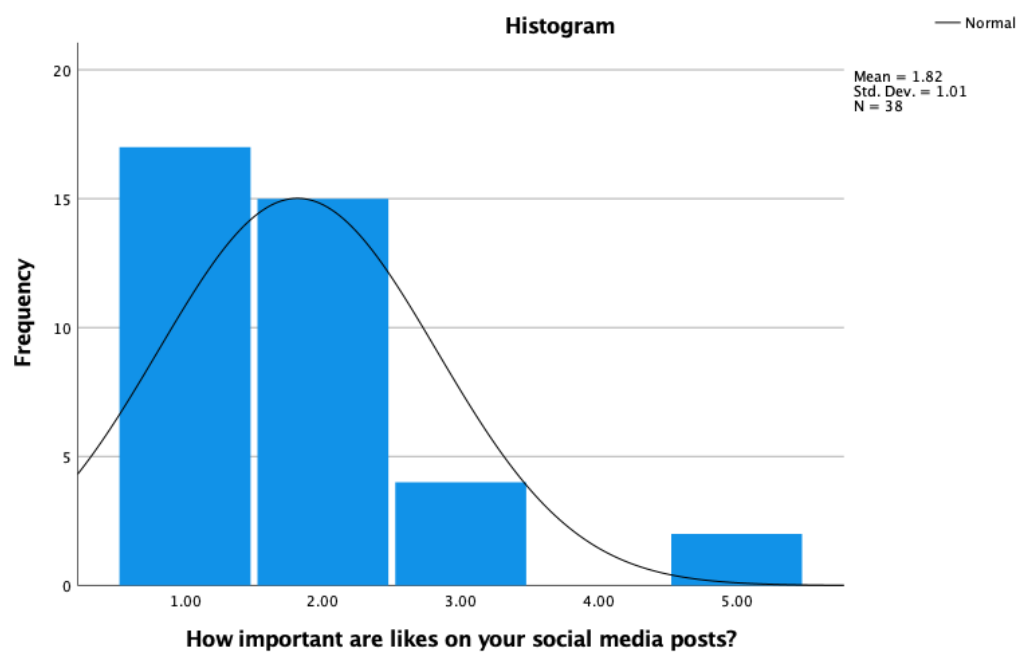
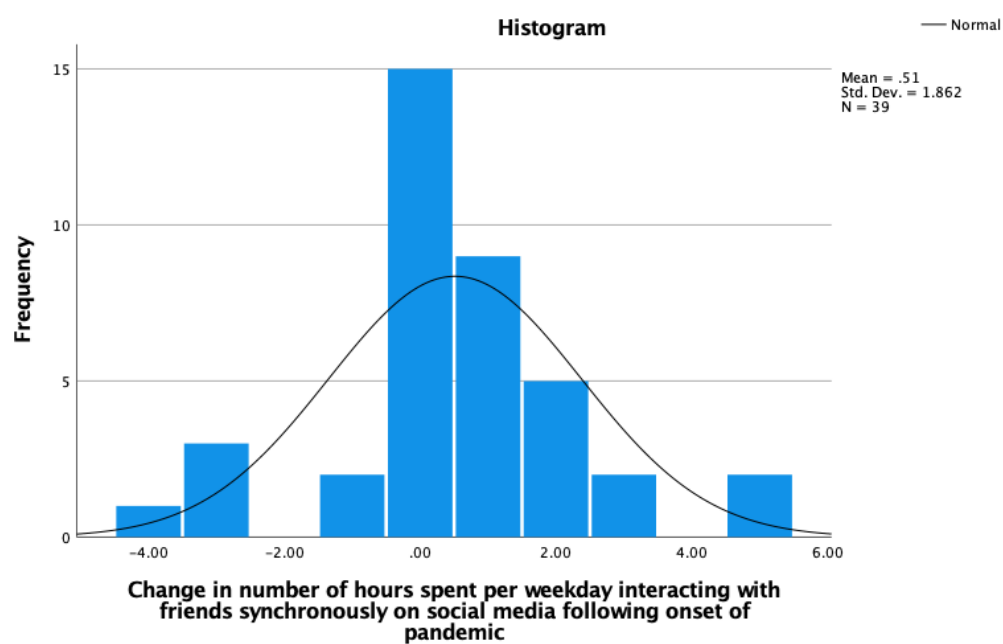
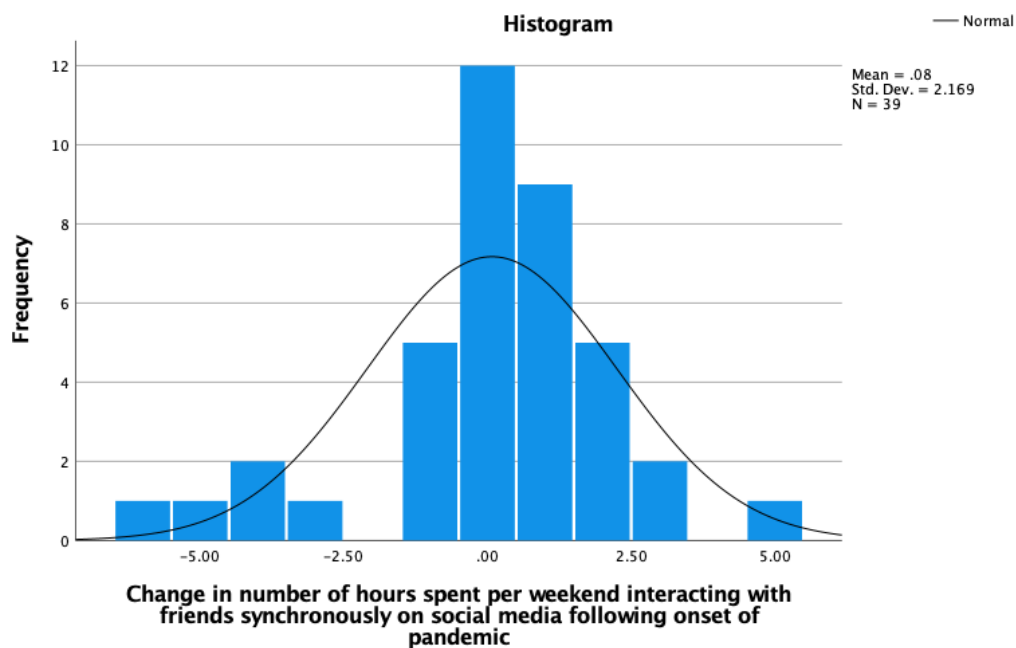
Figure 13*Histogram for Importance of Likes (LikeImp) – Phase 1***Figure 14***Histogram for Change in Synchronous Weekday Use (SynChangeWd) – Phase 1*

Figure 15

Histogram for Change in Synchronous Weekend Use (SynChangeWe) – Phase 1

**Figure 16**

Histogram for Change in Asynchronous Weekday Use (AsyChangeWd) – Phase 1

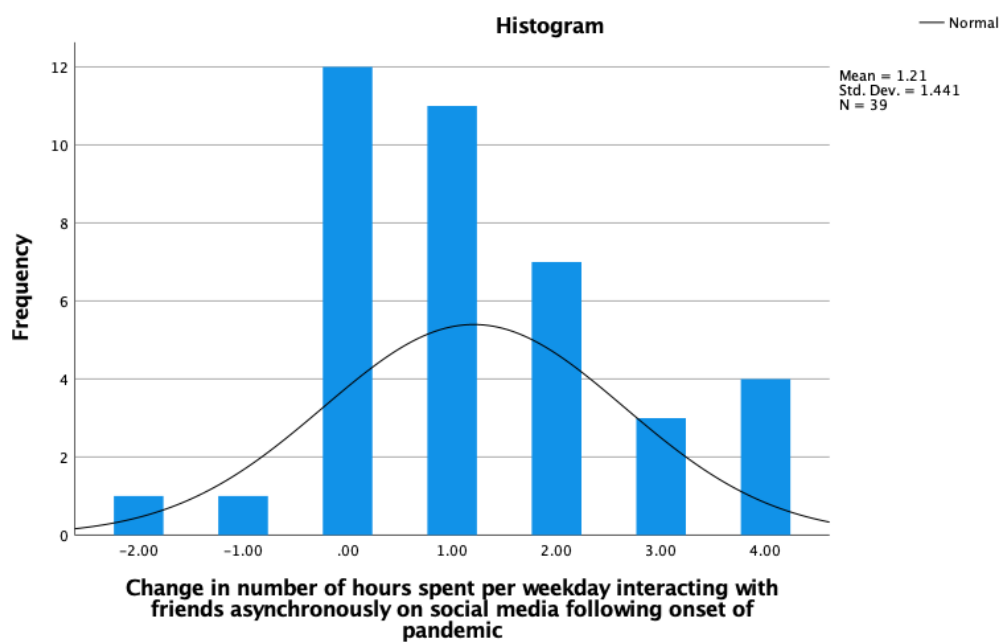
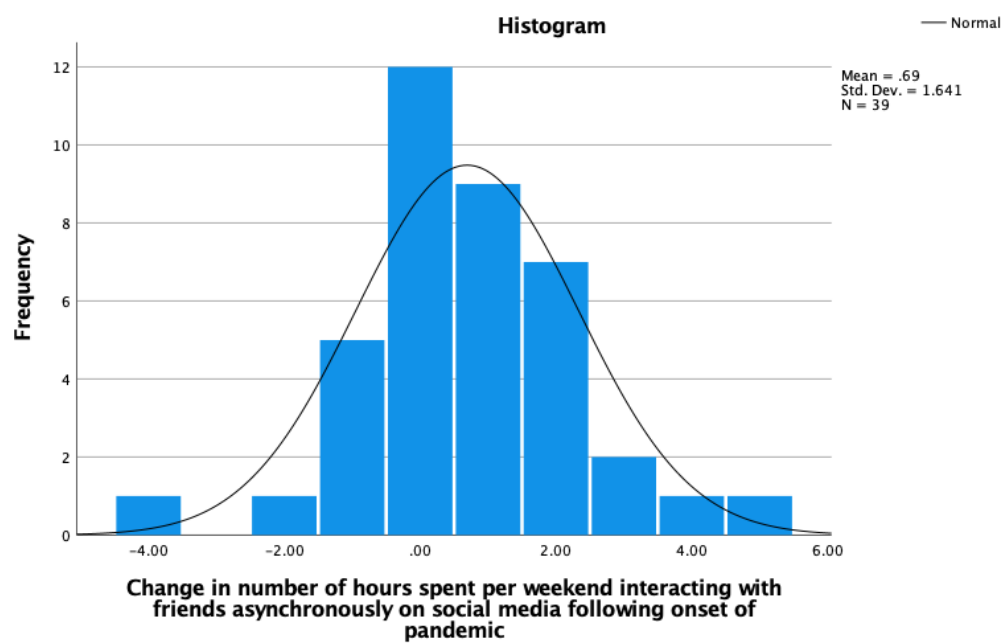


Figure 17

Histogram for Change in Asynchronous Weekday Use (AsyChangeWe) – Phase 1



Appendix N: Additional Information to Support Phase Two Preliminary Analyses

Table 1

Independent Samples T-tests Comparing Participants With Fully Complete Data to Those Missing Data on At Least One Model Variable on All Continuous Model Variables

	Independent Samples T-test					Cohen's <i>d</i>		
	<i>df</i>	<i>t</i>	<i>p</i>	95% Cis		Estimate	95% Cis	
				LLCI	ULCI		LLCI	ULCI
CovWor	345	-1.77	.077	-0.38	0.02	-0.19	-0.41	0.02
SOPT1	347	2.10	.036	0.15	4.47	0.23	0.02	0.44
SPPT1	348	-1.67	.096	-3.70	0.31	-0.18	-0.39	0.03
PSPT1	350	-0.04	.966	-3.22	3.09	-0.01	-0.22	0.21
FCST1	327	0.64	.523	-2.39	4.69	0.07	-0.15	0.29
SCST1	345	2.19	.029	0.43	7.96	0.24	0.02	0.45
DEPT1	346	-1.96	.051	-5.38	0.01	-0.21	-0.43	0.00
SOPT2	289	1.43	.154	-0.69	4.37	0.18	-0.07	0.43
SPPT2	288	-1.94	.053	-4.55	0.03	-0.24	-0.49	0.00
PSPT2	288	-1.69	.091	-6.68	0.50	-0.21	-0.46	0.03
FCST2	266	0.34	.735	-3.51	4.96	0.05	-0.23	0.32
SCST2	284	2.35	.019	0.87	9.84	0.30	0.05	0.55
DEPT2	289	-2.83	.005	-7.70	-1.38	-0.35	-0.60	-0.11
SOPT3	269	2.58	.010	0.86	6.35	0.35	0.08	0.62
SPPT3	270	-0.12	.904	-2.61	2.31	-0.02	-0.28	0.25
PSPT3	269	0.94	.350	-2.11	5.92	0.13	-0.14	0.40
FCST3	249	0.85	.394	-2.76	6.97	0.13	-0.17	0.43
SCST3	266	1.81	.072	-0.39	9.24	0.25	-0.02	0.52
DEPT3	267	-0.89	.376	-5.32	2.02	-0.12	-0.39	0.15

Note. CovWor = covid-related worry; SOP = self-oriented perfectionism, measured by the CAPS; SPP = socially prescribed perfectionism, measured by the CAPS; PSP = perfectionistic self-presentation, measured by the PSPS-Jr; FCS = online connection, measured by the Facebook Connectedness Scale (adapted for social media); SCS = in-person connection, measured by the Social Connectedness Scale; DEP = depression, measured by the CESD-R

Note. Given that multiple independent samples t-tests were conducted simultaneously using the same sample, a Bonferroni correction was applied to reduce Type 1 error. As such, a *p* value of .003 was used to determine significance in the results presented above (i.e., alpha of .05/19 statistical tests = .003)

