# Pandemic HomeBODIES: The Effects of the COVID-19 Pandemic on Emerging Adults' Body Appreciation, Life Satisfaction, and Affect

by

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## Abstract

The COVID-19 pandemic has negatively impacted emerging adults' lives in various aspects of physical and mental health at least in part because of lack of physical activity and face-to-face socialization paired with increased technology and social media time. In addition, changes such as using video conferencing methods to communicate while working, going to school, and socializing have increased like never before. Given that all of these aspects may be linked to poorer mental health outcomes such as body dissatisfaction and negative body image, it is imperative that we examine how these changes to daily life have influenced people's thinking about their bodies, life satisfaction, and overall affect. In this study, we examined emerging adults' body appreciation and wellbeing by comparing secondary data of emerging adults' ratings on the Body Appreciation Scale 2, before the COVID-19 pandemic ($n$ = 288), to emerging adults during the pandemic ($n$ = 288). Additionally, we examined how body appreciation may serve as a mediator between unique pandemic experiences, such as overall pandemic impact, physical health, and effects of video conferencing methods, and life satisfaction and affect. Independent-samples $t$-tests determined that ratings of body appreciation were significantly lower for the pandemic sample compared to the pre-pandemic sample ($t$ (574) = 4.39, $p < .001$). Results from the mediation analyses revealed that body appreciation partially mediated the relationships between participant's pandemic experiences and life satisfaction, positive affect, and negative affect. The predictors accounted for approximately 28% of the variance in life satisfaction ($F$ (4, 275) = 26.15, $p < 0.001$). We utilized these results to foster discussion around the importance of bolstering body appreciation and encouraging positive health behaviours in current health care practices as well as informing future preventative efforts and intervention.

# Preface

This thesis is an original work by Sierra Tulloch. The research project, of which this thesis is a part, received ethics approval from the University of Alberta's Research Ethics and Management Online services, No. Pro00110500, June 16, 2021.

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## Introduction

Body image is something known to everyone. But in the scholarly literature, the negative focus on body image has recently been challenged by the more positive and functional notion of body appreciation. Defined as the acceptance of, favorable opinions toward, and respect for one's body (Tylka & Wood-Barcalow, 2015a), body appreciation has been shown to be a protective factor for emerging adults. For example, body appreciation has correlated with various measures of well-being including life satisfaction, positive affect, self-esteem, optimism, and adaptive coping (Andrew et al., 2016; Avalos et al., 2005; Dalley & Vidal, 2013; Swami et al., 2008; Tylka & Kroon Van Diest, 2013). Body appreciation has also been found to be linked to positive health factors such as intuitive eating, physical self-care, exercise and physical activity, and sexual and reproductive health (Tylka, 2019).

Although the COVID-19 pandemic impacted pretty much every aspect of life, body appreciation may have been particularly impacted. For example, the public health restrictions associated with the COVID-19 pandemic have exacerbated trends towards sedentary lifestyles (Hall et al., 2021) and increased feelings of loneliness and isolation (Banerjee & Rai, 2020). At various points and often for long stretches of time people have been required to remain at home, unable to participate in leisure and sport activities, and reliant on technology and social media to maintain relationships. Early studies have indicated that during this time many emerging adults ate less healthy food, gained weight, reduced exercise, increased in depressive symptomatology, and developed different perceptions of their body (Mason et al., 2020; Robertson et al., 2020). Given these changes in behaviour, it is plausible that the manifold layers of the pandemic could have negatively influenced body appreciation, however, no research to date has compared body appreciation before and during the pandemic.

In addition to not being able to do certain things that are known to benefit body appreciation, other elements of the pandemic may have introduced factors that could negatively impact body appreciation. In particular, although video conferencing methods were employed long before the pandemic, they were heavily relied on during the pandemic and a relatively "new" concept for many individuals. Additionally, emerging adults were one of the large subpopulations across the world ordered by governments to go to school and work at home and online, necessitating the need to adapt to various online methods and giving themselves more free time, and ultimately increasing their social media habits and negatively affecting their mental health (Hudimova et al., 2021; Lee et al., 2022). Given these increases in online communication methods, free time at home, and social media, young adults may have had large amounts of time to think about and look at their bodies in relation to those in their immediate surroundings and those online. With these unknowns in mind, it is imperative that we understand emerging adults' pandemic experiences, life satisfaction, and how they are understanding their health and well-being during the COVID-19 pandemic particularly in regard to their body appreciation. This research investigated possible effects of the COVID-19 pandemic on emerging adults' life satisfaction, positive and negative affect, and body appreciation. Thus, the purpose of this research was twofold: first, we sought to compare all individuals' ratings of all variables before and during the pandemic. Second, we sought to test body appreciation as a mediator between unique pandemic experiences (i.e., pandemic impact, and eating, exercise, and video conferencing habits) and life satisfaction and affect.

# Literature Review

## Body Image and Appreciation

Body image is often referred to as the "multifaceted psychological experience" of being in your body (Cash, 2004, p. 1). It encompasses one's actions, thoughts, and emotions surrounding their body, and although the body is a physical entity, the construct of body image is not exclusively based on one's physical appearance (Cash, 2004). Thus, a young person's feelings and cognitions concerning their body holds true of the attitudinal aspect of body image, and how people view their physical body shape and size in relation to its realistic appearance entails the perceptual aspect (Chazan, 2019). Many researchers have come to the conclusion that body image is rooted in "embodiment," which is the experience of living in a person's body in the world and is much broader than one's perception of their body (Cash, 2004; Holmqvist Gattario et al., 2020). Although body image has been said to be measured through a variety of psychometrically sound scales, positive body image is not a unidimensional construct that can be assessed by only taking into account one's acceptance of their appearance (Tylka & Wood-Baraclow et al., 2015b).

Over many years, the literature has expanded a variety of terms that encompass the construct of one's self-perception and attitude towards their bodies. The constructs of body esteem and body appreciation are regularly associated with having a positive body image, which includes a person admiring their body, appreciation the functionality of their body, emphasizing assets rather than imperfections, and feeling confident, beautiful, and comfortable in one's skin (Wood-Barcalow et al., 2010). This overarching love and honor for one's body (Tylka & Wood-Barcalow, 2015b) is even defined to be present when aspects of one's body are inconsistent in the face of idealized images (Wood-Barcalow et al., 2010). However, these terms are not to be

confused with body disturbance and dissatisfaction, which entail a negative body image. Given that positive body image is its own construct, negative and positive body image are distinct from one another, and some argue that they should not be represented on the same continuum (Tylka & Wood-Barcalow, 2015b). Body appreciation can often be seen as under the umbrella of what constitutes a positive body image, and in particular, has somewhat recently been studied separately from body image within the last decade (Tylka, 2019). Although many have utilized the readily available body appreciation measures to understand correlational relationships between body appreciation and various health- and well-being- related variables, there is yet much to be known about his construct and the literature is just starting to expand from the use of solely positive body image studies to those that include body appreciation (Tylka, 2019). In hopes to further this body of work, we chose to use body appreciation as one component of positive body image, but will also refer to negative body image and body dissatisfaction and expand on why the absence of body appreciation can be harmful for the physical and mental well-being of emerging adults.

Many have attributed the etiology of one's body image from the works of Thompson and colleagues' (1999) Tripartite Influence Model, which theorizes that one's conceptualization of their body comes from messages in the media and early peer and parental modeling of appearance-related opinions and behaviours. Rodgers and Chabrol (2012) also reviewed parental influence on body image and body concern in adolescents and young adulthood. They found that through verbal messages and active encouragement, parents are notable communicators of sociocultural pressures, most prominently, the desire to be thin (Rodgers & Chabrol, 2012). Needless to say, a young persons' home environment and what they consume online on a daily

basis serves as a large influence that may dictate the choices and cloud their thoughts about themselves once they go on to lead their own lives.

As a person experiences noticeable and uncontrollable physical changes in their life, body dissatisfaction has been found to be stable throughout aging, especially for women (Tiggemann, 2004). Negative and positive body image has been an important field of research predominantly for the impact that one's bodily attitudes and perceptions have on adaptive behaviours like physical activity, eating habits, and self-care (Tylka & Wood-Barcalow, 2015b). Moreover, body dissatisfaction and disturbance are great risk factors for various psychopathologies (Peat et al., 2010), with arguably the most concerning being the onset of eating disorders. Individuals with eating disorders have an elevated risk of death due to the physiological harm that the body foregoes when purged, restricted, and/or overconsumed with food (Arcelus et al., 2011). More specifically, Anorexia Nervosa has the highest mortality rate of all psychiatric illnesses (Arcelus et al., 2011). Given the large risks associated with negative body image, many scholars have advocated for further and specified research within the field of body image, and advocate for the discovery of protective factors and preventative measures to mitigate the harmful effects encompassing individuals' lives.

### *Body Image and Emerging Adulthood*

Body image is influential, no matter a person's age. Over a lifespan, people are exposed to a multitude of schemas, from a variety of environments, of what they ought to be and look like. Thus, it is not by mere fault that emerging adulthood is an age group that is heavily influenced by the pressures of social media and body ideals, diet culture, and exercise management (Aparicio-Martinez, 2019; Rounsefell et al., 2019; Vaterlaus et al., 2015). Emerging adulthood (18-25 years old) is defined as a developmental period that includes both

the late teens and early twenties (Arnett, 1999). For Arnett (1999), emerging adults are experiencing immense changes on all life fronts through trying to understand their worldviews while searching for fulfillment and belonging. This outlook highlights why understanding life satisfaction and affect amidst the pandemic are important outcomes for this population. During global health turmoil, emerging adults' exploration of identity has been different from any other generation. Moreover, body appreciation becomes especially relevant for emerging adults at a time when they are heavily influenced by the media and restricted from regular healthy routines while trying to learn and be comfortable in their own skin.

### *Body Image and Life Satisfaction*

Body image has also been measured with constructs of subjective well-being to determine if causal and correlational relationships are present between how one feels about their bodies and life. Results from Davis and colleagues' (2020) hierarchical multiple regression analyses indicated that, once the effects of age, body mass index, and personality were accounted for, body appreciation significantly predicted both life satisfaction and flourishing in men and women. Additionally, body image also has an effect on young women's fear of intimacy in romantic relationships (Cash et al., 2004a). Sexual satisfaction, life satisfaction, and body image have been found to be related for women with and without physical disabilities (Moin et al., 2009). Stokes and Frederick-Recascino (2008) found that women's body esteem, a construct involving sexual attractiveness, was related to their happiness and life satisfaction. Taken together, these results suggest that body image and appearance concerns heavily influence one's ability to connect and form relationships with others.