Table 2

Independent Samples T-tests Comparing Participants Who Participated in All Time

Points to Who Were Missing At Least One Time Point on All Continuous Model

Variables

	Independent Samples T-test					Cohen's <i>d</i>		
	<i>df</i>	<i>t</i>	<i>p</i>	95% Cis		Estimate	95% Cis	
				LLCI	ULCI		LLCI	ULCI
CovWor	345	0.52	.605	-0.17	0.29	0.07	-0.18	0.31
SOPT1	347	-1.35	.179	-4.19	0.78	-0.17	-0.41	0.08
SPPT1	348	1.28	.202	-0.81	3.80	0.16	-0.09	0.40
PSPT1	350	0.93	.354	-1.90	5.30	0.11	-0.13	0.35
FCST1	327	-1.21	.229	-6.43	1.54	-0.15	-0.40	0.10
SCST1	345	-1.62	.107	-7.97	0.78	-0.20	-0.45	0.04
DEPT1	346	2.31	.022	0.53	6.69	0.29	0.04	0.53
SOPT2	289	-0.36	.721	-4.48	3.11	-0.07	-0.43	0.30
SPPT2	288	2.28	.023	0.55	7.36	0.43	0.06	0.80
PSPT2	288	1.06	.292	-2.49	8.25	0.20	-0.17	0.57
FCST2	266	-0.76	.449	-8.21	3.64	-0.15	-0.53	0.23
SCST2	284	-1.13	.258	-10.46	2.81	-0.21	-0.58	0.16
DEPT2	289	2.74	.006	1.86	11.32	0.51	0.14	0.88
SOPT3	269	-1.04	.297	-7.80	2.39	-0.26	-0.75	0.23
SPPT3	270	0.34	.731	-3.74	5.33	0.09	-0.41	0.58
PSPT3	269	-0.74	.462	-10.14	4.62	-0.18	-0.68	0.31
FCST3	249	-0.84	.402	-12.02	4.83	-0.22	-0.75	0.30
SCST3	266	-0.46	.649	-10.80	6.74	-0.11	-0.61	0.38
DEPT3	267	0.13	.899	-6.43	7.32	0.03	-0.47	0.54

Note. CovWor = covid-related worry; SOP = self-oriented perfectionism, measured by the CAPS; SPP = socially prescribed perfectionism, measured by the CAPS; PSP = perfectionistic self-presentation, measured by the PSPS-Jr; FCS = online connection, measured by the Facebook Connectedness Scale (adapted for social media); SCS = in-person connection, measured by the Social Connectedness Scale; DEP = depression, measured by the CESD-R

Note. Given that multiple independent samples t-tests were conducted simultaneously using the same sample, a Bonferroni correction was applied to reduce Type 1 error. As such, a *p* value of .003 was used to determine significance in the results presented above (i.e., alpha of .05/19 statistical tests = .003)

Table 3*Handling of Univariate Outliers*

Variable	ID	Raw score	Z-score	Winsorized score
FCS11	62	1	-3.35	1.5
FCS13	225	1	-3.33	1.3
SCS23	184	1	-3.42	1.8
SCS31	22	1	-3.42	1.1

Note. FCS = online connection, measured by the Facebook Connectedness Scale (adapted for social media); SCS = in-person connection, measured by the Social Connectedness Scale

Table 4*Skewness and Kurtosis Values for Covariates and All Model Parcels*

Variable	Skewness	Kurtosis
CovWor	0.22	-0.43
SOP11	-0.82	0.19
SOP12	-0.61	-0.22
SOP13	-0.68	0.10
SOP21	-0.20	-0.70
SOP22	-0.19	-0.47
SOP23	-0.35	-0.09
SOP31	-0.33	-0.74
SOP32	-0.34	-0.53
SOP33	-0.08	-0.78
SPP11	0.32	-0.61
SPP12	0.07	-0.50
SPP13	0.05	-0.65
SPP21	0.05	-0.83
SPP22	-0.16	-0.96
SPP23	-0.18	-0.81
SPP31	0.22	-0.87
SPP32	0.16	-0.78
SPP33	0.09	-0.75
PSP11	0.03	-0.65
PSP12	-0.04	-0.39
PSP13	-0.09	-0.41
PSP21	-0.07	-0.71
PSP22	-0.02	-0.61
PSP23	-0.07	-0.58
PSP31	-0.35	-0.35
PSP32	-0.30	-0.42
PSP33	-0.35	-0.34
FCS11	-0.19	-0.39
FCS12	0.03	-0.37
FCS13	-0.24	-0.24
FCS21	-0.29	-0.27
FCS22	-0.17	-0.19
FCS23	-0.01	-0.33
FCS31	-0.30	0.02
FCS32	-0.10	-0.32
FCS33	-0.18	-0.10
SCS11	-0.24	-0.65
SCS12	-0.13	-0.70
SCS13	-0.09	-0.63
SCS21	-0.57	-0.05

SCS22	-0.38	-0.37
SCS23	-0.21	-0.63
SCS31	-0.65	0.18
SCS32	-0.38	-0.16
SCS33	-0.25	-0.29
DEP11	0.40	-0.68
DEP12	0.38	-0.80
DEP13	0.30	-0.74
DEP21	0.42	-0.70
DEP22	0.38	-0.80
DEP23	0.24	-0.84
DEP31	0.48	-0.68
DEP32	0.25	-0.82
DEP33	0.27	-0.70

Note. CovWor = covid-related worry; SOP = self-oriented perfectionism, measured by the CAPS; SPP = socially prescribed perfectionism, measured by the CAPS; PSP = perfectionistic self-presentation, measured by the PSPS-Jr; FCS = online connection, measured by the Facebook Connectedness Scale (adapted for social media); SCS = in-person connection, measured by the Social Connectedness Scale; DEP = depression, measured by the CESD-R

Table 5*Final Structural Equation Model Results With and Without Multivariate Outliers*

Model	Predictor	FCS T2				SCS T2				DEP T3			
		<i>B</i>	<i>SE</i>	β	95% CI for <i>B</i>	<i>B</i>	<i>SE</i>	β	95% CI for <i>B</i>	<i>B</i>	<i>SE</i>	β	95%
Multivariate Outliers Included ^a	SOP T1	-0.06	0.09	-0.06	[-0.25, 0.12]	0.20*	0.09	0.18	[0.02, 0.38]	-0.13	0.10	-0.11	[-0.21, 0.00]
	SPP T1	0.02	0.09	0.01	[-0.16, 0.19]	-0.22*	0.09	-0.20	[-0.39, -0.05]	0.10	0.10	0.08	[-0.01, 0.17]
	PSP T1	-0.26*	0.10	-0.25	[-0.45, -0.08]	-0.39*	0.10	-0.36	[-0.58, -0.21]	0.32*	0.10	0.25	[0.05, 0.45]
	CovWor	-0.01	0.07	-0.01	[-0.15, 0.13]	-0.05	0.07	-0.04	[-0.18, 0.07]	-0.02	0.07	-0.01	[-0.11, 0.09]
	FCS T2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.05	0.10	-0.04	[-0.14, 0.06]
	SCS T2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.52*	0.10	-0.45	[-0.55, -0.35]
Multivariate Outliers Removed ^b	SOP T1	-0.06	0.09	-0.06	[-0.24, 0.13]	0.20*	0.09	0.19	[0.02, 0.38]	-0.13	0.10	-0.11	[-0.21, 0.00]
	SPP T1	0.01	0.09	0.01	[-0.16, 0.19]	-0.22*	0.09	-0.20	[-0.39, -0.05]	0.10	0.10	0.08	[-0.01, 0.17]
	PSP T1	-0.27*	0.10	-0.26	[-0.46, -0.08]	-0.39*	0.10	-0.36	[-0.58, -0.20]	0.32*	0.10	0.26	[0.05, 0.45]
	CovWor	-0.01	0.07	-0.01	[-0.15, 0.13]	-0.05	0.07	-0.04	[-0.18, 0.09]	-0.02	0.07	-0.01	[-0.11, 0.09]
	FCS T2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.05	0.10	-0.04	[-0.14, 0.06]
	SCS T2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.52*	0.10	-0.45	[-0.55, -0.35]

Note. SOP = self-oriented perfectionism, measured by the CAPS; SPP = socially prescribed perfectionism, measured by the CAPS; PSP = perfectionism measured by the PSPS-Jr; FCS = online connection, measured by the Facebook Connectedness Scale (adapted for social media); SCS = in-person connection, measured by the Social Connectedness Scale; DEP = depression, measured by the CESD-R

* $p < .05$

^aModel fit with multivariate outliers included: $\chi^2(132) = 226.77, p < .001, CFI = .98, RMSEA = .05, 95\% CI [.04, .05], p = .793, SRMR = .04$

^bModel fit with multivariate outliers removed: $\chi^2(132) = 223.58, p < .001, CFI = .98, RMSEA = .04, 95\% CI [.03, .05], p = .818, SRMR = .04$

Table 6*Final Mediation Model With and Without Multivariate Outliers*

Model	Predictor	Total	Total indirect	Direct	Specific indirect via FCS
Multivariate outliers included ^a	SOP → DEP	-0.23* [-0.45, -0.02]	-0.10 [-0.21, 0.01]	-0.13 [-0.34, 0.07]	0.00 [-0.01, 0.02]
	SPP → DEP	0.21* [0.01, 0.41]	0.11* [0.01, 0.22]	0.10 [-0.09, 0.29]	0.00 [-0.01, 0.01]
	PSP → DEP	0.54* [0.32, 0.75]	0.22* [0.10, 0.33]	0.32* [0.12, 0.52]	0.01 [-0.06, 0.06]
Multivariate outliers removed ^b	SOP → DEP	-0.24* [-0.45, -0.02]	-0.10 [-0.21, 0.01]	-0.13 [-0.34, 0.07]	0.00 [-0.01, 0.02]
	SPP → DEP	0.21* [0.02, 0.41]	0.11* [0.01, 0.21]	0.10 [-0.09, 0.29]	0.00 [-0.01, 0.01]
	PSP → DEP	0.54* [0.32, 0.76]	0.22* [0.10, 0.33]	0.32* [0.12, 0.52]	0.01 [-0.04, 0.07]

Note. SOP = self-oriented perfectionism, measured by the CAPS; SPP = socially prescribed perfectionism, measured by the CAPS; PSP = perfectionism measured by the PSPS-Jr; FCS = online connection, measured by the Facebook Connectedness Scale (adapted for social media); SCS = in-person connection, measured by the Social Connectedness Scale; DEP = depression, measured by the CESD-R

* $p < .05$

^aModel fit with multivariate outliers included: $\xi^2(132) = 226.77, p < .001, CFI = .98, RMSEA = 0.05, 95\% CI [.04, .05], p = .793, SRMR = .04$

^bModel fit with multivariate outliers removed: $\xi^2(132) = 223.58, p < .001, CFI = .98, RMSEA = 0.04, 95\% CI [.03, .05], p = .818, SRMR = .04$

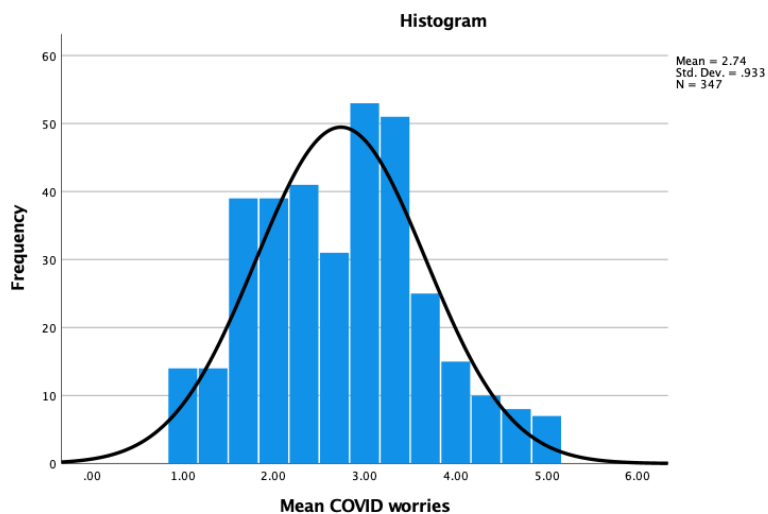
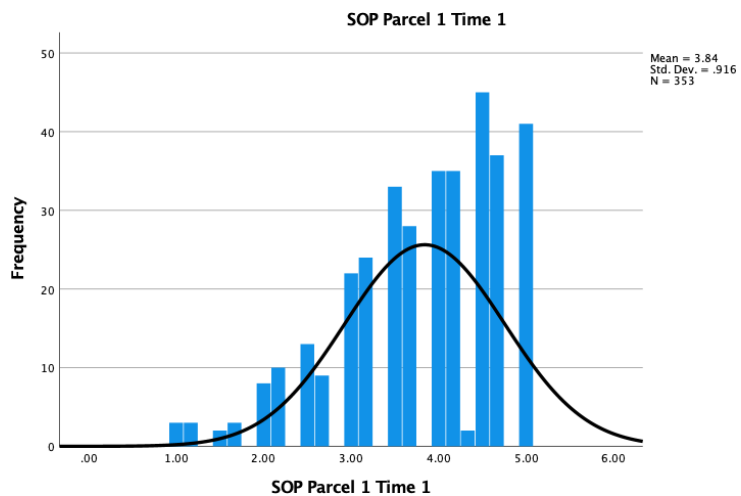
Figure 1*Histogram for COVID-related Worry***Figure 2***Histogram for SOP Parcel 1 Time 1*

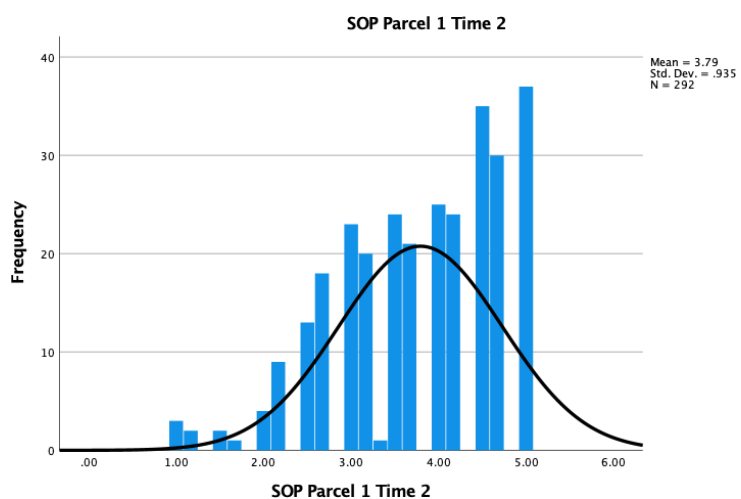
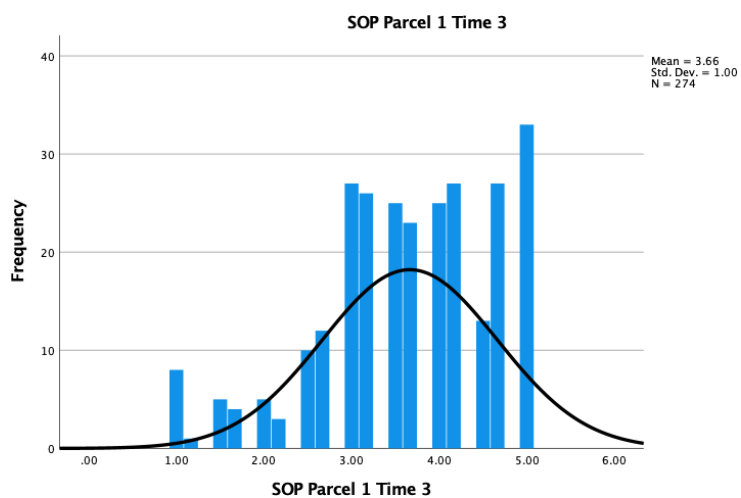
Figure 3*Histogram for SOP Parcel 1 Time 2***Figure 4***Histogram for SOP Parcel 1 Time 3*

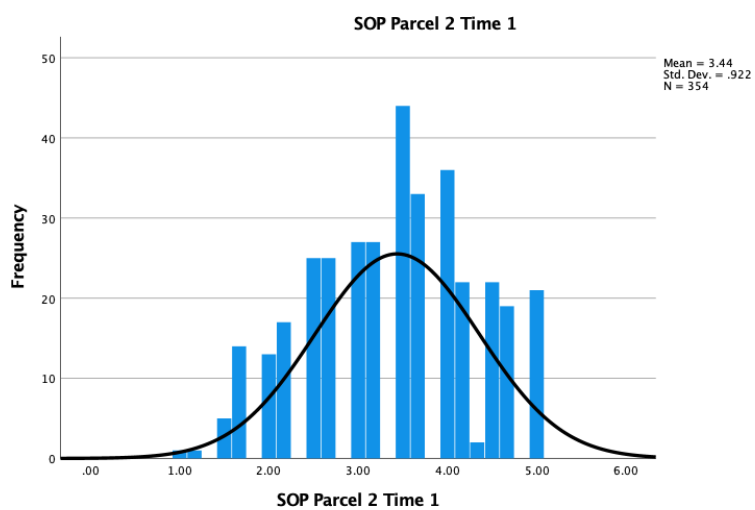
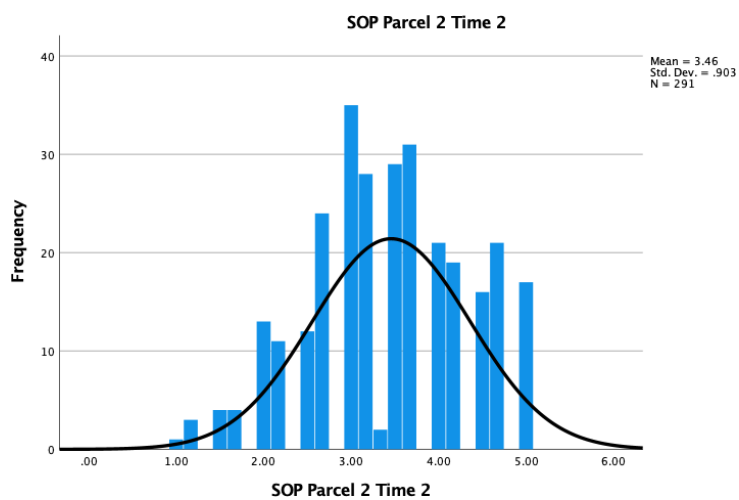
Figure 5*Histogram for SOP Parcel 2 Time 1***Figure 6***Histogram for SOP Parcel 2 Time 2*

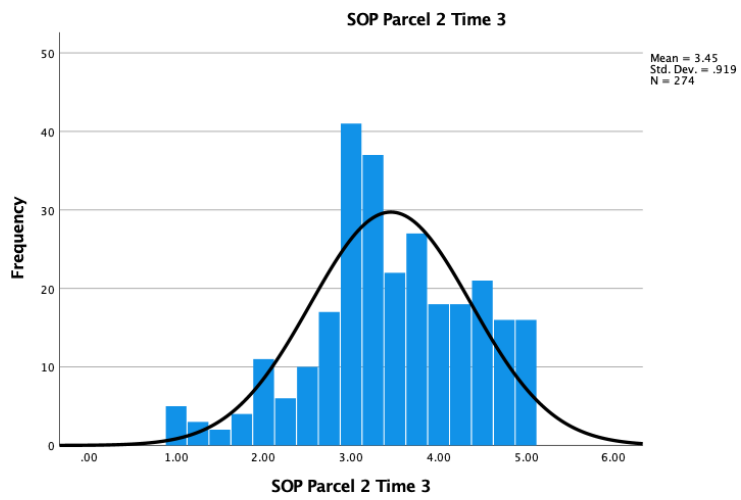
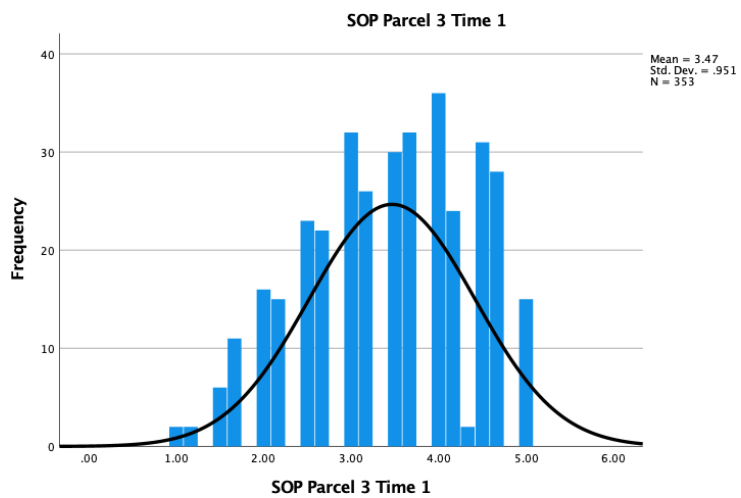
Figure 7*Histogram for SOP Parcel 2 Time 3***Figure 8***Histogram for SOP Parcel 3 Time 1*

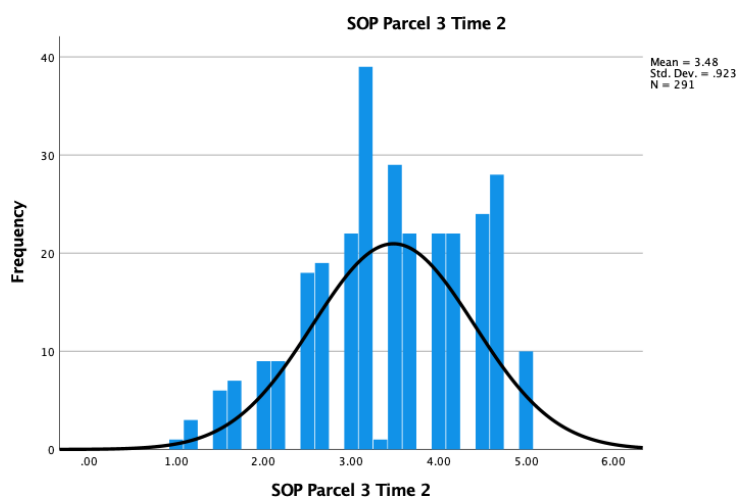
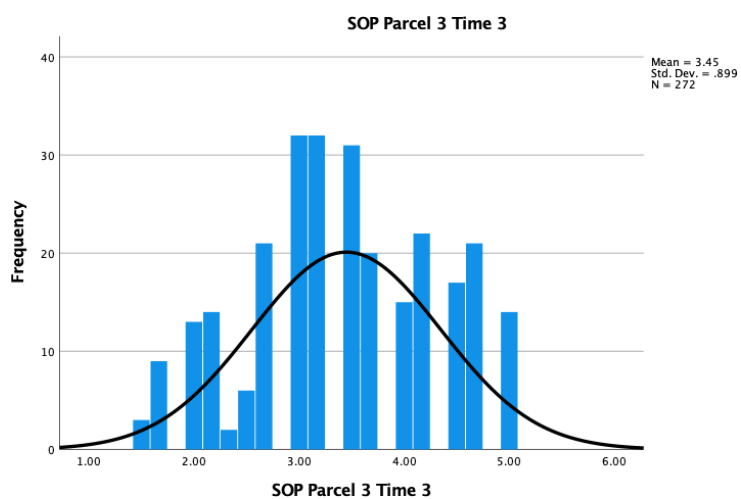
Figure 9*Histogram for SOP Parcel 3 Time 2***Figure 10***Histogram for SOP Parcel 3 Time 3*

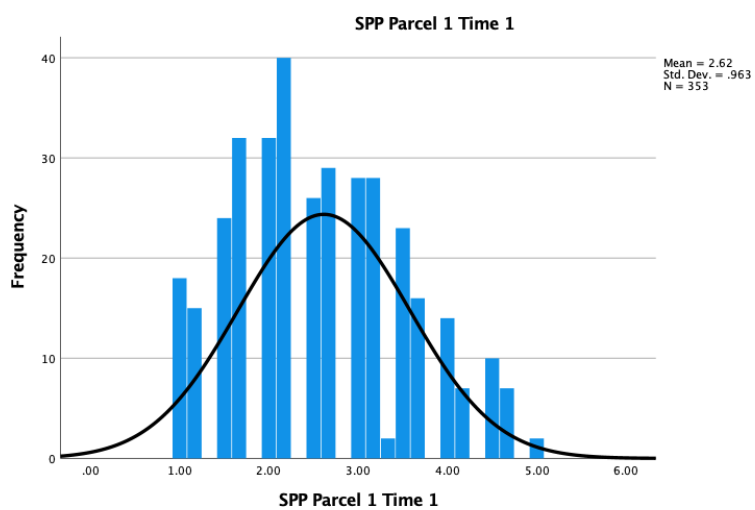
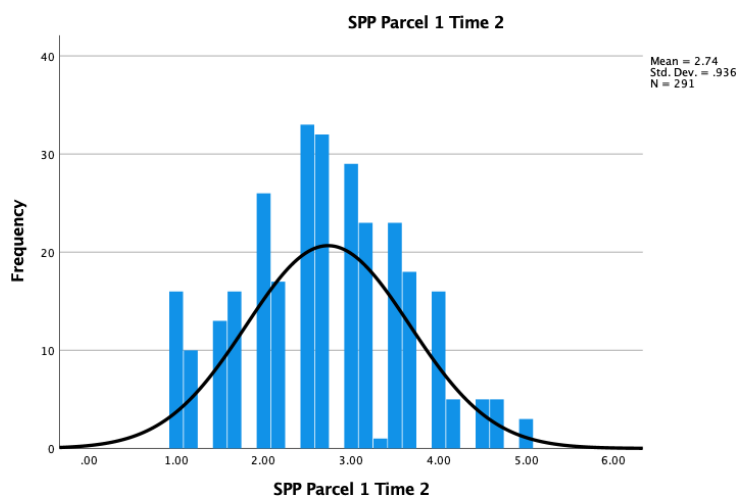
Figure 11*Histogram for SPP Parcel 1 Time 1***Figure 12***Histogram for SPP Parcel 1 Time 2*

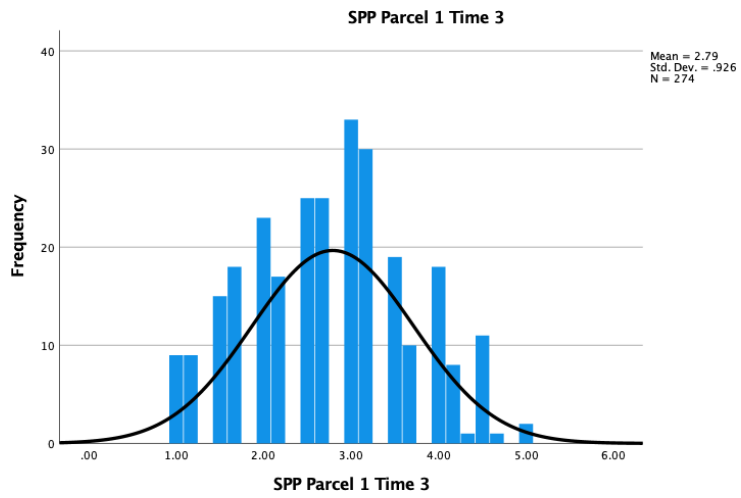
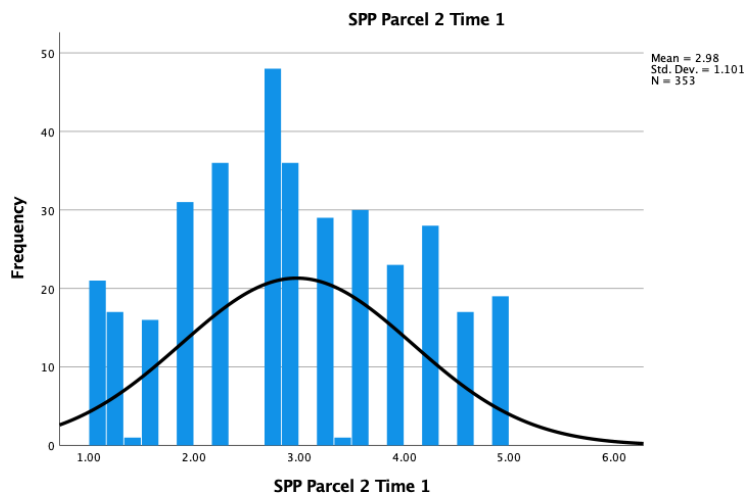
Figure 13*Histogram for SPP Parcel 1 Time 3***Figure 14***Histogram for SPP Parcel 2 Time 1*