Holmqvist Gattario and colleagues (2020) have also found associations between life satisfaction, body esteem, and embodiment, which is a broader construct to body image but

nonetheless factorially related. Moreover, others have argued that "how people feel about their bodies likely plays an important role in their overall self-esteem and satisfaction with life" (Frederick et al., 2016, p. 192). Results have indicated that weight, appearance, and healthy eating patterns correlate with life satisfaction (Frederick et al., 2016; McCreary & Sadava, 2001), and more specifically, individuals that had higher ratings of openness, conscientiousness, and extraversion, were more secure in their attachment style as well as had higher self-esteem and life satisfaction (Frederick et al., 2016). From these findings it is evident that body appreciation matters in the context of a person's life and fulfillment, and that if the overall aim of psychological study is to have people live good or meaningful lives, the factors that are playing into a person's overall appreciation for their body and their image of themselves must be considered.

### *Body Image and Positive-Negative Affect*

In addition to life satisfaction, body image has been measured with positive and negative emotions extensively in the literature. Body appreciation specifically, has been linked to college aged women's self-esteem and ability to cope and live hopefully (Avalos et al., 2005). Other researchers have found body appreciation to be correlated with positive emotions such as happiness and affects like optimism (Cash et al., 2004b; Stokes & Frederick-Recascino, 2008). However, body image is also associated with negative affects and emotion. Body-related embarrassment which happens in the presence of others, usually in school, sports, and physical activity settings, can contribute to negative body images and affective states for both adolescents and young adults (Vani et al., 2020). Rooted in Self Discrepancy Theory (Higgins, 1987), Castonguaya and colleagues (2012) conducted a study that found that shame and guilt increase when there is discrepancy between one's ideal weight and actual body weight. Cash and

colleagues (2004a) found through their study of college students' interpersonal relationships that a negative body image, for both men and women, indicated greater discomfort and concerns for social interaction. Body image dissatisfaction, dysfunctional investment in appearance, and situational body image dysphoria were all moderately associated with higher levels of social-evaluative anxiety for both genders (Cash et al., 2004a). Lastly, others have found that increased thoughts of body image ideals are associated with depressive and anxious affect in women (Heron & Smyth, 2013), suggesting that duration and quantity of body image related thoughts have an effect on one's well-being. Together, these findings propose that negative body image can be damaging for a person's wellbeing and emotion while body appreciation may serve as a protecting factor for emerging adults.

**COVID-19 Impacts**

While there have been some beneficial outcomes resulting from the COVID-19 pandemic, the global health crisis has strained many lives at both the personal and systematic levels of society. The turmoil created by the pandemic has shifted our capacities for physical and mental health care and economic stability (Byrne et al., 2021; Menon & Padhy, 2020) all while increasing people's use of technology and social media, and decreasing their ability to exercise, which are all known to negatively affect a person's overall health and well-being (Damasceno et al., 2017; Karim et al., 2020; Ojiambo, 2013). Moreover, these pandemic-elevated stressors of increased technology use and little exercise have been previously shown to affect individuals' well-being, emotional regulation and affect, and life satisfaction (Grant et al., 2009; Longstreet & Brooks, 2017; Thomée et al., 2010). Ultimately, the COVID-19 pandemic has acted as a catalyst for pre-existing health care and wellness boundaries and the resulting effects could be

dire for emerging adult populations who may already be experiencing difficulties with their physical and mental wellbeing, life satisfaction, and affect.

### *Socioeconomic Status and Job Security*

Socioeconomic status has long been associated with better mental and physical health outcomes (Chen & Miller, 2013; Schreier & Chen, 2013). Relatedly, socioeconomic status and financial stability are related to other measurements of wellbeing including life satisfaction and positive affect. Diener (2012), the creator of the Satisfaction with Life Scale, found in his review of the literature that life satisfaction is highly correlated with economic outcomes such as greater financial management, financial stability, job stability, and monthly income. Additionally, others have found that financial security is related to positive affect such as happiness (Flynn & MacLeod, 2015) in the emerging adult population, suggesting that the trials and tribulations of the pandemic on our global infrastructure may have seeped into causing even greater inequality and negative affect for emerging adults.

Early pandemic research showed that the pandemic has increased total household financial and food insecurity across North American homes, with more vulnerable lower-class families and individuals experiencing greater instability (Carroll et al., 2020; Idzerda et al., 2022). Emerging adults in particular have been at the forefront of unemployment and financial instability as they often are a part of the casual, part-time, and student workforces. A pre-released chapter on the UK labour market during the pandemic found that the pandemic increased employment inequality amongst younger adults and less-educated people who were already less likely than average to be working before the health crisis began (Cribb et al., 2021). Moreover, younger workers (aged 19-34) were found to have weaker growth in earnings and the number of young adults moving back home to live with parents rose from 45% to 50% from the years 2020

to 2021 (Cribb et al., 2021). Unfortunately, these trends have also been documented in the US (Perry et al., 2021) and Canada (BC Center for Disease Control, 2021; Government of Canada, 2021). With high rates of job insecurity and unemployment across the global young adult population, many researchers found that the immense financial stress experienced has been predictors of poorer health and well-being outcomes (Praneet et al., 2021). A study led by Varma and colleagues (2021) discovered that while older adults are more susceptible to physical harm from the coronavirus itself, younger adults were at greater risk for mental health issues. These poorer mental health outcomes were also linked to perceived stress of financial uncertainty in young adults, and thus, employing the call for urgent global public health measures to mitigate the harmful effects (Varma et al., 2021). Body appreciation may be one such personal factor that could mitigate the financial stressors and harm to emerging adults' life satisfaction and affect brought on by the COVID-19 pandemic.

### *Video Conferencing, Technology, and Social Media Use*

Though researchers have seen the use of technology and social media increase rapidly over the years, some had early worries that time spent social distancing and quarantining at home during the pandemic would exacerbate individuals' already long-winded technology time, and correspondingly, increase susceptibility towards misinformation and anxiety (Wiederhold, 2020). These earlier predictions did come into effect, with even more negative effects than what may have been anticipated. Social media use peaked during lockdowns and governments issued stay-at-home orders (Valdez et al., 2020) while young adults experienced social media overload and negative psychological wellbeing impacts (Liu et al., 2021). Moreover, Liu and colleagues (2021) found that emerging adults who were experiencing social media fatigue and fear of COVID-19 often opted for social media discontinuance. Others discovered that higher

frequencies of social media use in emerging adults were linked to higher scores of negative affect and/or depression (Sujarwoto et al., 2021; Zhao & Zhou, 2020).

With the many unprecedented changes to work and study environments, individuals also embarked on the use of video conferencing methods to attend meetings, lectures, and social events during the pandemic. Although video conferencing methods have been used throughout the last decade, and were likely an easier adjustment for younger populations, young adults too have been subjected to the negative effects of switching to online platforms. “Zoom fatigue” became a regular term for describing the mental and physical exhaustion of video conferencing for hours of the day and constantly needing to be focused on one’s screen (Fosslien & Duffy, 2020; Strassman, 2020). Additionally, some research has described the staring at an image of oneself became an everyday occurrence and that comfortability of being on camera may be more difficult for some than others, and thus, preferences for turning web cameras off are often employed (Karl et al., 2022). Pikoos and colleagues (2021) also warned of the video-based negative effects of video conferencing with one third of their participants ($n$ = 335) identifying appearance concerns. Moreover, those with body dysmorphia concerns had links to greater self-focused attention, engagement in video-manipulation behaviors, and appearance concerns for the time spent video conferencing (Pikoos et al., 2021). Instead of dwelling on appearance and how one looks in the square on the screen, body appreciation could help individuals with such appearance and dysmorphic concerns or alleviate the negative effects that many emerging adults have been experiencing while working and attending school online.

### *Body Image and the COVID-19 Pandemic*

In conjunction with research describing the overtly negative impacts of young adults’ wellbeing and technology and social media use, early findings have suggested that there is some

concern for the current body image of individuals amid the COVID-19 health crisis. Swami and colleagues (2021) found through hierarchical regressions that COVID-19-related stress was related to significant variance in their participants' perception of their bodies. Mason and colleagues (2020) reported that 48% of their participants ($n$ = 1,820) reported unhealthy food intake in efforts to cope with the pandemic. They found that many of those who reported overeating had also reported weight gain, and that women and persons with depressive symptoms, were more likely to engage in maladaptive eating behaviours (Mason et al., 2020). The researchers also warned that the incidental weight gain may continue as the pandemic lengthens and urged that their findings were concerning for public health (Mason et al., 2020). Others have also found similar results, with Robertson and colleagues (2020) reporting through their study of U.K. adults that there were large individual differences in body image, exercise, and eating in May through June of 2020. They added that women had increasingly more troubles managing their eating behaviours and preoccupation with food, as well as a worsening body image, in comparison to men (Robertson et al., 2020). With these body image and related health and technology findings in conjunction with what is known about negative body image and dissatisfaction and a person's wellbeing, these findings further support the need for understanding body appreciation as a protective factor for emerging adults during the everflowing impacts of the pandemic.

**Body Appreciation as a Protective Factor**

As previously discussed, negative body image, body dissatisfaction, or body dysmorphic concerns are linked to negative experiences and affects, such as various psychopathologies and eating disorders (Peat et al., 2010), body-related embarrassment (Vani et al., 2020), social anxiety (Cash et al., 2004a), and negative affect states in adolescence and emerging adulthood

(Vani et al., 2020). Given these harmful linkages, many have sought to recognize the underpinnings of how body appreciation can serve as a protective factor for young populations, including emerging adults. One group of scholars in particular was Hill and colleagues (2013), who suggest that body image flexibility serves as a protective factor against disordered eating behaviours for those with a low body mass index. Body image also has been found to mediate the relationship between negative affect and non-suicidal injury (Muehlenkamp & Brausch, 2012). More specifically, body appreciation has been supported as a protective factor. Augustus-Horvath and Tylka (2011) found that body appreciation mediated the relationship between body acceptance by others and intuitive eating for women in emerging, early, and middle adulthood. In another study exploring interpersonal and intrapersonal relationships, body appreciation fully mediated the linkage between discrepancy perfectionism and intuitive eating (Avalos & Tylka, 2006). Avalos and Tylka (2006) found that body appreciation may serve as a protective factor against attachment anxiety and restrictive/critical caregiver eating messages, as it partially mediated the linkages between those variables and intuitive eating as well. Body appreciation is also known to protect women from negative media exposures and from internalizing thin ideals (Halliwell, 2013). Andrew and colleagues (2015) also found that body appreciation is protective against body dissatisfaction from thin-ideal exposures. However, to our knowledge, no study to date has examined the mediating role of body appreciation on life satisfaction and affect, and with the novelty of the COVD-19 pandemic, no study has examined the mediating role with unique pandemic experiences. It is evident that body appreciation, as a positive lens of body image, has positive effects on various elements of well-being, and the current study may help to shed light on how body appreciation could create positive experiences for emerging adults who are in the midst of difficult times, such as the unruly pandemic.

## The Current Study

What becomes noticeably important out of the pre-existing research is that body appreciation can be a protective factor sustaining life satisfaction and affect. The pandemic introduced many experiences that could reduce life satisfaction and positive affect while increasing negative affect. Although these empirical observations are prominent throughout the pandemic literature, no study to date has sought to understand if emerging adults' body appreciation has been affected by the multitude of stressors brought on by the COVID-19 pandemic, and if body appreciation may be serving as a mediator between these pandemic experiences and life satisfaction and positive and negative affect.