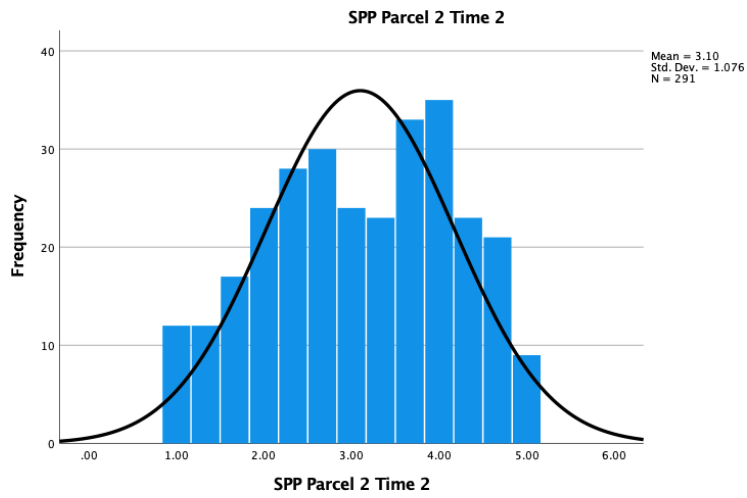
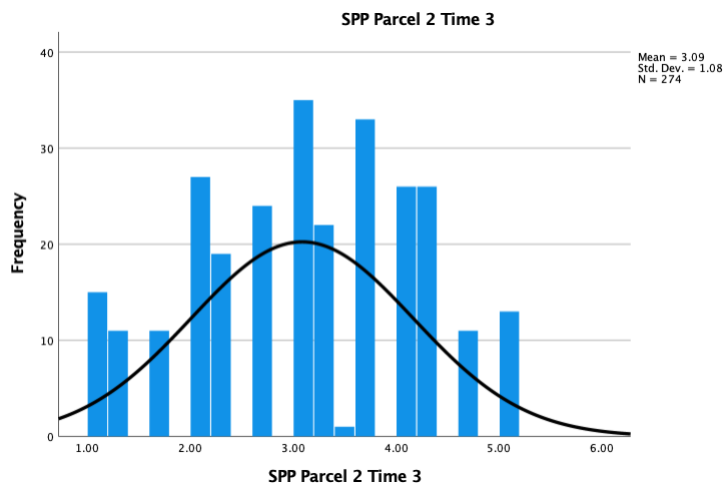
Figure 15*Histogram for SPP Parcel 2 Time 2***Figure 16***Histogram for SPP Parcel 2 Time 3*

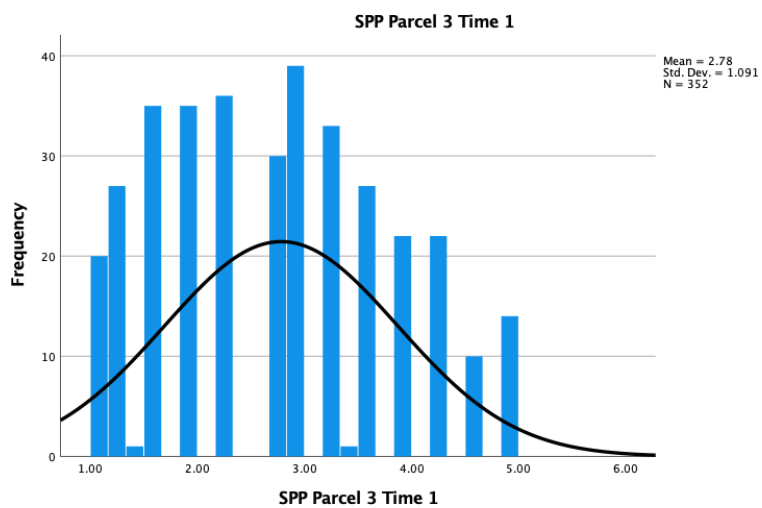
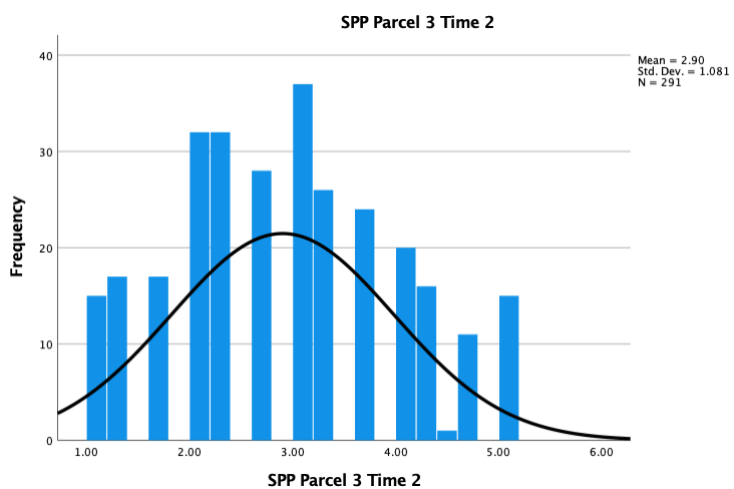
Figure 17*Histogram for SPP Parcel 3 Time 1***Figure 18***Histogram for SPP Parcel 3 Time 2*

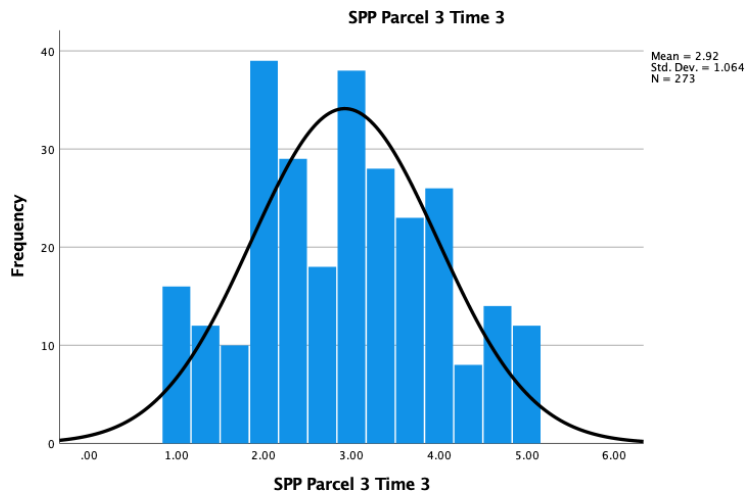
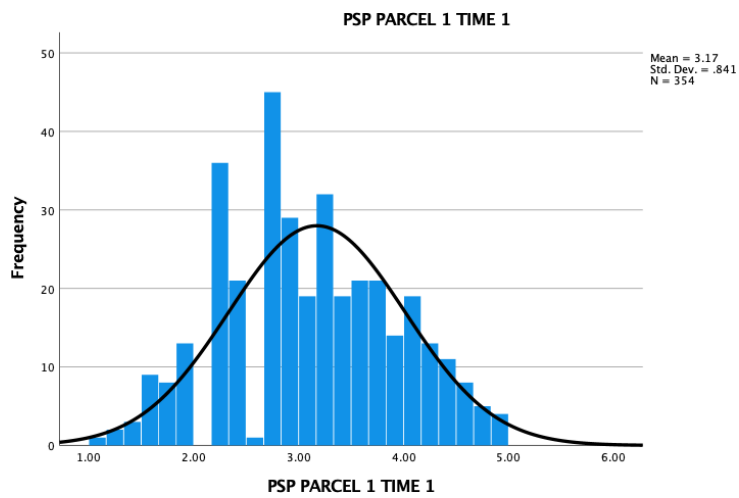
Figure 19*Histogram for SPP Parcel 3 Time 3***Figure 20***Histogram for PSP Parcel 1 Time 1*

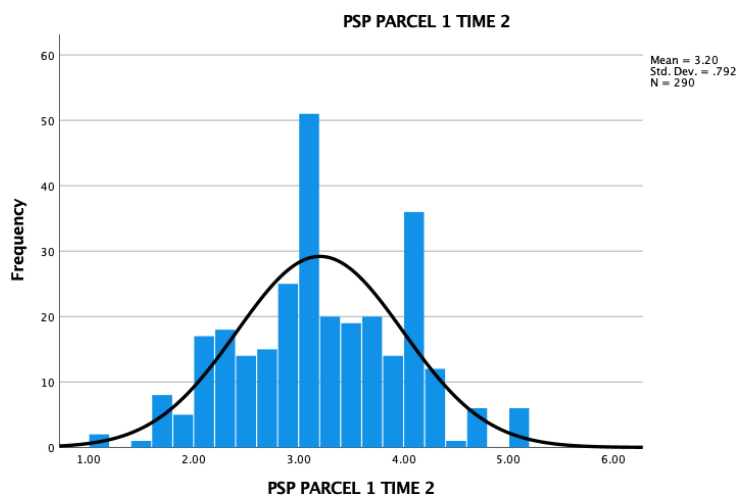
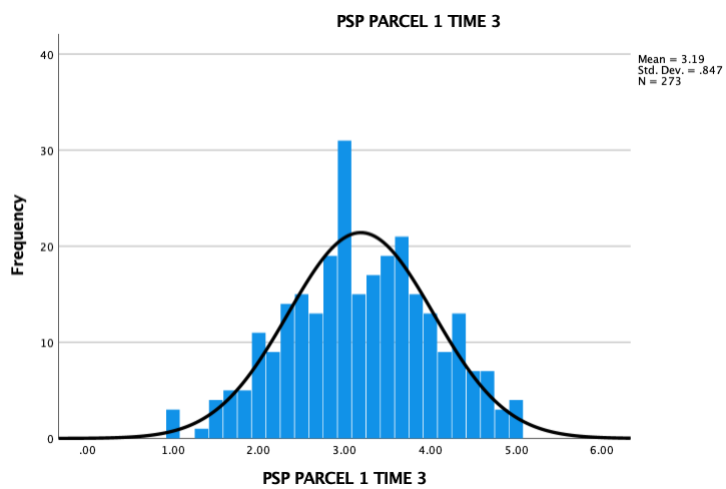
Figure 21*Histogram for PSP Parcel 1 Time 2***Figure 22***Histogram for PSP Parcel 1 Time 3*

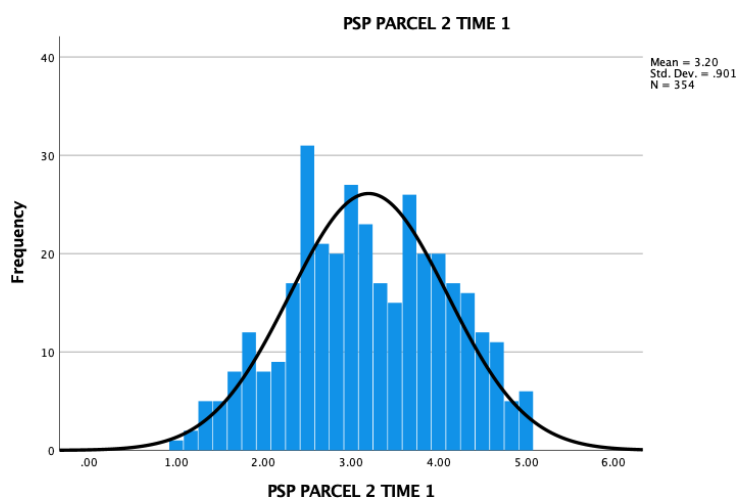
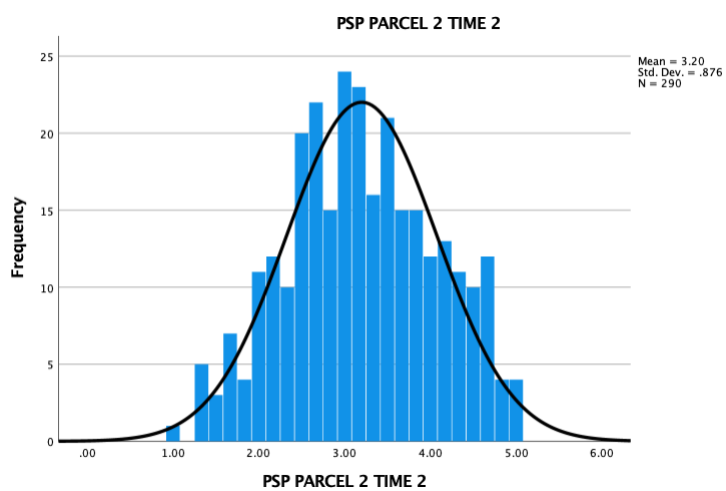
Figure 23*Histogram for PSP Parcel 2 Time 1***Figure 24***Histogram for PSP Parcel 2 Time 2*

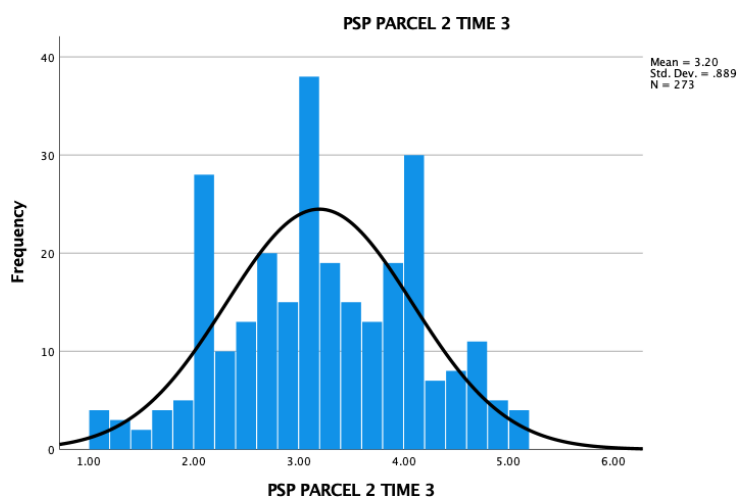
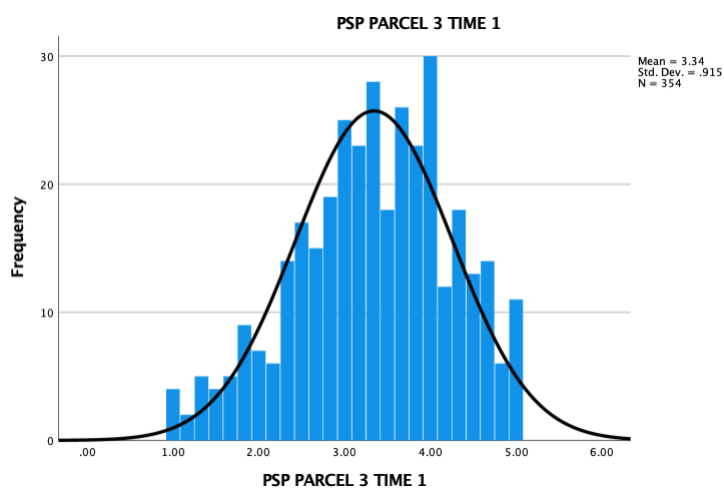
Figure 25*Histogram for PSP Parcel 2 Time 3***Figure 26***Histogram for PSP Parcel 3 Time 1*

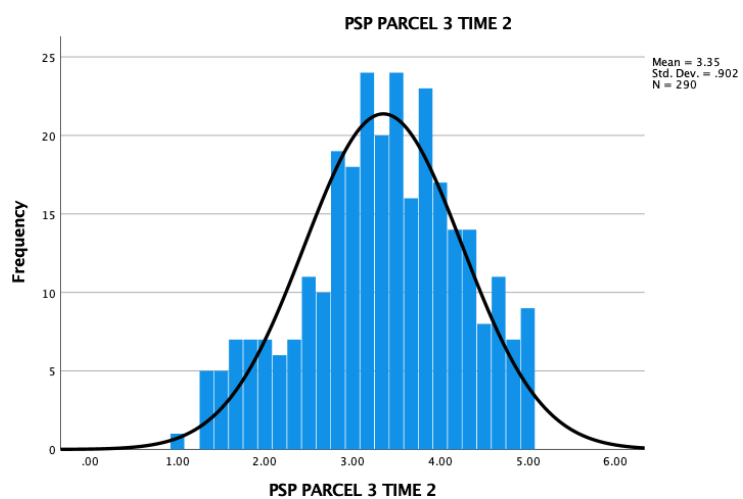
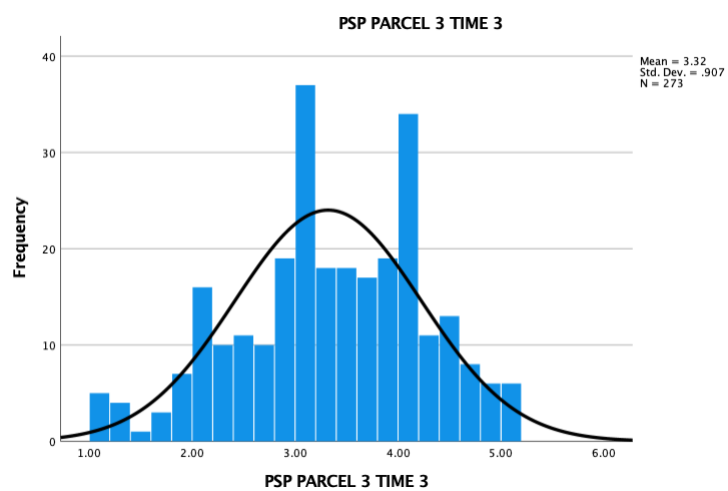
Figure 27*Histogram for PSP Parcel 3 Time 2***Figure 28***Histogram for PSP Parcel 3 Time 3*

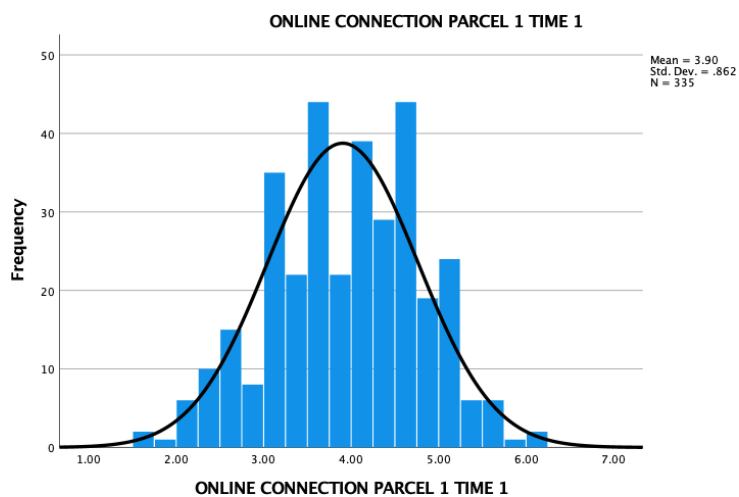
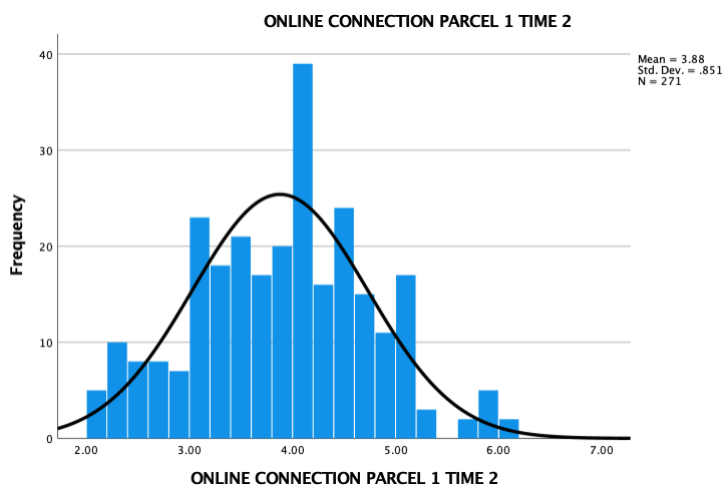
Figure 29*Histogram for FCS Parcel 1 Time 1***Figure 30***Histogram for FCS Parcel 1 Time 2*

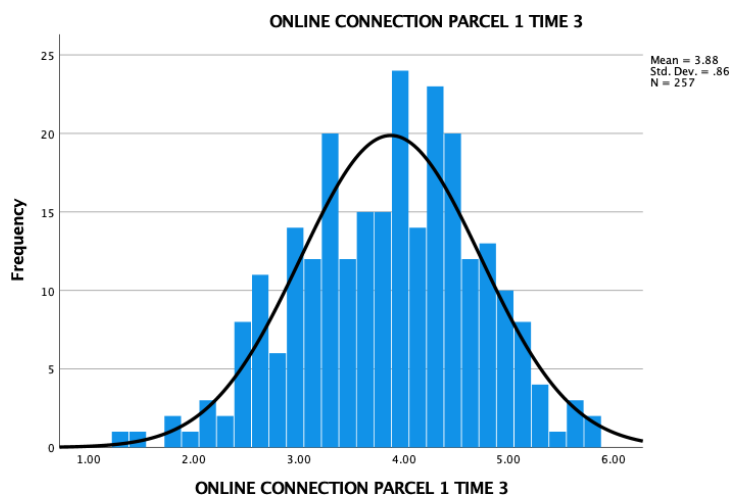
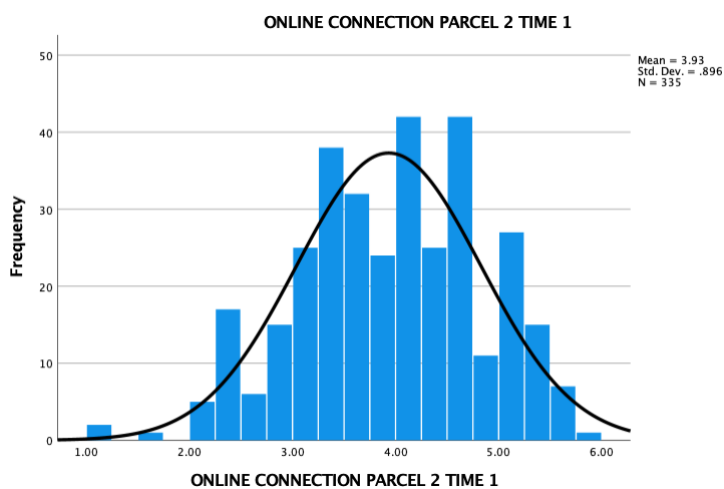
Figure 31*Histogram for FCS Parcel 1 Time 3***Figure 32***Histogram for FCS Parcel 2 Time 1*

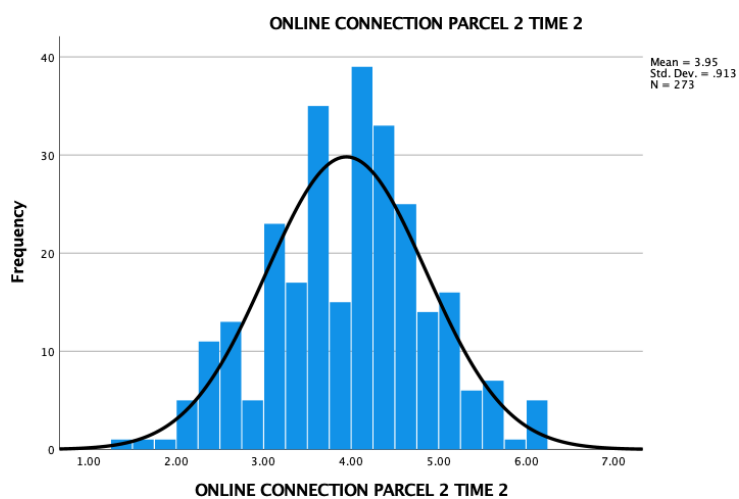
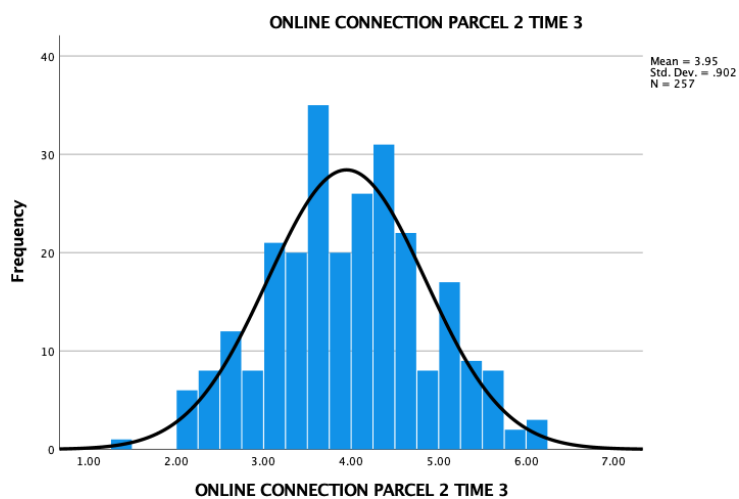
Figure 33*Histogram for FCS Parcel 2 Time 2***Figure 34***Histogram for FCS Parcel 2 Time 3*

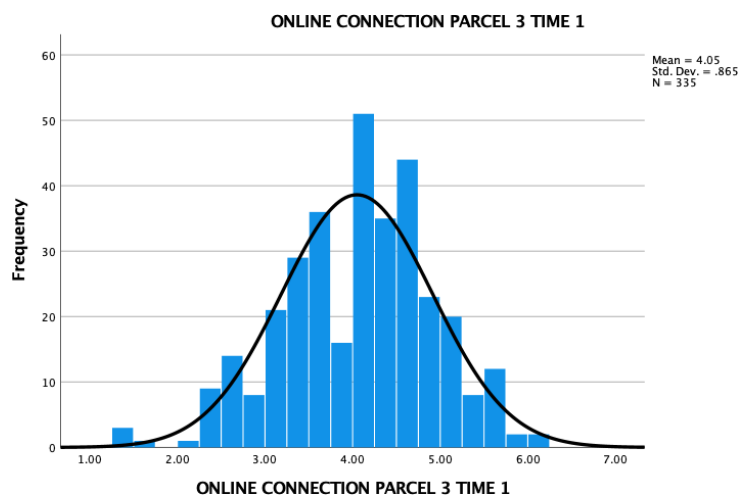
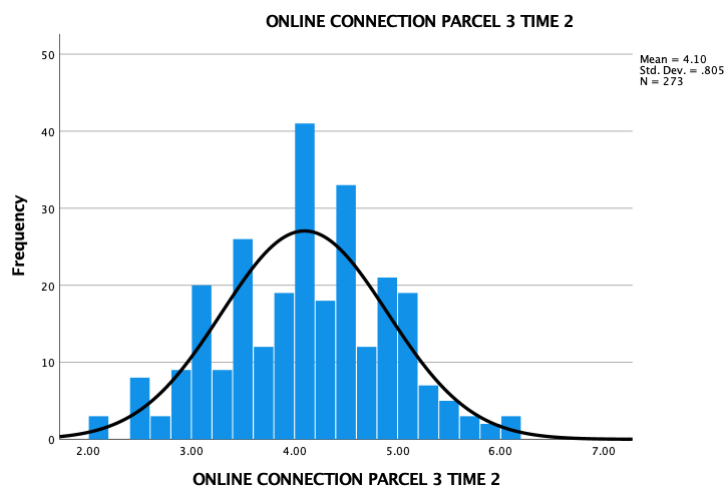
Figure 35*Histogram for FCS Parcel 3 Time 1***Figure 36***Histogram for FCS Parcel 3 Time 2*

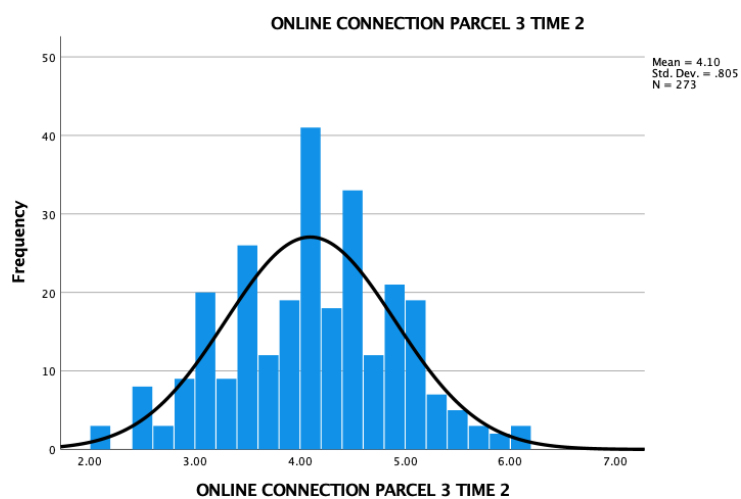
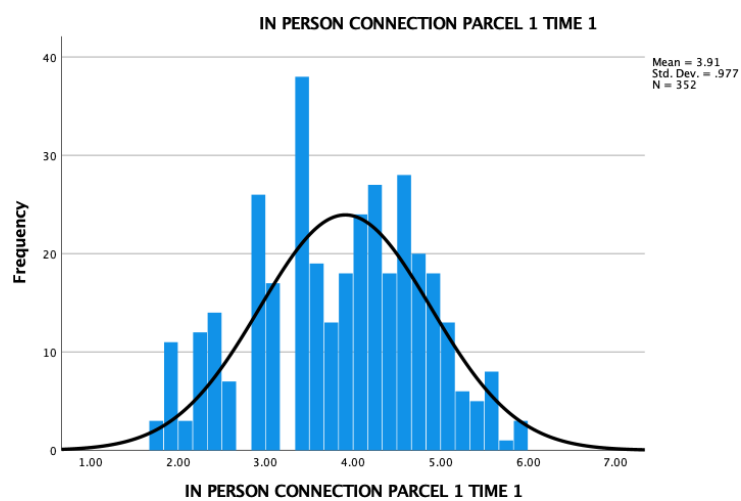
Figure 37*Histogram for FCS Parcel 3 Time 3***Figure 38***Histogram for SCS Parcel 1 Time 1*