We sought to answer three questions. First, how do scores on a body appreciation measure, satisfaction with life, and affect compare before and during the pandemic in two separate samples of emerging adults? Grounded by the Tripartite Influence Model (Thompson et al.,1999), and the increase in free time, social media, and online communication methods, we hypothesized that emerging adults' participating amidst the pandemic will have lower ratings of body appreciation, life satisfaction, and positive affect and higher ratings of negative affect compared to those who provided ratings before the pandemic. Second, do men and women differ in their mean level responses to various indicators of pandemic experience? This question was descriptive and exploratory and thus we did not have any a priori hypotheses. Third, to what extent does body appreciation mediate pandemic experiences on satisfaction with life, positive affect, and negative affect? Given the early pandemic literature suggesting significant pandemic impacts on physical and mental health, body image, and technology (Mason et al., 2020; Sewall et al., 2021; Swami et al., 2021) and past evidence of body appreciation serving as a protective factor for emerging individuals (Hill et al., 2013; Muehlenkamp & Brausch, 2012) we predicted

that body appreciation would partially mediate the relationship between personal pandemic experience variables (i.e., pandemic impact, pandemic health, video conferencing impact, and video conferencing care) and satisfaction with life, positive affect, and negative affect.

## Methods

We used a multi-method design to explore body appreciation before and during the COVID-19 pandemic. Specifically, we used a correlational survey design to collect primary data on a number of pandemic experience variables, body appreciation, satisfaction with life, and affect. We used this data, referred to as the "during-pandemic data," on its own to answer research questions 2 and 3. To answer the first research question, we combined this primary data with an existing datafile on 18–25-year olds' body appreciation before the pandemic thereby creating a between-subjects design. This data is referred to as "pre-pandemic data." Approval for the study and use of secondary data was granted by the University of Alberta's Research Ethics and Management Online service (Appendix A).

### Procedures

The pre-pandemic data was collected in the spring of 2019. Participants were invited to complete a survey via REDCap, a secure online survey service provider measuring body appreciation and various other measures that have been reported elsewhere (Le, 2021). The research team and members of the Alberta Consortium for Motivation and Emotion (ACME) shared the survey and recruitment message on several social media platforms, Reddit, a University of Alberta listserv, and posted flyers physically on the university campus. As a thank you for their time, participants were invited to select one of two relevant organizations where the researchers would donate $1 (up to a maximum of $500) (Le, 2021). All participants provided informed consent and were ensured that their responses would remain anonymous.

The during-pandemic data was collected in June 2021 using almost identical procedures to maximize the chance of similar samples. Participants completed an online survey through Survey Monkey which was promoted by lead researchers and ACME members through similar online communities including Twitter, Facebook, Reddit, and a University of Alberta student listserv. However, with the Alberta government's restrictions placed on in-person capacity for universities, the current study was not promoted on campus. Participants all provided informed consent before starting the survey and were assured that their responses would be anonymous (see Appendix B for Study Information Letter).

**Participants**

To be included in the during-pandemic sample, participants had to be 18-25 years-old and completed all body appreciation measures (BAS-2) within the survey. Of the 340 initial responses, 299 participants met inclusion criteria (*M*age = 21.51 years, *SD* = 2.3; gender: 14% men, 82% women). There was one participant who chose not to disclose their gender and 10 non-binary participants who we report on elsewhere as a separate sample. The final sample consisted of the 288 men and women of whom 71.5% identified as White/Caucasian, 6.9% South Asian, 5.2% Chinese, 2.1% Black/African American, 2.1% Indigenous, 1.7% Southeast Asian, 1.4% Latin American, 1.3% Caribbean, 1% African, .3% East Asian, .3% Middle Eastern, .3% West Indian, .3% Korean, and 5.2% selecting multiple categories or explaining that they were "mixed race" or "biracial." The majority of the sample resided in Canada (91.3%), however, others reported residing in various countries including the U.S., India, Bangladesh, Denmark, Germany, China, Australia, Iraq, Trinidad, Turkey, and the U.K.

To create a similar sample size for the pre-during pandemic comparison, we randomly selected 288 participants from the total 591 in the pre-pandemic sample (*M*age = 21.63, *SD* =

2.3; gender: 23.5% men, 74.2% women) between the ages of 18-25 years old. These participants lived in a variety of countries across the world, including (but not limited to) Canada, the US, Denmark, England, India, and Portugal. Moreover, the pre-pandemic included 66% of participants identifying as White, 10% East Asian, 7% South Asian, 5% Hispanic/Latinx, 4% mixed ethnicity, 2% Native American/Metis, 2% Black/African American, 1% Middle Eastern, and 3% provided unclear or no response.

**Measures**

We used a combination of existing measurement scales with evidence of reliability and validity and researcher-made items to assess various elements of the pandemic experience, body appreciation, and satisfaction with life, and affect. In total the survey included 57 items, 50 of which are included in the current paper (see Appendix C for relevant study questionnaire items).

***Pandemic Experience Variables***

The research team created 15 items about experiences young people may have had during the pandemic that could be related to their body appreciation. These items were intended to measure constructs such as pandemic impact, health activities, responses to video conferencing in professional and social contexts, clothing, and appearance. Participants responded to all items on a 1 (strongly disagree) to 5 (strongly agree) Likert scale. Because we created these items, we used a principal components factor analysis with promax rotation for correlated factors to explore their loading. The factor analysis revealed 4 factors with eigenvalues > 1.0 of which we retained the first three factors representing nine items. The three factors were able to be meaningfully interpreted and account for 49% of the variance in items. We have indicated the exact wording and factor loading for each item in Table 1 based on the Rotated Structure Matrix. We retained one item to measure *pandemic impact* that asked participants to rate how greatly the

pandemic had impacted their lives. We retained three items to measure *pandemic health* addressing exercise, eating, and weight. We identified three items to measure the *impact* of *video conferencing* focusing on camera use. Finally, three items appeared to measure the *care* individuals put into their appearance while video conferencing. The alpha coefficients for each summed scale are in Table 2 with the other study variables and were generally adequate.

Table 1. *Research Team Generated Items on Pandemic Experience and Factor Loadings*

| **Factor** | **Item Wording** | **Factor Loading** | **Factor Loading** | **Factor Loading** |
|---|---|---|---|---|
| Pandemic Impact | My life has been greatly impacted by the pandemic. | – | – | – |
| Pandemic Health | The pandemic has made it difficult for me to exercise or do the typical physical activities I enjoy, | .74 | | |
| Pandemic Health | The pandemic has made it difficult for me to maintain eating habits that best suit my nutritional needs and lifestyle, and | .87 | | |
| Pandemic Health | My body weight has been greatly impacted by the pandemic. | .77 | | |
| Video Conferencing Impact | When I use video conferencing for school or work, I usually turn my camera off. | | | .85 |
| Video Conferencing Impact | When I use video conferencing socially (e.g., with family and friends), I usually turn my camera off. | | | .69 |
| Video Conferencing Impact | Using video conferencing more often has made me feel worse about my body. | | | .50 |
| Video Conferencing Care | When I use video conferencing for school or work, I usually put a lot of time and care into my appearance | | .86 | |
| Video Conferencing Care | When I use video conferencing socially, I usually put a lot of time and care into my appearance | | .84 | |
| Video Conferencing Care | I find that when I use video conferencing, 1 spend a lot of time looking at my own image on the screen | | .60 | |

### *Body Appreciation*

The revised Body Appreciation Scale-2 (BAS-2; Tylka & Wood-Barcalow, 2015a) was completed by participants in both the pre-pandemic and during-pandemic samples to measure body appreciation. The BAS-2 quantifies the level of acceptance, appreciative opinions toward, and respect for one's body (Tylka & Wood-Barcalow, 2015a). The BAS-2 is a 10-item measure with psychometrically sound properties and has been deemed appropriate for a variety of research and clinical uses (Homan, 2016; Tylka & Wood-Barcalow, 2015a). Through previous confirmatory factor analyses (CFAs), the scale was confirmed to accurately represent the construct of body appreciation (Tylka & Wood-Barcalow, 2015a). The BAS-2 also has supported internal consistency, test-retest reliability, and convergent, discriminant, and incremental validity (Homan, 2016; Tylka & Wood-Barcalow, 2015a).

### *Outcome Variables*

We used the Satisfaction with Life Scale (SWLS; Diener et al., 1985) to measure both pre- and during-pandemic participant's subjective well-being. The SWLS quantifies how participants felt about their lives within the last month based on their own criteria. The SWLS is a widely supported scale to measure a person's perception about their life. It has been shown to have sound psychometric properties, including appropriate ratings of convergent and divergent validity in comparison to other subjective well-being measures (Pavot & Diener, 1993), high temporal reliability and internal consistency, and adequate correlations with specific personality characteristics (Diener et al., 1985). The scale has 10 items and uses a Likert-type rating system running from 1 (strongly disagree) to 7 (strongly agree).

In addition to the SWLS, the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988) was used in both samples to measure affect. The PANAS has also been shown to be

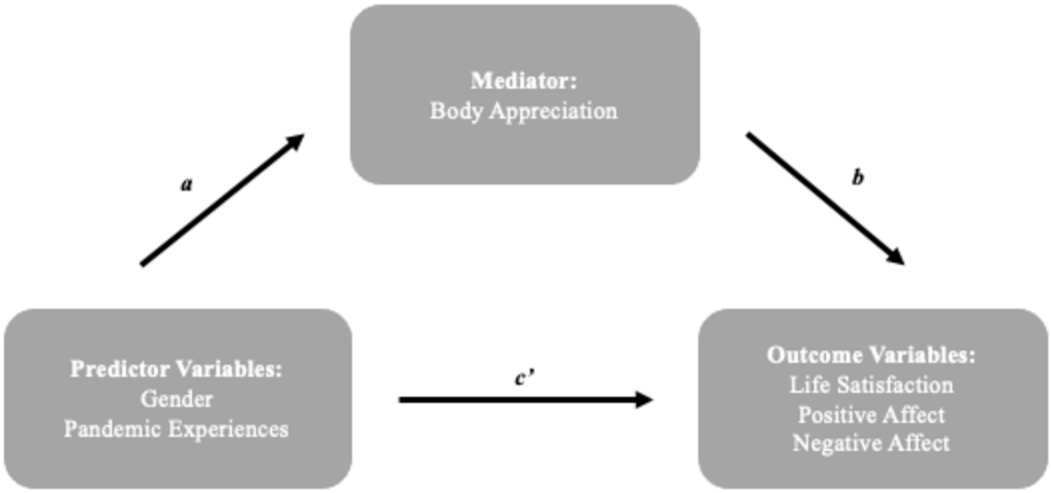
psychometrically reliable and valid. As positive affect and negative affect employ different mood states, the PANAS is composed of two 10 item scales, and they have been tested against each other to reveal that they are highly uncorrelated (Watson et al., 1988), thus, proving to have exceptional divergent validity. The scales have high internal consistency and have been compared against normative data and undergone factorial analysis to provide evidence of convergent and discriminant validity (Watson et al., 1988). By using the PANAS scales, the participants were asked if they have felt a variety of emotions and feelings over the last month (e.g., "Inspired," "Afraid") using a Likert-scale from 1 (not at all) to 5 (extremely).