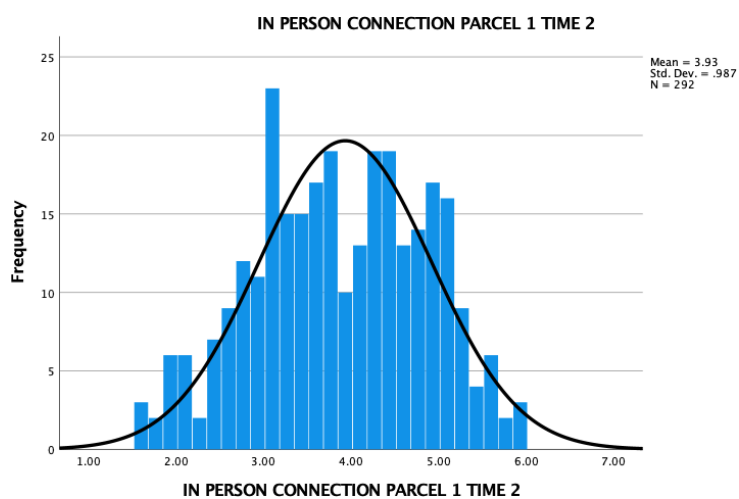
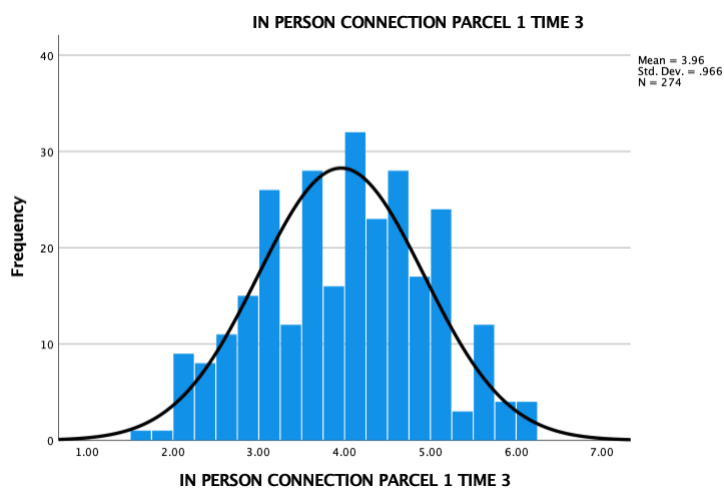
Figure 39*Histogram for SCS Parcel 1 Time 2***Figure 40***Histogram for SCS Parcel 1 Time 3*

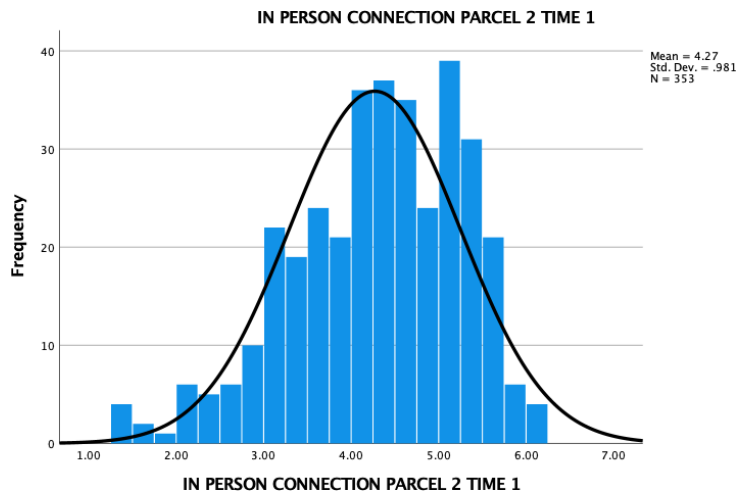
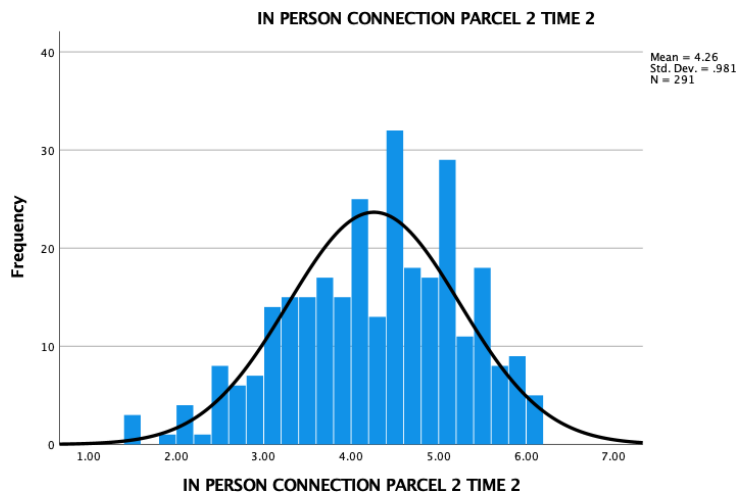
Figure 41*Histogram for SCS Parcel 2 Time 1***Figure 42***Histogram for SCS Parcel 2 Time 2*

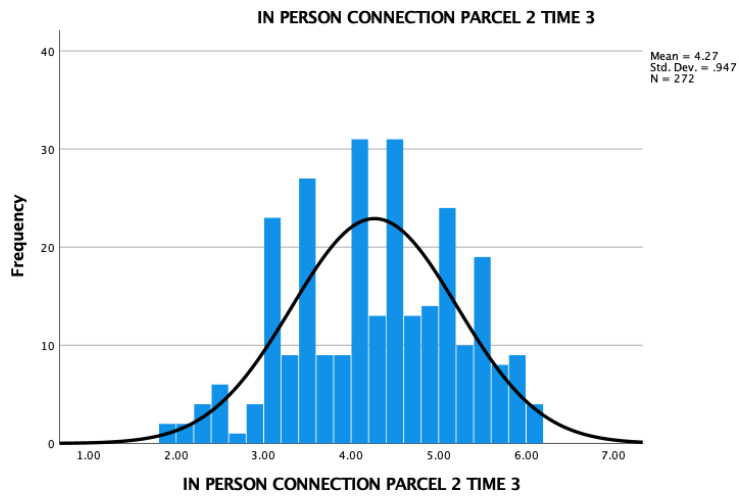
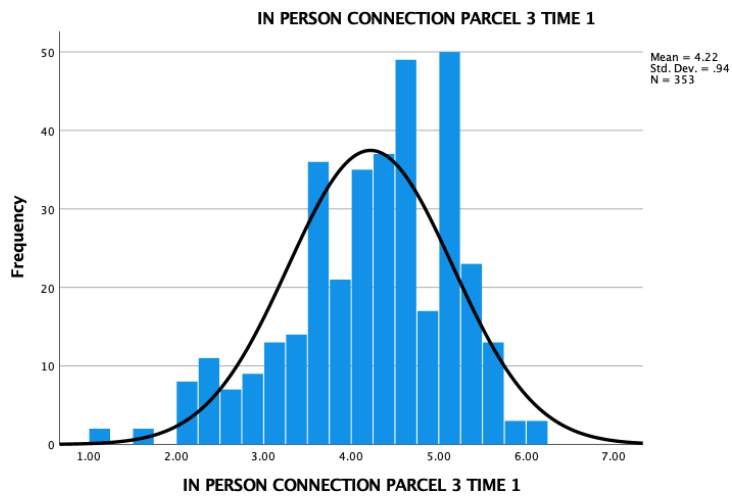
Figure 43*Histogram for SCS Parcel 1 Time 3***Figure 44***Histogram for SCS Parcel 3 Time 1*

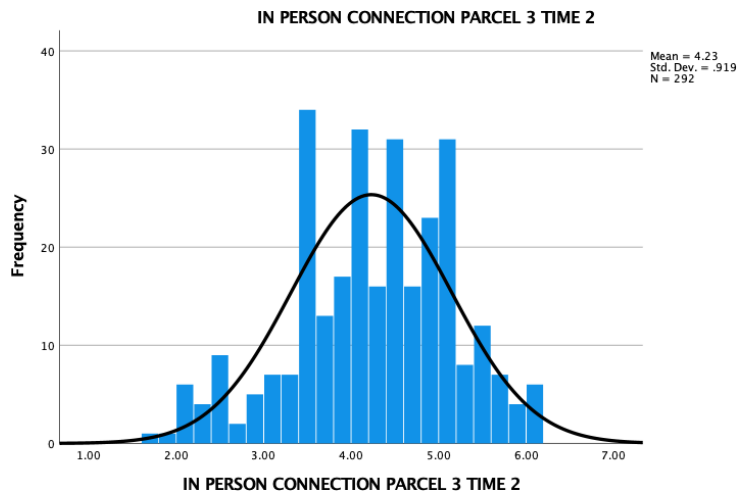
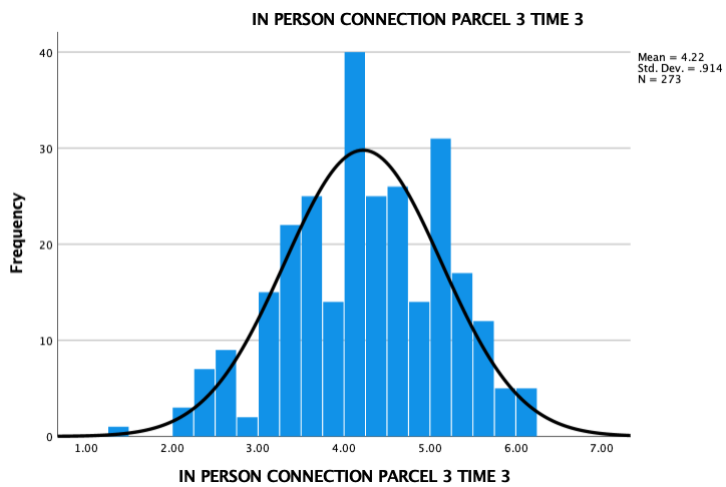
Figure 45*Histogram for SCS Parcel 3 Time 2***Figure 46***Histogram for SCS Parcel 3 Time 3*

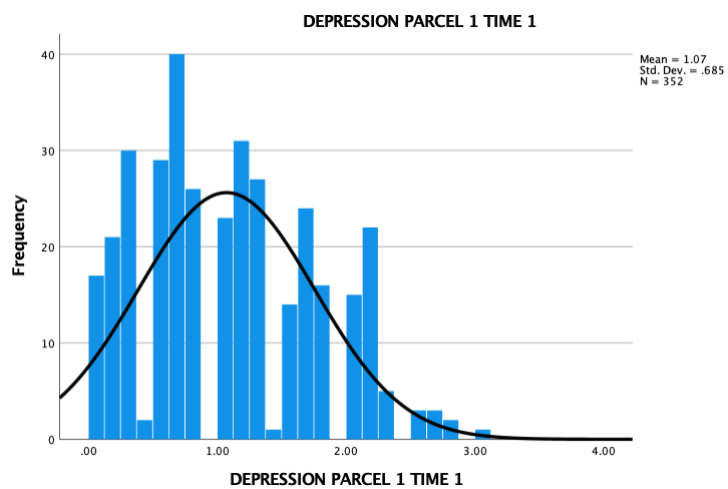
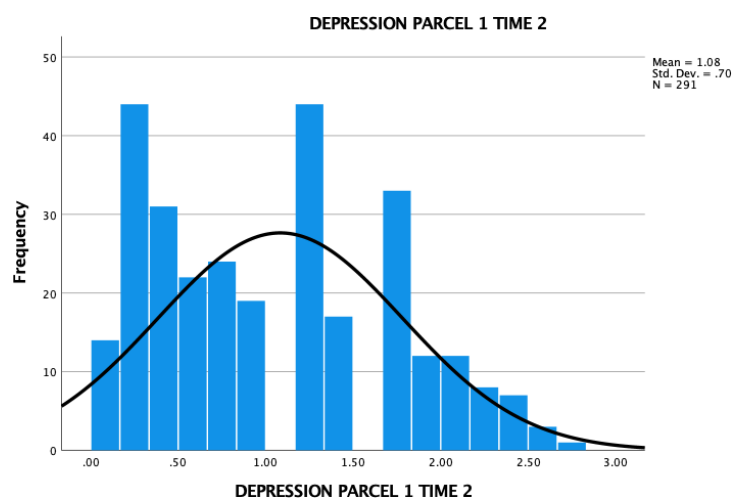
Figure 47*Histogram for Depression Parcel 1 Time 1***Figure 48***Histogram for Depression Parcel 1 Time 2*

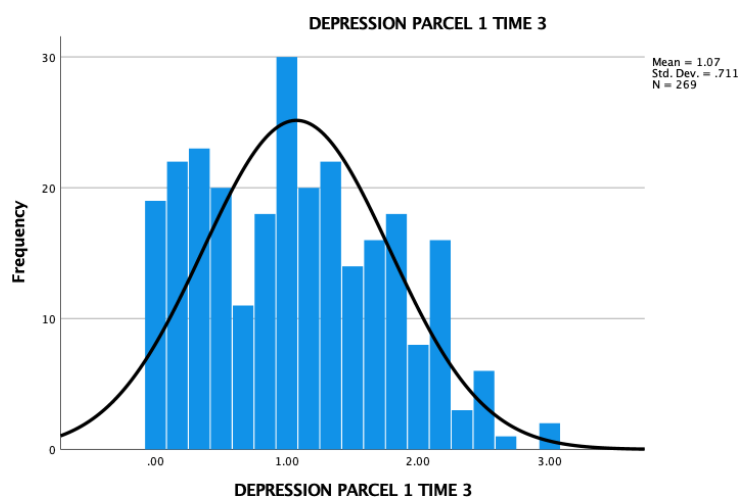
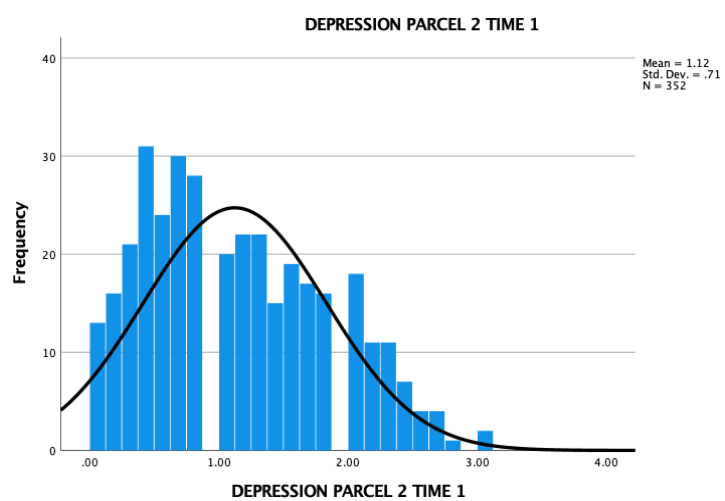
Figure 49*Histogram for Depression Parcel 1 Time 3***Figure 50***Histogram for Depression Parcel 2 Time 1*