**Rationale for Analysis**

We merged the pre-pandemic scores on body appreciation, satisfaction with life, and positive and negative affect and demographic data into the new data file and created a categorical variable to code participants as belonging to the pre-pandemic or during-pandemic sample. All data was analyzed through quantitative correlational methods in IBM SPSS Statistics for Macintosh, Version 26. First, we ran descriptive statistics including means, standard deviations, kurtosis, skew, and frequencies for all relevant variables to provide a better understanding of the sample's characteristics and distributions. Second, we used independent samples *t*-tests to determine if scores on the BAS-2, satisfaction with life, and affect differed before and during the COVID-19 pandemic. Third, we turned our attention to understanding responses to the pandemic. We describe men and women participants' ratings of pandemic health and wellness variables. Then, we ran zero-order correlations amongst the variables in the during-pandemic sample. Lastly, we followed Baron and Kenny's (1986) steps for testing mediation in regression analyses. As shown in Figures 1, we tested directed effects from predictors to outcomes (Path C), predictors to the mediator of body appreciation (Path A), and the mediator to outcomes (Path C)

separately before running a mediated model to test for changes between A and C accounted for by B (Path $C^1$).

Figure 1. *Paths Described in Baron & Kenny's Mediated Models*




## Results

### Descriptive Statistics

All descriptive statistics are presented in Table 2. Moderate-strong reliabilities of all scales were revealed through alpha analyses. Additionally, the dispersion of all data is within normal ranges thereby meeting the requirements for regression analyses (West et al., 1995).

Table 2. *Descriptive Statistics for all Study Variables*

| Variable | N | Mean | *SD* | Min-Max | α | Skew | kurtosis |
|---|---|---|---|---|---|---|---|
| *Pre-Pandemic Sample* | | | | | | | |
| Body Appreciation | 288 | 36.06 | 8.91 | 13-50 | .94 | -.50 | -.27 |
| Satisfaction With Life | 288 | 23.09 | 6.34 | 5-35 | .88 | -.39 | -.30 |
| Positive Affect | 288 | 33.67 | 7.60 | 10-50 | .87 | -.14 | -.29 |
| Negative Affect | 288 | 25.96 | 8.48 | 11-50 | .88 | .60 | -.17 |
| *During-Pandemic Sample* | | | | | | | |
| Body Appreciation | 288 | 33.06 | 7.45 | 15-50 | .93 | -.18 | -.40 |
| Life Satisfaction | 284 | 22.91 | 6.87 | 5-35 | .87 | -.47 | -.56 |
| Positive Affect | 288 | 30.00 | 6.99 | 13-48 | .87 | .03 | -.41 |
| Negative Affect | 288 | 26.53 | 7.50 | 10-47 | .85 | .17 | -.50 |
| Pandemic Impact | 283 | 3.87 | .97 | 1-5 | N/A | -.57 | -.49 |
| Pandemic Health | 283 | 9.65 | 3.27 | 3-15 | .73 | -.22 | -.86 |
| Video Conferencing Impact | 280 | 8.36 | 2.53 | 3-15 | .55 | .24 | -.23 |
| Video Conferencing Care | 281 | 13.25 | 3.56 | 4-20 | .66 | -.06 | -.56 |

**Pre- and During-Pandemic Body Appreciation**

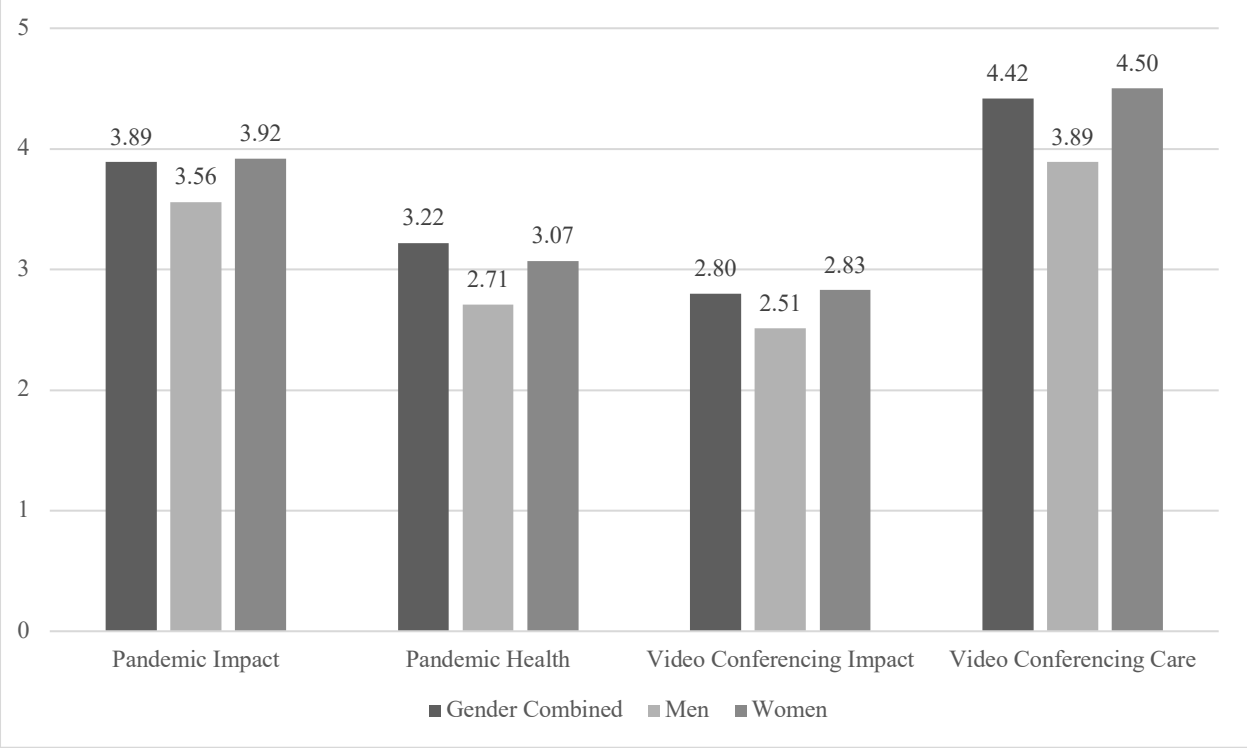
We conducted independent-samples *t*-tests to determine if the body appreciation, life satisfaction, and affect were significantly different between participants in the pre-pandemic ($n$ = 288) and during-pandemic ($n$ = 288) samples. As hypothesized, analyses revealed that participants' mean ratings on the BAS-2 ($t$ (574) = 4.39, $p < .001$) were significantly different between the samples such that the pre-pandemic sample had higher body appreciation than the during-pandemic sample. There was also a significant difference between ratings of positive affect between the samples ($t$ (574) = 6.04, $p <.001$), again with the pre-pandemic sample

reporting higher positive affect than the during-pandemic sample. However, there were no differences between pre- and during-pandemic ratings on the SWLS ($t$ (570) = .32, $p$ = .374) and negative affect ($t$ (574) = -.86, $p$ = .196).

**Description of Pandemic Experiences**

To understand men and women participant responses to the pandemic, we describe mean ratings of all pandemic experience variables without testing for statistical significance because of substantial differences in group size. As made visible in Figure 2, men's responses were always lowest (i.e., smaller amount of difficulties resulting from the pandemic) for all variables while women's responses were always the higher. Although men and women rated video conferencing impact as the lowest variable, video conferencing care was rated the highest out of all the pandemic experience variables. Moreover, pandemic impact seemed to have a greater effect on participants rather than pandemic health.

Figure 2. *Mean Ratings of Pandemic Experiences by Gender*



**Correlations**

Before running regression and mediation analyses, Pearson correlations were conducted to understand the patterns in the data (see Table 3). Moreover, correlations can be used to determine if a significant direct effect exists to be tested as part of mediation analyses (Baron & Kenny, 1986). All variables correlated in expected directions as a form of validity of evidence. Body appreciation negatively correlated with negative affect, pandemic health, video conferencing impact, and video conferencing care. Strong positive correlations also emerged between participant's ratings of body appreciation and satisfaction with life and positive affect. Participants' gender (1 = man; 2 = woman) correlated significantly with the majority of the relevant variables, and thus, was included in the regression and mediation analyses. Initial checks (scatterplots) were also conducted to ensure linearity of the data (see Appendix D).

Table 3. *During-Pandemic Correlation Matrix*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Age | - | | | | | | | | | |
| 2. Gender | -.03 | - | | | | | | | | |
| 3. Body Appreciation | .02 | -.10 | - | | | | | | | |
| 4. Satisfaction with Life | .17** | -.01 | .50** | - | | | | | | |
| 5. Positive Affect | .07 | -.05 | .57** | .60** | - | | | | | |
| 6. Negative Affect | -.12* | .16** | -.42** | -.44** | -.43** | - | | | | |
| 7. Pandemic Impact | -.15* | .13* | -.04 | -.05 | -.10 | .19** | - | | | |
| 8. Pandemic Health | -.06 | .19** | -.39** | -.17** | -.24** | .24** | .36** | - | | |
| 9. Video Conferencing Impact | -.37** | .13* | -.42** | -.28** | -38** | .31* | .19** | .31** | - | |
| 10. Video Conferencing Care | -.11 | .18** | -.16** | -.02 | -.05 | .22** | .23** | .24** | .25** | - |

*$p$<.05, **$p$<.01

**Regression and Mediation Analysis**

Based on the correlations, only pandemic health and video impact had associations with the mediator and outcomes that made them possible to consider in the mediated analysis. Following Baron and Kenny's (1986) steps for mediation, three separate multiple linear regressions and mediation analyses were run for the during-pandemic sample to determine if predictive relationships existed between participant's pandemic experience variables, body appreciation, and the outcomes of life satisfaction, positive affect, negative affect. No models were affected by multicollinearity as all variables' collinearity tolerance statistic values were >.2 (O'Brien, 2007). Secondary checks and residuals were also conducted for outliers and linear regression assumptions which were all met (see Appendix E).

As hypothesized, body appreciation partially mediated the relationships between participant's pandemic experiences and life satisfaction, positive affect, and negative affect. The predictors accounted for approximately 28% of the variance in life satisfaction ($F$ (4, 275) = 26.15, $p < 0.001$). Video impact was negatively associated with satisfaction with life; however, this effect was fully mediated by body appreciation once it was entered into the model. Body appreciation was the only positive predictor of satisfaction with life.

Table 4. *Regression and Mediation Analyses Predicting Life Satisfaction*

| | **Outcome: Body Appreciation (Path A)** | **Outcome: Life Satisfaction (Path B)** | **Mediated Analysis (Path C')** |
|---|---|---|---|
| Gender | -.03 | .05 | .06 |
| Pandemic Health | -.28** | -.11 | .03 |
| Video Conferencing Impact | -.33** | -.25** | -.09 |
| Body Appreciation | – | – | .50** |
| $R^2$ = | .25 | .09 | .28 |

*$p$<.05, **$p$<.001

The full model explained 34% of the variance in positive affect ($F$ (4, 275) = 35.99, $p$ < 0.001, see Table 5). Specifically, both pandemic health and video impact had negative relationships with positive affect, but the effect was fully mediated for pandemic health and partially mediated for video impact when body appreciation was added to the model. Again, body appreciation was the only positive predictor of positive affect; although, video impact continued to have a small negative effect.

Table 5. *Regression and Mediation Analyses Predicting Positive Affect*

| | **Outcome: Body Appreciation (Path A)** | **Outcome: Positive Affect (Path B)** | **Mediated Analysis (Path C')** |
|---|---|---|---|
| Gender | -.03 | -.00 | .01 |
| Pandemic Health | -.28** | -.13* | .01 |
| Video Conferencing Impact | -.33* | -.34** | -.18* |
| Body Appreciation | – | – | .50** |
| $\boldsymbol{R^2}$ = | .25 | .16 | .34 |

*$p$<.05, **$p$<.001

The full model explained 20% of the variance in negative affect ($F$ (4, 275) = 17.51, $p$ < 0.001, see Table 6). Pandemic health and video impact were positively associated with negative affect; however, the effect of pandemic health was fully mediated, and the effect of video impact was partially mediated by body appreciation once it was entered into the model. The negative association shows that body appreciation protects from negative affect whereas video impact exacerbates negative affect.

Table 6. *Regression and Mediation Analyses Predicting Negative Affect*

| | **Outcome: Body Appreciation (Path A)** | **Outcome: Negative Affect (Path B)** | **Mediated Analysis (Path C')** |
|---|---|---|---|
| Gender | -.03 | .11 | .10 |
| Pandemic Health | -.28** | .14* | .05 |
| Video Conferencing Impact | -.33* | .25** | .15* |
| Body Appreciation | – | – | -.32** |
| $R^2$ = | .25 | .13 | .20 |

*$p$<.05, **$p$<.001

## Discussion

This study was intended to explore how the COVID-19 pandemic has affected emerging adults' body appreciation. In this discussion we focus on three main results: (1) the descriptive differences between men and women's ratings of pandemic experiences, (2) the overall pre- and during-pandemic body appreciation difference, and (3) that body appreciation served as a protective mediator during the pandemic. We also discuss limitations of the research, directions for future research, and implications (theory, research, and practice).

### Descriptive Differences in Pandemic Experiences

As per our second research question, we investigated the gendered ratings of our pandemic experience variables. Although we did not have a hypothesis for this exploratory research question, the pattern of our findings (seen in Figure 2) is nonetheless interesting with women having higher scores than men on every variable. It has long been known that women's perceptions of their bodies are typically rated as a little more negative than their male counterparts (Frederick et al., 2012; Karazsia et al., 2017; Quittkat et al., 2019) and so we may be seeing a similarly gendered response here to pandemic variables. Moreover, Robertson and colleagues (2020) found in their earlier pandemic research that women were having more

difficulty with eating and body image during the first few months of the pandemic than men. Similar to these previous findings, and represented in the current study, young women have also experienced greater difficulty with the pandemic, their health, and using video conferencing. Again, this could further the argument that women perhaps are more willing to be vulnerable and open in expressing their hardships in comparison to men. Alternatively, these findings may shed light on the possibility that there is something about the pandemic, and the effects it has brought forth, that are simply more difficult for women to cope with. Such "why" questions are beyond the scope of this study and require future research (Murray et al., 2017; Tylka et al., 2005).

Despite gender differences on each variable, the overall rank order or pandemic variables was the same for men and women. For example, both men and women gave higher scores to pandemic impact than pandemic health. These results could suggest that in unprecedented and stressful times, emerging adults tend to prioritize or organize their thoughts in ways that ruminate over negative experiences and focus less on thoughts about health and related outcomes. Considering the previously discussed literature on the significant trials and tribulations of the COVID-19 pandemic (e.g., mental health issues, job insecurity, etc.), this reprioritization or neglect of personal physical health is a common or natural tactic used for many while undergoing stress (Burton et al., 2003; Coe & Harold Van Houtven, 2009; Larzelere & Jones, 2009). Additionally, participants in the current study gave higher ratings on the video conferencing care variable compared to video conferencing impact variable. Although women reported putting in more time into their appearance while video conferencing than men, both men and women strongly agreed with the item. The current findings also align with previous work suggesting that women are usually willing to put more time into their appearance than men

(Quittkat et al., 2019) even though in the context of the pandemic it was important to both genders.

The evidence on video conferencing taken together highlights the novelty of technology methods intertwined with body image, and yet, a repetition of old in-person habits resurfacing in the online-stay-at-home world that we may have thought of as being an escape of our daily pre-pandemic realities (i.e., putting together our appearance before we walk out the door to work, school, or fun). Coupled with the negative effects of "Zoom fatigue" (Fosslien & Duffy, 2020; Strassman, 2020), video conferencing may be doing more harm than good for emerging adult populations, and possibly even more so for young women in particular. Given the valence of these unique pandemic experiences for both men and women, it is likely that participants' lives had changed significantly since before the start of the pandemic and that these changes may have been a catalyst for differences in body appreciation, life satisfaction, and affect for the emerging adult population.

**Body Appreciation Pre- and During-Pandemic**

In our hypothesized direction, during-pandemic participants' scores of body appreciation were lower than our pre-pandemic sample. The significance of our findings suggests that the effects of the pandemic on various elements of mental and physical health have created emerging adults to become less appreciative of their bodies, and possibly more critical and dissatisfied. These findings align with early research and warnings from experts in the field, suggesting that the pandemic may be an even more difficult time for those with exercise, body dissatisfaction, and disordered eating (Mason et al., 2020; Robertson et al., 2020; Swami et al., 2020). Furthermore, this result aligns with the theoretical underpinnings of the Tripartite Influence Model (Thompson et al., 1999) which we used to guide our second research question. It could be

proposed that being at home for longer periods of time and having more free time allocated to social media and body comparison could have influenced the emerging adults' perceptions of their bodies. In addition to lower body appreciation scores, the during-pandemic sample also had lower scores of positive affect, further confirming that the pandemic experience plays a role in emerging adults' positive emotional states and the frequency of these states for them during a stressful period.

Despite the *t*-test analyses between pre- and during-pandemic samples' life satisfaction and negative affect being non-significant, these findings still tell us something about how emerging adults experienced the pandemic. Although we did not confirm our hypothesis that life satisfaction would be poorer during the pandemic, this is a "good" non-significant outcome. Emerging adults continued to find value in their lives despite of imminent stress, change, and difficulties with body appreciation and positive affect. Moreover, we expected the negative affect to increase given the impact of the pandemic on mental health (Sujarwoto et al., 2021; Zhao & Zhou, 2020), and our current findings on positive affect. Yet, again, it remained relatively stable throughout the different sample timepoints. These findings suggest that in a time of overly negative experiences with mental and physical health, economic instability, and social media overload, emerging adults' states of negative affect did not change. Collectively these non-significant results may also help understand the complexity, messiness, and chaos of health crises and offer a bit of hope that some people's lives and negativity will go unchanged. Lastly, these findings could further explain the relation between body appreciation and negative experiences in that body appreciation and positive affect are not the sole determinants of "good" or satisfied life, and more factors are at play.

**Body Appreciation as a Protective Factor**

Consistent with our second hypothesis, we found that body appreciation mediates the relationship between pandemic experiences and life satisfaction and affect. Between 20% and 34% of the effect of pandemic experiences on life satisfaction and affect were working through body appreciation. These successful mediations propose that body appreciation serves as a protective factor for life satisfaction, positive affect, and negative affect despite negative pandemic impact, pandemic health, and video conferencing impact variables. Similar to previous findings of body image flexibility and body appreciation as a protective factor against disordered and irregular eating habits (Augustus-Horvath & Tylka, 2011; Hill et al., 2013), negative affect and non-suicidal injury (Muehlenkamp & Brausch, 2012), thin-ideal exposures and body dissatisfaction (Halliwell, 2013), and attachment anxiety and restrictive/critical caregiver eating messages (Avalos & Tylka, 2006), the current study further supports the importance of bolstering body appreciation for the emerging adult population, especially in times of instability.

**Limitations and Directions for Future Research**

The results of this study need to be considered in light of the following three limitations. First, we tried to match the pre-pandemic procedure for recruiting our sample, but there is no guarantee if we captured an equivalent group. As such the comparisons are between two independent groups and not within the same individuals before and during the pandemic. Future research could involve longitudinal work that studies the same individuals at multiple different time points, rather than two independent samples. Longitudinal studies are lacking from the body appreciation literature, and this remains a main critique of this area of study as researchers should strive to understand the development, brevity, and stability of body appreciation (Tylka, 2019).

Second, men are underrepresented in our sample. Our sample ($N$ = 576) consisted of 19.4% men and 80.6% women, while global population estimates are closer to 50%-50% sex ratio (World Health Organization, 2021). Although this is a common theme in most studies within the body image literature, it is necessary that future work includes the perspectives of men as they too have been reporting difficulties with body appreciation and related constructs since the start of this field of study (Karazsia et al., 2017). Many researchers have taken it upon themselves to close this research gap, but the field as a whole must continue to include men and create samples that are representative. Despite having a small representation of men in our study, we continued to include them in our analyses for this reason. To continue this inclusion, future research efforts could focus on stratified sampling techniques, not convenience sampling like we employed for the current project.

Third, the pandemic experience variables are used for the first time and are researcher made. We were cognizant of the constraints and biases that these variables may have on our study. Thus, we designed items with our research lab colleagues (asking about experiences, the relevancy and frequency of the experiences, etc.), all of which contributes to the validity of the items. But, more work designing scales, better piloting, and further psychometric work (Boateng et al., 2018) could have been completed. In order to capture this at the start, however, we constructed a factor analysis of all relevant items before combining them and ran tests of reliability which are all within acceptable and strong ranges (Boateng et al., 2018).

**Implications**

This study has taken the argument for bolstering body appreciation for young people one step further. In a time of confusion, doubt, and immense change, body appreciation had an impact on emerging adults' life satisfaction and affect. Although some may often see body image as a small piece of the puzzle when it comes to mental health issues and the turbulence of a global health crisis such as the COVID-19 pandemic, body appreciation still did something for the emerging adults who spent long days socially isolating from others and who's main form of communication required them to look at their image plastered on a screen. On the flip side, we have also learned that many emerging adults *do* have difficulty with their body appreciation and the pandemic has been disruptive to their lives and ability to make healthy choices, and as professionals we must consider what we are going to do with these learnings.