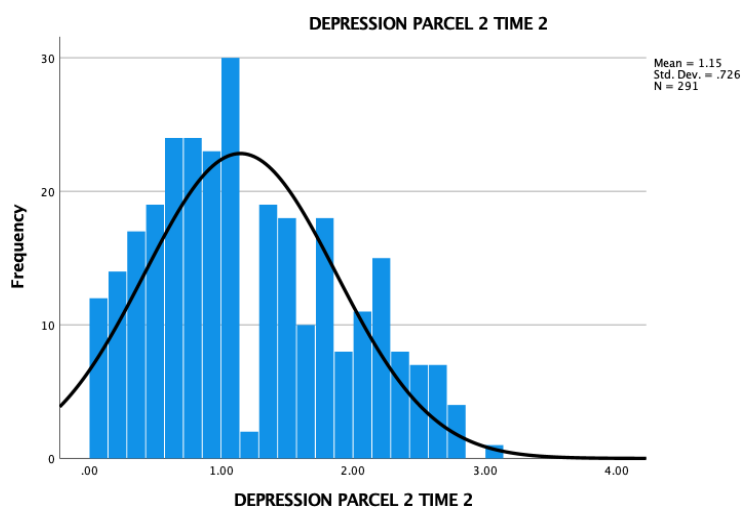
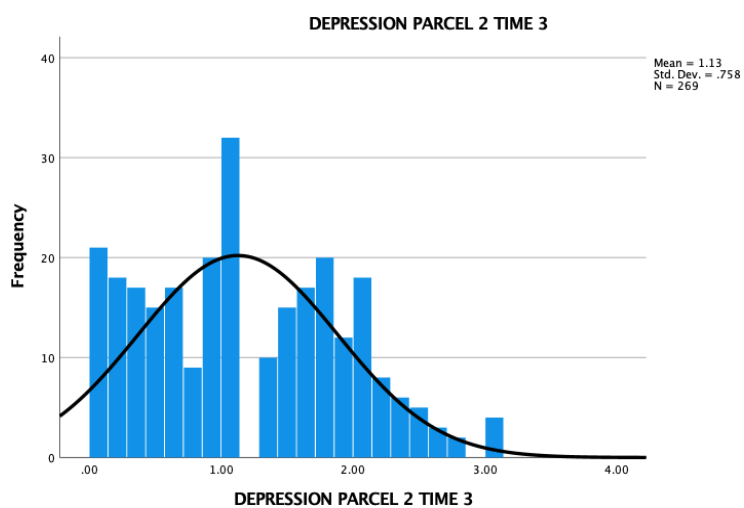
Figure 51*Histogram for Depression Parcel 2 Time 2***Figure 52***Histogram for Depression Parcel 2 Time 3*

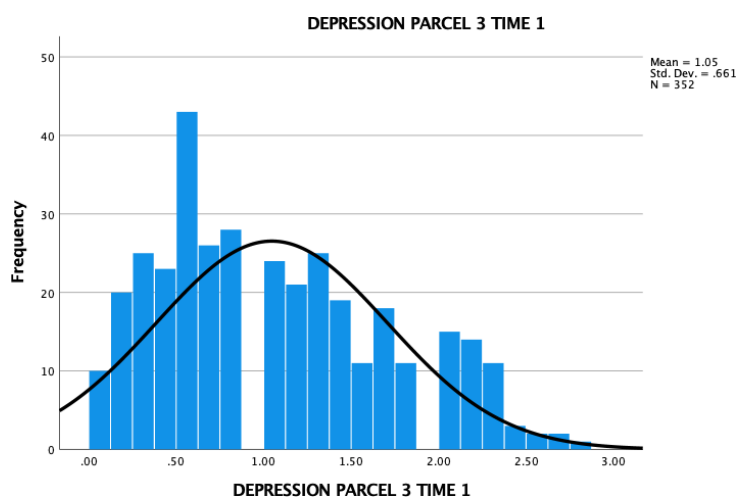
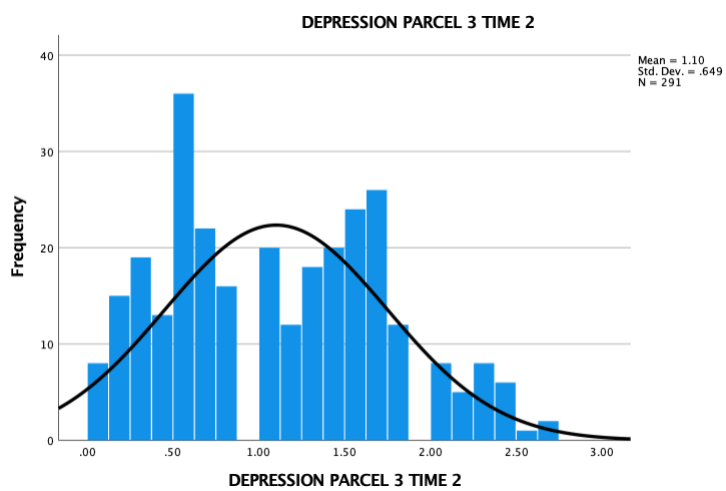
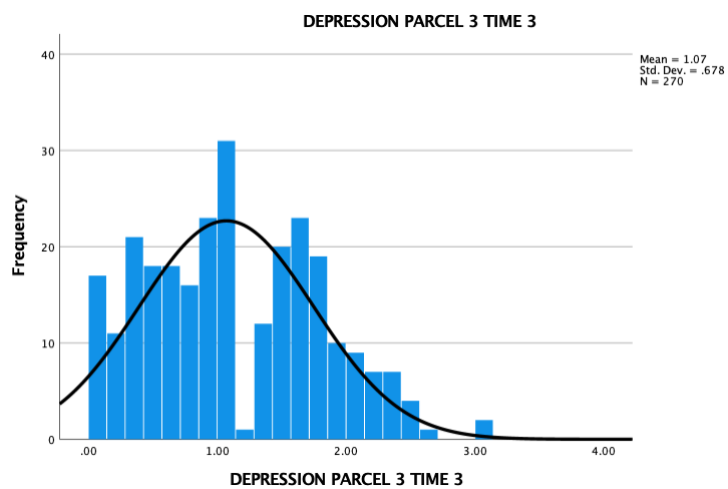
Figure 53*Histogram for Depression Parcel 3 Time 1***Figure 54***Histogram for Depression Parcel 3 Time 2*

Figure 55*Histogram for Depression Parcel 3 Time 3*

**Appendix O: Additional Information to Support Phase Two Parceling and
Measurement Invariance**

Table 1

Confirmatory Factor Analyses for SOP

CFA	Latent variable	Item	Standardized factor loading	Two-tailed <i>p</i> -value
Item-level	SOPT1	C1T1 ^a	0.68	.000
		C2T1 ^a	0.63	.000
		C4T1 ^a	0.70	.000
		C6T1 ^b	0.47	.000
		C7T1 ^c	0.75	.000
		C9RT1 ^b	0.37	.000
		C11T1 ^c	0.63	.000
		C14T1 ^c	0.79	.000
		C16T1 ^b	0.86	.000
		C18RT1 ^c	0.52	.000
		C20T1 ^a	0.70	.000
		C22T1 ^b	0.84	.000
		With parcels	SOPT1	SOP11
SOP21	0.91			.000
SOP31	0.85			.000
SOPT2	SOP12		0.90	.000
	SOP22		0.91	.000
	SOP32		0.86	.000
SOPT3	SOP13		0.90	.000
	SOP23		0.91	.000
	SOP33		0.86	.000

Note. Model fit for item-level CFA: $\chi^2(54) = 276.28, p < .001, CFI = .90, RMSEA = .11, 95\% CI [.10, .12], p < .001, SRMR = .05$

Note. ^aItems used to create SOP Parcel 1; ^bItems used to create SOP Parcel 2; ^cItems used to create SOP Parcel 3

Note. Model fit for parceling CFA: $\chi^2(15) = 27.00, p = .029, CFI = 1.00, RMSEA = .05, 95\% CI [.02, .08], p = .519, SRMR = .02$

Table 2*Confirmatory Factor Analyses for SPP*

CFA	Latent variable	Item	Standardized factor loading	Two-tailed <i>p</i> -value
Item-level	SPPT1	C3RT1 ^a	0.39	.000
		C5T1 ^b	0.76	.000
		C8T1 ^b	0.79	.000
		C10T1 ^c	0.71	.000
		C12T1 ^c	0.74	.000
		C13T1 ^a	0.87	.000
		C15T1 ^a	0.81	.000
		C17T1 ^a	0.62	.000
		C19T1 ^b	0.64	.000
		C21T1 ^c	0.69	.000
With parcels	SPPT1	SPP11	0.89	.000
		SPP21	0.89	.000
		SPP31	0.79	.000
	SPPT2	SPP12	0.88	.000
		SPP22	0.90	.000
		SPP32	0.80	.000
	SPPT3	SPP13	0.87	.000
		SPP23	0.85	.000
		SPP33	0.86	.000

Note. Model fit for item-level CFA: $\chi^2(35) = 172.84$, $p < .001$, CFI = .93, RMSEA = .11, 95% CI [.09, .12], $p < .001$, SRMR = .04

Note. ^aItems used to create SPP Parcel 1; ^bItems used to create SPP Parcel 2; ^cItems used to create SPP Parcel 3

Note. Model fit for parceling CFA: $\chi^2(15) = 33.23$, $p = .004$, CFI = .99, RMSEA = .06, 95% CI [.03, .09], $p = .272$, SRMR = .03

Table 3*Confirmatory Factor Analyses for PSP*

CFA	Latent variable	Item	Standardized factor loading	Two-tailed <i>p</i> -value
Item-level	PSPT1	P1T1 ^b	0.49	.000
		P2T1 ^b	0.69	.000
		P3T1 ^c	0.52	.000
		P4T1 ^c	0.77	.000
		P5T1 ^a	0.84	.000
		P6T1 ^a	0.64	.000
		P7T1 ^b	0.84	.000
		P8T1 ^c	0.55	.000
		P9T1 ^a	0.27	.000
		P10T1 ^b	0.46	.000
		P11T1 ^c	0.56	.000
		P12T1 ^a	0.39	.000
		P13T1 ^c	0.74	.000
		P14T1 ^b	0.62	.000
		P15T1 ^b	0.82	.000
		P16T1 ^c	0.65	.000
		P17T1 ^a	0.87	.000
		P18T1 ^a	0.63	.000
With parcels	PSPT1	PSP11	0.90	.000
		PSP21	0.94	.000
		PSP31	0.89	.000
	PSPT2	PSP12	0.90	.000
		PSP22	0.93	.000
		PSP32	0.91	.000
	PSPT3	PSP13	0.89	.000
		PSP23	0.95	.000
		PSP33	0.89	.000

Note. Model fit for item-level CFA: $\xi^2(135) = 909.56$, $p < .001$, CFI = .79, RMSEA = .13, 95% CI [.12, .14], $p < .001$, SRMR = .08

Note.^aItems used to create PSP Parcel 1; ^bItems used to create PSP Parcel 2; ^cItems used to create PSP Parcel 3

Note. Model fit for parceling CFA: $\xi^2(15) = 25.47$, $p = .044$, CFI = 1.00, RMSEA = .04, 95% CI [.01, .07], $p = .587$, SRMR = .02

Table 4*Confirmatory Factor Analyses for FCS*

CFA	Latent variable	Item	Standardized factor loading	Two-tailed <i>p</i> -value
Item-level	FCST1	F1T1 ^a	0.29	.000
		F2T1 ^c	0.50	.000
		RF3T1 ^b	0.43	.000
		F4T1 ^c	0.50	.000
		F5T1 ^b	0.66	.000
		RF6T1 ^b	0.45	.000
		RF7T1 ^c	0.64	.000
		F8T1 ^a	0.42	.000
		RF9T1 ^a	0.67	.000
		F10T1 ^c	0.63	.000
		RF11T1 ^b	0.66	.000
		F12T1 ^b	0.61	.000
		RF13T1 ^a	0.37	.000
		F14T1 ^b	0.47	.000
		RF15T1 ^c	0.57	.000
		F16T1 ^c	0.62	.000
		RF17T1 ^a	0.68	.000
		RF18T1 ^a	0.70	.000
		F19T1 ^c	0.58	.000
		RF20T1 ^b	0.66	.000
With parcels	FCST1	FCS11	0.70	.000
		FCS21	0.76	.000
		FCS31	0.80	.000
	FCST2	FCS12	0.69	.000
		FCS22	0.77	.000
		FCS32	0.72	.000
	FCST3	FCS13	0.68	.000
		FCS23	0.82	.000
		FCS33	0.80	.000

Note. Model fit for item-level CFA: $\chi^2(170) = 595.99$, $p < .001$, CFI = .81, RMSEA = .09, 95% CI [.08, .09], $p < .001$, SRMR = .07

Note. ^aItems used to create FCS Parcel 1; ^bItems used to create FCS Parcel 2; ^cItems used to create FCS Parcel 3

Note. Model fit for parceling CFA: $\chi^2(15) = 29.49$, $p = .014$, CFI = .99, RMSEA = .05, 95% CI [.02, .08], $p = .394$, SRMR = .03

Table 5*Confirmatory Factor Analyses for SCS*

CFA	Latent variable	Item	Standardized factor loading	Two-tailed <i>p</i> -value
Item-level	SCST1	S1T1 ^a	0.30	.000
		S2T1 ^c	0.52	.000
		SF3T1 ^a	0.46	.000
		S4T1 ^c	0.55	.000
		S5T1 ^b	0.73	.000
		SF6T1 ^c	0.63	.000
		SF7T1 ^a	0.76	.000
		S8T1 ^b	0.53	.000
		SF9T1 ^b	0.75	.000
		S10T1 ^b	0.64	.000
		SF11T1 ^a	0.76	.000
		S12T1 ^c	0.62	.000
		SF13T1 ^a	0.31	.000
		S14T1 ^b	0.51	.000
		SF15T1 ^c	0.63	.000
		S16T1 ^c	0.71	.000
		SF17T1 ^b	0.76	.000
		SF18T1 ^a	0.77	.000
		S19T1 ^b	0.53	.000
		SF20T1 ^c	0.69	.000
With parcels	SCST1	SCS11	0.85	.000
		SCS21	0.90	.000
		SCS31	0.91	.000
	SCST2	SCS12	0.87	.000
		SCS22	0.90	.000
		SCS32	0.90	.000
	SCST3	SCS13	0.87	.000
		SCS23	0.92	.000
		SCS33	0.90	.000