For those in the field, this work further supports body appreciation as a mediator against negative predictors, which is a main action in which experts have been encouraging to advance the scholarship of body appreciation (Tylka, 2019). The results of this study showcase the depth of body appreciation or how far this construct can be stretched to protect against negative experiences. If it can protect against something as novel as video conferencing impacts, one can imagine the numerous possibilities that underscore negative body image and body dissatisfaction that could be tested against body appreciation.

There are many implications for mental health practitioners and those who work directly with emerging adults from the results of this study. It is important that educators, work supervisors, and clinicians are aware of the toll that the pandemic has had on this populations' body appreciation and affect. There are also tangible steps that can be taken from this research to help maintain body appreciation during the pandemic. Participants in the current study often had

greater appreciation for their bodies when they had greater ratings of pandemic health. Put simply, if they felt good physically, they felt better about their bodies. Thus, encouraging these adults to engage in regular and enjoyable physical activity and eat foods that fit their nutritional needs and lifestyle, would be beneficial. Moreover, given the likely heavy impact of social media and negative body-related comments from family members and peers (i.e., Tripartite Influence Model) during the long-lasting months of social isolation during the pandemic, it would be beneficial for emerging adults to be encouraged to spend less time on social media, be critical of the social media they do consume, and surround themselves with people who make them feel good about themselves.

In addition to body appreciation maintenance, this research highlighted video conferencing as a new potential threat to body appreciation. Video conferencing methods and telepsychology are not necessarily novel utilities for work, school, play, and therapy, but sitting in front of a mirror (i.e., image on the screen) while doing all these activities all day, is a new concept that many have not experienced before. Despite seemingly irrelevant, or possibly not *as* relevant when more serious mental health concerns are at stake, it is something worth considering when we ask our friends, colleagues, clients, and colleagues to log on for a meeting. Finding a balance between having meeting participants turn their cameras off or on may be an option for those who do not need face to face interaction, or at least providing the option for participants to turn their camera on or off as they need, may go a long way. Another recommendation could be to encourage users to turn off their display of their webcam image on their device which is now an updated option on many platforms, including Zoom, so that they do not have to fixate on their image.

### *Links to the Profession of School and Clinical Child Psychology*

Given that this work was tailored for emerging adulthood, an age group that is often heavily influenced by the media and body-ideals, the current findings hold significance for the profession of school and clinical child psychology. Nonetheless, body image is pertinent for everyone and anyone who has a body. Those who are trained in this specialty, however, should be aware of the effects of negative body image or dissatisfaction, and how body appreciation can foster greater mental health and positive outcomes. Practitioners should permit spaces and environments that are open to body and appearance discussions as well as model and encourage positive body talk themselves. Moreover, experts have suggested that therapists use the BAS-2 as part of their sessions to create an understanding of clients' body appreciation as well as opening a door to clients' awareness and development of greater love, respect, and honour for their bodies (Tylka, 2019).

## Conclusion

This project offers a new perspective on the effects of the COVID-19 pandemic on emerging adult's body appreciation, life satisfaction, and affect. Although physical health is important, especially during a time of illness and health scares, body appreciation stood out as a protective factor for emerging adults against negative pandemic experiences such as appearance concerns during videoconferencing sessions and inabilities to exercise and eat in a way that best served their bodies. However, body appreciation and positive affect were still difficult to maintain during the pandemic, suggesting that there is a need for body positivity reinforcement and body appreciation work. Given these findings, researchers and clinicians should be aware of the positive effects of body appreciation and work to guide their practice and research efforts to

foster greater body positivity and awareness of body appreciation after such a troubling time for emerging adults.

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# Appendix A

## Ethics Approval

**Notification of Approval**

| | |
|---|---|
| Date: | June 16, 2021 |
| Study ID: | Pro00110500 |
| Principal Investigator: | Sierra Tulloch |
| Study Supervisor: | Lia Daniels |
| Study Title: | The Effects of the COVID-19 Pandemic on Young Adult's Body Image and Life Satisfaction |
| Approval Expiry Date: | June 15, 2022 |

Thank you for submitting the above study to the Research Ethics Board 2. Your application has been reviewed and approved on behalf of the committee.

**Approved Documents:**

***Recruitment Materials***
Pandemic HomeBODIES Recruitment Messages
***Consent Forms***
Pandemic HomeBODIES Info and Consent Letter
***Questionnaires, Cover Letters, Surveys, Tests, Interview Scripts, etc.***
BAS-2
PANAS
Pandemic HomeBODIES Survey (06-15-21)
SWLS
***Other Documents***
Le (2021) Survey Codebook.pdf
Le (2021) Information Letter.pdf

Any proposed changes to the study must be submitted to the REB for approval prior to implementation. A renewal report must be submitted next year prior to the expiry of this approval if your study still requires ethics approval. If you do not renew on or before the renewal expiry date, you will have to re-submit an ethics application.

Approval by the Research Ethics Board does not encompass authorization to access the staff, students, facilities or resources of local institutions for the purposes of the research.

Sincerely,

Carol Boliek, PhD
Associate Chair, Research Ethics Board 2

*Note: This correspondence includes an electronic signature (validation and approval via an online system).*

# Appendix B

## Study Information Letter

**Pandemic HomeBODIES: Investigating the Effects of the COVID-19 on Young Adult's Body Image and Life Satisfaction**

This research is being conducted at the University of Alberta (Canada). Your participation should only take about 10-15 minutes.

To be eligible to participate in this study, you must be 18-25 years old.

**About the Study:** The purpose of this research is to learn more about how young adults are feeling during the current health crisis. More specifically, we hope that the findings of this study may bring to light how the COVID-19 pandemic is affecting people's wellbeing and if there is increased concern for people's body image and life satisfaction.

**What you have to do:** Your participation in this study involves answering questions about your current emotions, appreciation for your body, and satisfaction with your life. Participation in this study is completely voluntary, and should you decide to participate, it should only take about 10-15 minutes of your time to answer all of the questions.

**Risks & Benefits:** There are no perceived risks to participating in this survey. However, some questions will involve personal subject matters that may be emotionally or psychologically provoking, such as body image, life satisfaction, eating habits, exercise, and body weight. If you no longer wish to participate at any time during the survey, please feel free to simply exit out of the browser. It will be assured that your responses will not be recorded and any personal or identifying information will not be saved. Although there are also no direct benefits through participating in this study, you may find this study useful for self-reflection and obtain some insight into how you are currently feeling and/or how the pandemic has affected your mood, daily life, and appreciation of your body.

**Your Data:** All of the answers you provide will remain confidential. All data collected will be anonymous and stored in secure electronic formats that will be password protected. Once you press the "Done" button at the end of the survey, your data cannot be removed from the study as it is anonymous. The only persons that will have access to your confidential data will be researchers involved in this project. We hope to share the results of this survey in academic journals and presentations, and again, all personal information will remain confidential in the future. The data will be stored a minimum of five years as per university policy.

**Contact Information:** If you have any questions regarding the study, please reach out to research leads, Sierra Tulloch by email at stulloch@ualberta.ca or Lia Daniels by email at lia.daniels@ualberta.ca.

The plan for this study has been reviewed for its adherence to the ethical guidelines and approved by the University of Alberta Research Ethics Board (Pro00110500). For questions regarding participant rights and ethical conduct of research, please contact the Research Ethics Office at 780-492-2615. This office is unaffiliated with the researchers.

# Appendix C

## Study Questionnaire Items

Body Appreciation Items (BAS-2):

| |
|---|
| *Never* (1), *Seldom* (2)*, Sometimes* (3), *Often* (4), *Always* (5) |
| I respect my body |
| I feel good about my body |
| I feel that my body has at least some good qualities |
| I take a positive attitude towards my body |
| I am attentive to my body's needs |
| I feel love for my body |
| I appreciate the different and unique characteristics of my body |
| My behavior reveals my positive attitude toward my body; for example, I hold my head high and smile |
| I am comfortable in my body |
| I feel like I am beautiful even if I am different from media images of attractive people (e.g., models, actresses/actors) |

Life Satisfaction Items (SWLS):

| |
|---|
| *Strongly disagree* (1), *Disagree* (2), *Slightly disagree* (3), *Neither agree nor disagree* (4), *Slightly agree* (5), *Agree* (6), *Strongly agree* (7) |
| In most ways my life is close to my ideal. |
| The conditions of my life are excellent. |
| I am satisfied with my life. |
| So far i have gotten the important things I want in life. |
| If I could live my life over, I would change almost nothing. |

Positive Affect Items (PANAS):

| *Not at all* (1), *A little* (2), *Moderately* (3), *Quite a bit* (4), *Extremely* (5) |
|---|
| Interested |
| Excited |
| Strong |
| Enthusiastic |
| Proud |
| Alert |
| Inspired |
| Determined |
| Attentive |
| Active |

Negative Affect Items (PANAS):

| *Not at all* (1), *A little* (2), *Moderately* (3), *Quite a bit* (4), *Extremely* (5) |
|---|
| Distressed |
| Upset |
| Guilty |
| Scared |
| Hostile |
| Irritable |
| Ashamed |
| Nervous |
| Jittery |
| Afraid |

Pandemic Impact Item:

| |
|---|
| *Strongly disagree* (1), *Disagree* (2), *Neither agree nor disagree* (3), *Agree* (4), *Strongly agree* (5) |
| My life has been greatly impacted by the pandemic. |

Pandemic Health Items:

| |
|---|
| *Strongly disagree* (1), *Disagree* (2), *Neither agree nor disagree* (3), *Agree* (4), *Strongly agree* (5) |
| The pandemic has made it difficult for me to exercise or do the typical physical activities I enjoy. |
| The pandemic has made it difficult for me to maintain eating habits that best suit my nutritional needs and lifestyle. |
| My body weight has been greatly impacted by the pandemic. |

Video Conferencing Impact Items:

| |
|---|
| *Strongly disagree* (1), *Disagree* (2), *Neither agree nor disagree* (3), *Agree* (4), *Strongly agree* (5) |
| When I use video conferencing for school or work, I usually turn my camera off. |
| When I use video conferencing socially (e.g., with family and friends), I usually turn my camera off. |
| Using video conferencing more often has made me feel worse about my body. |

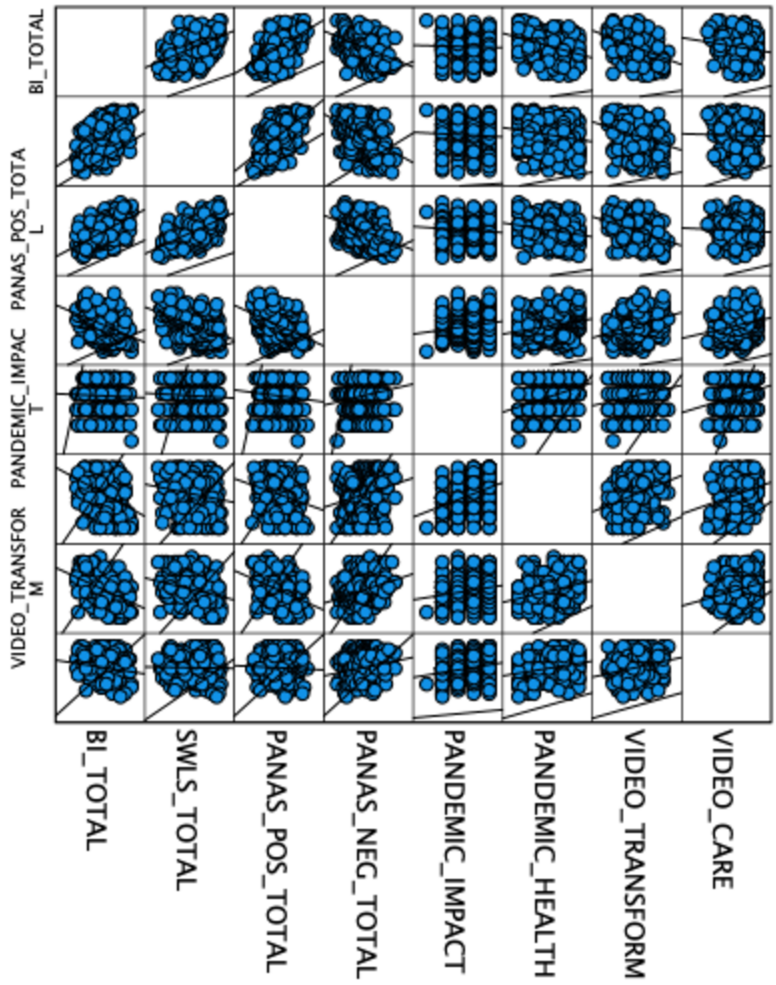
Video Conferencing Care Items:

| |
|---|
| *Strongly disagree* (1), *Disagree* (2), *Neither agree nor disagree* (3), *Agree* (4), *Strongly agree* (5) |
| I find that when I use video conferencing, I spend a lot of time looking at my own image on the screen. |
| When I use video conferencing for school or work, I usually put a lot of time and care into my appearance. |

| |
|---|
| When I use video conferencing socially, I usually put a lot of time and care into my appearance. |

Appendix D

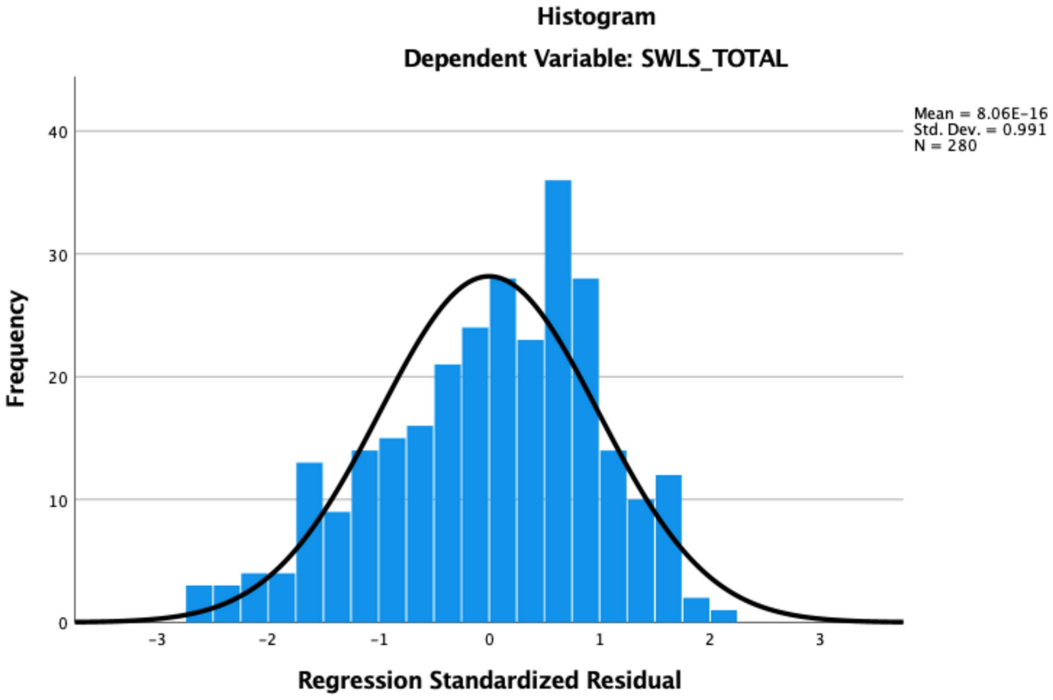
Initial Check Regression Matrix Scatterplot