Note. Model fit for item-level CFA: $\chi^2(170) = 613.36$, $p < .001$, CFI = .86, RMSEA = .09, 95% CI [.08, .09], $p < .001$, SRMR = .06

Note. ^aItems used to create SCS Parcel 1; ^bItems used to create SCS Parcel 2; ^cItems used to create SCS Parcel 3

Note. Model fit for parceling CFA: $\chi^2(15) = 17.52$, $p = .289$, CFI = 1.00, RMSEA = .02, CI 95% [.00, .06], $p = .894$, SRMR = .01

Table 6*Confirmatory Factor Analyses for Depression*

CFA	Latent variable	Item	Standardized factor loading	Two-tailed <i>p</i> -value
Item-level	DEPT1	D1T1 ^c	0.58	.000
		D2T1 ^b	0.53	.000
		D3T1 ^a	0.76	.000
		D4RT1 ^a	0.47	.000
		D5T1 ^c	0.54	.000
		D6T1 ^a	0.79	.000
		D7T1 ^b	0.49	.000
		D8RT1 ^a	0.39	.000
		D9T1 ^c	0.67	.000
		D10T1 ^b	0.53	.000
		D11T1 ^c	0.57	.000
		D12RT1 ^c	0.67	.000
		D13T1 ^c	0.56	.000
		D14T1 ^b	0.73	.000
		D15T1 ^a	0.40	.000
		D16RT1 ^c	0.64	.000
		D17T1 ^b	0.61	.000
		D18T1 ^a	0.79	.000
		D19T1 ^b	0.71	.000
		D20T1 ^b	0.68	.000
With parcels	DEPT1	CESD11	0.88	.000
		CESD21	0.90	.000
		CESD31	0.88	.000
	DEPT2	CESD12	0.89	.000
		CESD22	0.92	.000
		CESD32	0.89	.000
	DEPT3	CESD13	0.87	.000
		CESD23	0.94	.000
		CESD33	0.93	.000

Note. Model fit for item-level CFA: $\xi^2(170) = 657.13$, $p < .001$, CFI = .84, RMSEA = .09, 95% CI [.08, .10], $p < .001$, SRMR = .06

Note. ^aItems used to create DEP Parcel 1; ^bItems used to create DEP Parcel 2; ^cItems used to create DEP Parcel 3

Note. Model fit for parceling CFA: $\xi^2(15) = 16.20$, $p = .369$, CFI = 1.00, RMSEA = .02, 95% CI [.00, .05], $p = .926$, SRMR = .01

Table 7*CFA Testing Configural Invariance Measurement Model – Factor Loadings*

Latent variable	Item	Standardized factor loading	Two-tailed <i>p</i> -value
SOPT1	SOP11	0.86	.000
	SOP21	0.90	.000
	SOP31	0.85	.000
SOPT2	SOP12	0.91	.000
	SOP22	0.90	.000
	SOP32	0.87	.000
SOPT3	SOP13	0.90	.000
	SOP23	0.90	.000
	SOP33	0.86	.000
SPPT1	SPP11	0.88	.000
	SPP21	0.89	.000
	SPP31	0.81	.000
SPPT2	SPP12	0.86	.000
	SPP22	0.91	.000
	SPP32	0.81	.000
SPPT3	SPP13	0.85	.000
	SPP23	0.86	.000
	SPP33	0.87	.000
PSPT1	PSP11	0.90	.000
	PSP21	0.94	.000
	PSP31	0.90	.000
PSPT2	PSP12	0.89	.000
	PSP22	0.93	.000
	PSP32	0.92	.000
PSPT3	PSP13	0.89	.000
	PSP23	0.94	.000
	PSP33	0.90	.000
FCST1	FCS11	0.82	.000
	FCS21	0.85	.000
	FCS23	0.93	.000
FCST2	FCS12	0.82	.000
	FCS22	0.83	.000
	FCS32	0.90	.000
FCST3	FCS13	0.81	.000
	FCS23	0.89	.000
	FCS33	0.93	.000
SCST1	SCS11	0.86	.000
	SCS21	0.90	.000
	SCS31	0.91	.000
SCST2	SCS12	0.87	.000

	SCS22	0.90	.000
	SCS32	0.91	.000
SCST3	SCS13	0.87	.000
	SCS23	0.93	.000
	SCS33	0.90	.000
DEPT1	CESD11	0.88	.000
	CESD21	0.90	.000
	CESD31	0.88	.000
DEPT2	CESD21	0.89	.000
	CESD22	0.92	.000
	CESD32	0.90	.000
DEPT3	CESD13	0.87	.000
	CESD23	0.93	.000
	CESD33	0.94	.000

Note. Model fit: $\xi^2(1170) = 1738.92$, $p < .001$, CFI = .97, RMSEA = .04, 95% CI [.03, .04], $p = 1.000$, SRMR = .05

Table 8*CFA Testing Configural Invariance Measurement Model – Intercepts*

Latent variable	Item	Unstandardized intercept	SE	Two-tailed <i>p</i> -value
SOPT1	SOP11	3.85	0.05	.000
	SOP21	3.44	0.05	.000
	SOP31	3.47	0.05	.000
SOPT2	SOP12	3.77	0.05	.000
	SOP22	3.43	0.05	.000
	SOP32	3.46	0.05	.000
SOPT3	SOP13	3.64	0.06	.000
	SOP23	3.43	0.05	.000
	SOP33	3.43	0.05	.000
SPPT1	SPP11	2.61	0.05	.000
	SPP21	2.98	0.06	.000
	SPP31	2.78	0.06	.000
SPPT2	SPP12	2.74	0.05	.000
	SPP22	3.11	0.06	.000
	SPP32	2.93	0.06	.000
SPPT3	SPP13	2.83	0.05	.000
	SPP23	3.13	0.06	.000
	SPP33	2.93	0.06	.000
PSPT1	PSP11	3.17	0.05	.000
	PSP21	3.20	0.05	.000
	PSP31	3.34	0.05	.000
PSPT2	PSP12	3.21	0.04	.000
	PSP22	3.20	0.05	.000
	PSP32	3.35	0.05	.000
PSPT3	PSP13	3.20	0.05	.000
	PSP23	3.21	0.05	.000
	PSP33	3.34	0.05	.000
FCST1	FCS11	3.91	0.05	.000
	FCS21	3.94	0.05	.000
	FCS23	4.05	0.05	.000
FCST2	FCS12	3.86	0.05	.000
	FCS22	3.92	0.05	.000
	FCS32	4.08	0.05	.000
FCST3	FCS13	3.88	0.05	.000
	FCS23	3.94	0.05	.000
	FCS33	4.02	0.05	.000
SCST1	SCS11	3.91	0.05	.000
	SCS21	4.27	0.05	.000
	SCS31	4.22	0.05	.000
SCST2	SCS12	3.91	0.05	.000

	SCS22	4.25	0.05	.000
	SCS32	4.22	0.05	.000
SCST3	SCS13	3.93	0.06	.000
	SCS23	4.24	0.05	.000
	SCS33	4.19	0.05	.000
DEPT1	CESD11	1.08	0.04	.000
	CESD21	1.13	0.04	.000
	CESD31	1.05	0.04	.000
DEPT2	CESD21	1.09	0.04	.000
	CESD22	1.16	0.04	.000
	CESD32	1.11	0.04	.000
DEPT3	CESD13	1.11	0.04	.000
	CESD23	1.17	0.04	.000
	CESD33	1.11	0.04	.000

Appendix P: Additional Information to Support Phase Two Temporal Relationships Between Perfectionism and Depr

Table 1

Results From Cross-Lagged Structural Equation Modeling Representing the Reciprocal-Causality Models of Perfectionism and Depression with Auto

Model	Predictor	SOP T3				SPP T3				PSP T3				DEP T3	
		<i>B</i>	<i>SE</i>	<i>B</i>	95% CI for <i>B</i>	<i>B</i>	<i>SE</i>	β	95% CI for <i>B</i>	<i>B</i>	<i>SE</i>	β	95% CI for <i>B</i>	<i>B</i>	<i>SE</i>
Reciprocal-Causality	SOP T1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-0.16	0.15
	SPP T1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	0.21	0.12
	PSP T1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	0.45*	0.11
	DEP T1	0.20*	0.08	0.20	[0.05, 0.36]	0.41*	0.08	0.38	[0.25, 0.58]	0.41*	0.08	0.38	[0.26, 0.57]	-----	-----

Note. SOP = self-oriented perfectionism; SPP = socially prescribed perfectionism; PSP = perfectionistic self-presentation; DEP = depression

Note. Model fit: $\chi^2(222) = 932.47, p < .001, CFI = .90, RMSEA = .10, 95\% CI [.09, .10], p < .001, SRMR = .18$

Appendix Q: Additional Information to Support Phase Two Mediation Analyses

Table 1

Final Structural Equation Model Results Without Covid-Related Worry Included

Predictor	FCS T2				SCS T2				DEP T3			
	<i>B</i>	<i>SE</i>	β	95% CI for <i>B</i>	<i>B</i>	<i>SE</i>	β	95% CI for <i>B</i>	<i>B</i>	<i>SE</i>	β	95% CI for <i>B</i>
SOP T1	-0.05	0.09	-0.05	[-0.24, 0.10]	0.21*	0.09	0.19	[0.02, 0.39]	-0.14	0.10	-0.11	[-0.34, 0.03]
SPP T1	0.02	0.09	0.02	[-0.16, 0.16]	-0.22*	0.09	-0.20	[-0.39, -0.06]	0.10	0.10	0.08	[-0.09, 0.25]
PSP T1	-0.28*	0.10	-0.26	[-0.46, -0.09]	-0.40*	0.10	-0.37	[-0.59, -0.22]	0.33*	0.10	0.26	[0.13, 0.49]
FCS T2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.06	0.10	-0.04	[-0.24, 0.12]
SCS T2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.52*	0.10	-0.45	[-0.72, -0.35]

* $p < .05$

Note. SOP = self-oriented perfectionism, measured by the CAPS; SPP = socially prescribed perfectionism, measured by the CAPS; PSP = perfectionism measured by the PSPS-Jr; FCS = online connection, measured by the Facebook Connectedness Scale (adapted for social media); SCS = in-person connection, measured by the Social Connectedness Scale; DEP = depression, measured by the CESD-R

Note. Model fit: $\chi^2(120) = 215.79, p < .001, CFI = .98, RMSEA = .05, 95\% CI [.04, .06], p = .655, SRMR = .04$

Table 2

Final Mediation Model Without Covid-Related Worry Included

Predictor	Total	Total indirect	Direct	Specific indirect via FCS	Specific indirect via SCS
SOP → DEP	-0.24* [-0.46, -0.03]	-0.10 [-0.21, 0.00]	-0.14 [-0.34, 0.06]	0.00 [-0.01, 0.02]	-0.11* [-0.21, -0.01]
SPP → DEP	0.21* [0.01, 0.41]	0.12* [0.01, 0.22]	0.10 [-0.09, 0.28]	0.00 [-0.01, 0.01]	0.12* [0.02, 0.21]
PSP → DEP	0.55* [0.33, 0.76]	0.22* [0.11, 0.33]	0.33* [0.13, 0.52]	0.01 [-0.04, 0.07]	0.21* [0.09, 0.33]

* $p < .05$

Note. SOP = self-oriented perfectionism, measured by the CAPS; SPP = socially prescribed perfectionism, measured by the CAPS; PSP = perfectionism measured by the PSPS-Jr; FCS = online connection, measured by the Facebook Connectedness Scale (adapted for social media); SCS = in-person connection, measured by the Social Connectedness Scale; DEP = depression, measured by the CESD-R

Note. Model fit: $\chi^2(120) = 215.79, p < .001, CFI = .98, RMSEA = .05, 95\% CI [.04, .06], p = .655, SRMR = .04$

Appendix R: Follow-Up Analyses to Support Phase Two Discussion

Table 1

Structural Equation Model Results with Only FCS as a Mediator

Predictor	FCS T2				DEP T3			
	<i>B</i>	<i>SE</i>	β	95% CI for <i>B</i>	<i>B</i>	<i>SE</i>	β	95% CI for <i>B</i>
SOP T1	-0.06	0.09	-0.06	[-0.30, 0.09]	-0.24*	0.10	-0.21	[-0.44, -0.08]
SPP T1	0.02	0.09	0.02	[-0.21, 0.17]	0.21*	0.09	0.18	[0.03, 0.36]
PSP T1	-0.30*	0.07	-0.28	[-0.54, -0.14]	0.38*	0.10	0.33	[0.19, 0.55]
FCS T2	N/A	N/A	N/A	N/A	-0.35*	0.08	-0.31	[-0.54, -0.22]

* $p < .05$

Note. SOP = self-oriented perfectionism, measured by the CAPS; SPP = socially prescribed perfectionism, measured by the CAPS; PSP = perfectionism, measured by the PSPS-Jr; FCS = online connection, measured by the Facebook Connectedness Scale (adapted for social media); DEP = depression, measured by the PHQ-9.
Note. Model fit: $\chi^2(80) = 163.71, p < .001, CFI = .98, RMSEA = .05, 95\% CI [.04, .07], p = .267, SRMR = .04$

Table 2

Mediational Model with Only FCS as a Mediator

Predictor	Total	Total indirect	Direct	Specific indirect via FCS
SOP → DEP	-0.22* [-0.42, -0.02]	0.02 [-0.04, 0.09]	-0.24* [-0.44, -0.05]	0.02 [-0.04, 0.09]
SPP → DEP	0.21* [0.02, 0.39]	-0.01 [-0.07, 0.05]	0.21* [0.03, 0.39]	-0.01 [-0.07, 0.05]
PSP → DEP	0.49* [0.29, 0.69]	0.10* [0.03, 0.18]	0.38* [0.19, 0.58]	0.10* [0.03, 0.18]

* $p < .05$

Note. SOP = self-oriented perfectionism, measured by the CAPS; SPP = socially prescribed perfectionism, measured by the CAPS; PSP = perfectionism, measured by the PSPS-Jr; FCS = online connection, measured by the Facebook Connectedness Scale (adapted for social media); DEP = depression, measured by the PHQ-9.
Note. Model fit: $\chi^2(80) = 163.71, p < .001, CFI = .98, RMSEA = .05, 95\% CI [.04, .07], p = .267, SRMR = .04$