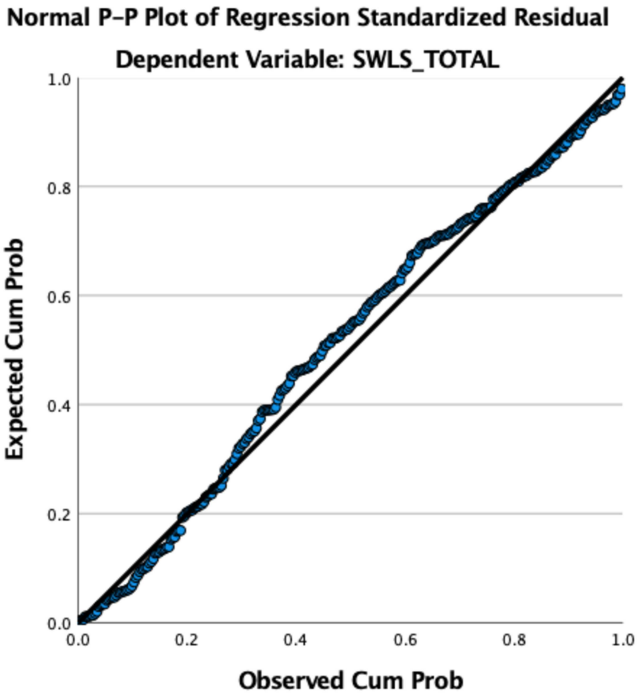


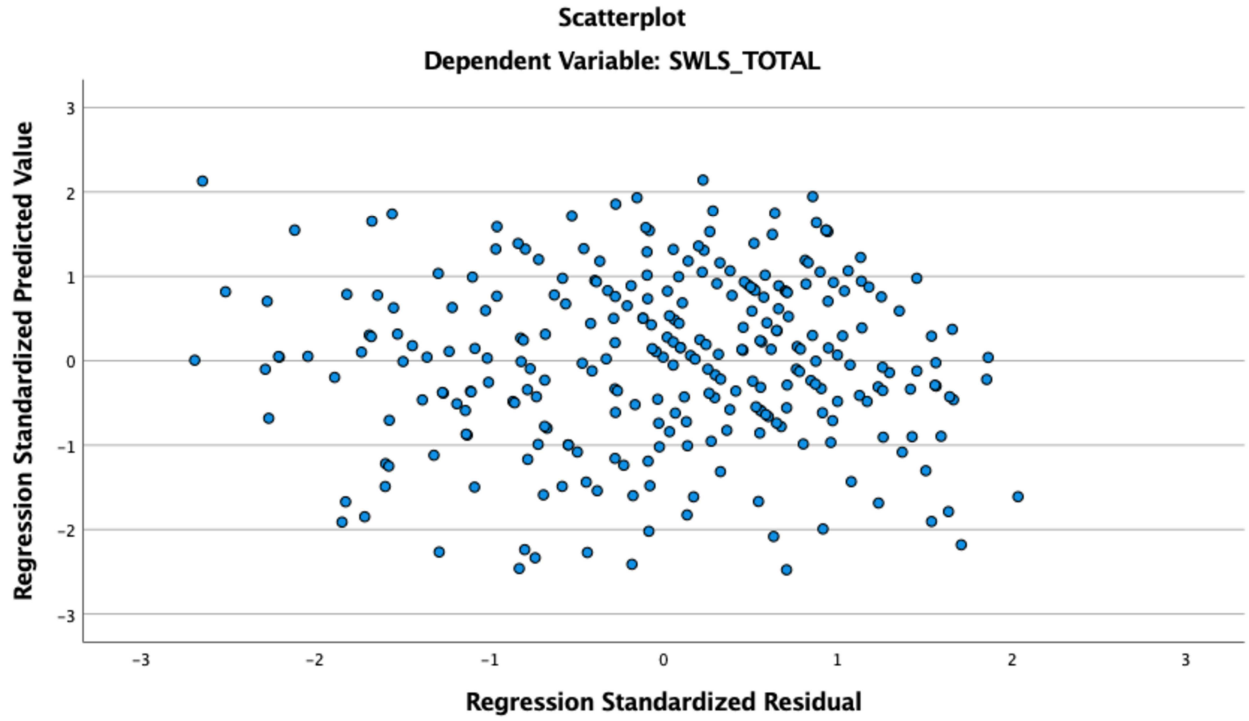

*Note.* “VIDEO_TRANSFORM” = “Video Conferencing Impact” study variable

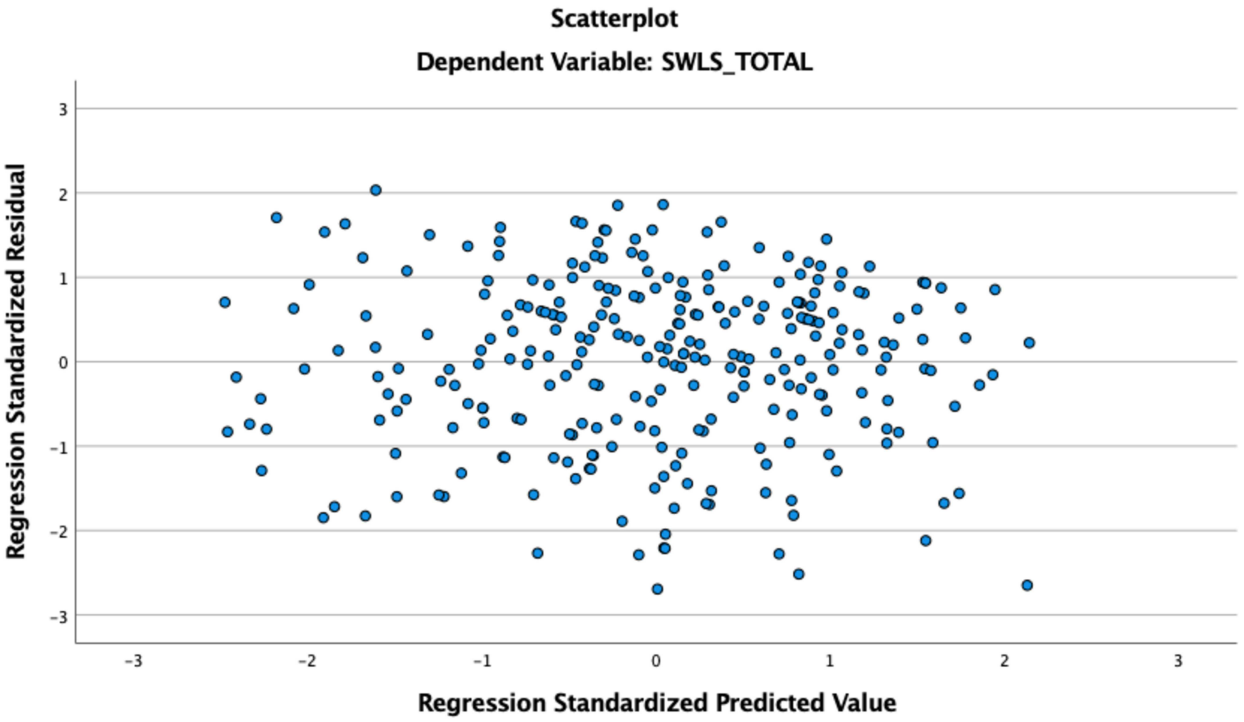
# Appendix E

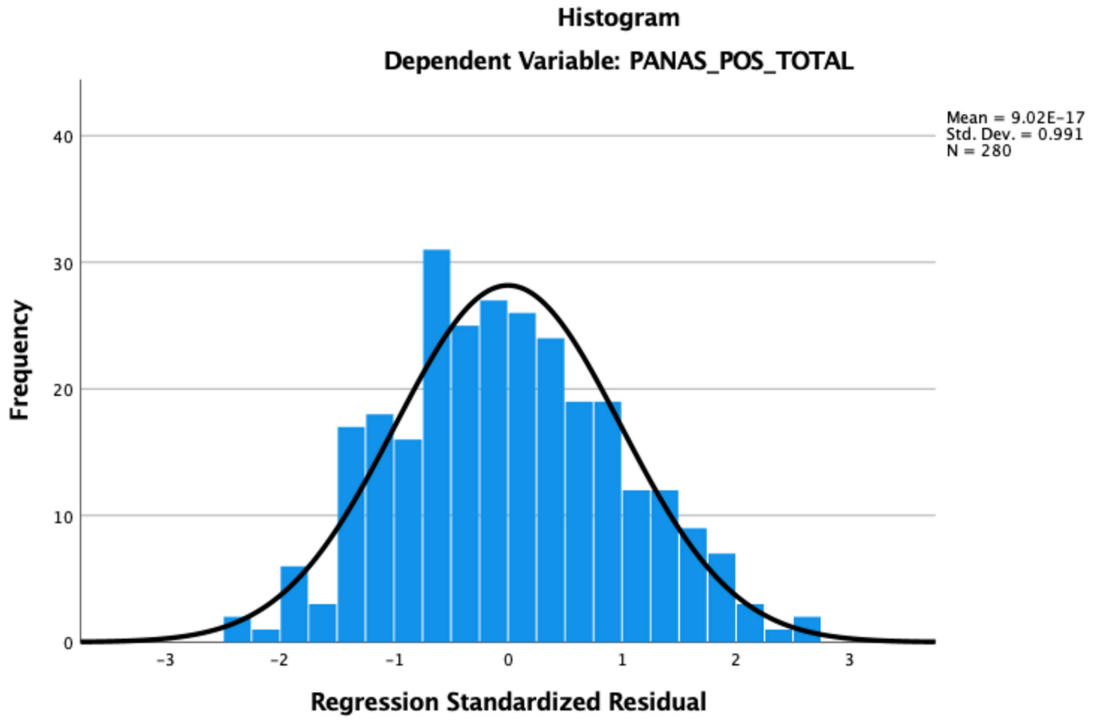
## Mediation Residuals

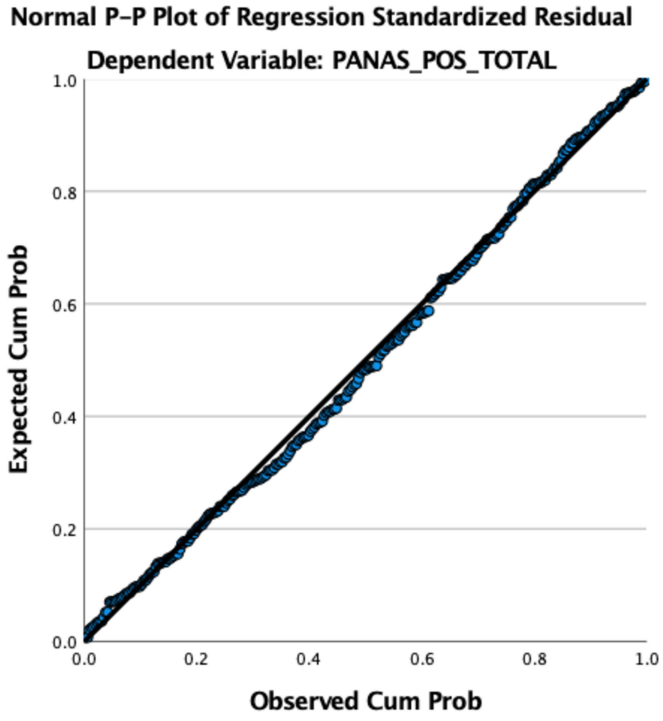


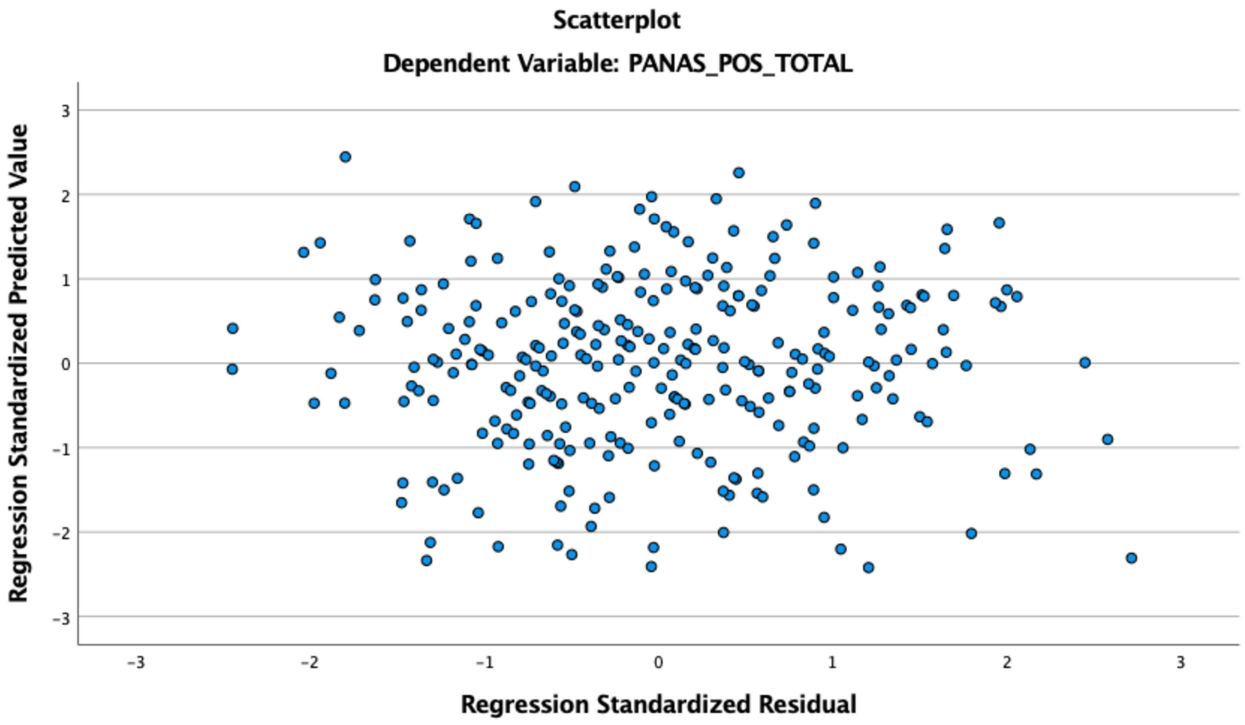



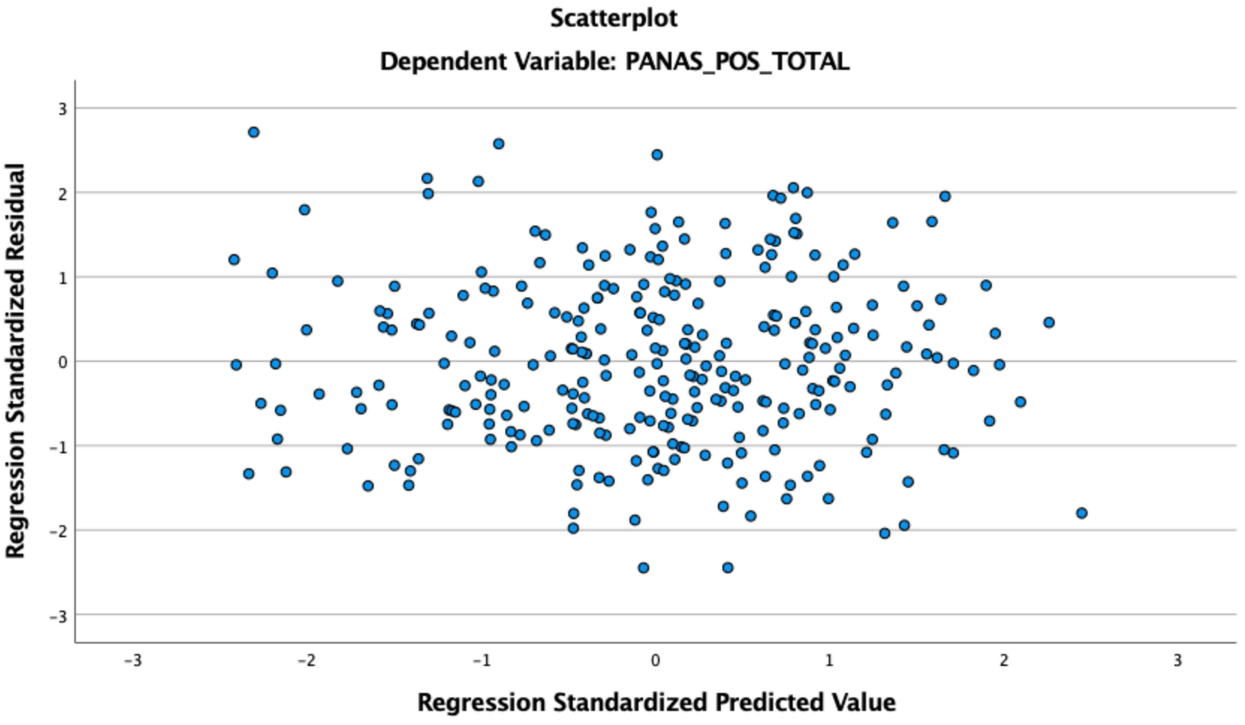

Scatterplot
Dependent Variable: SWLS_TOTAL
Regression Standardized Predicted Value
Regression Standardized Residual
3
2
1
0
−1
−2
−3

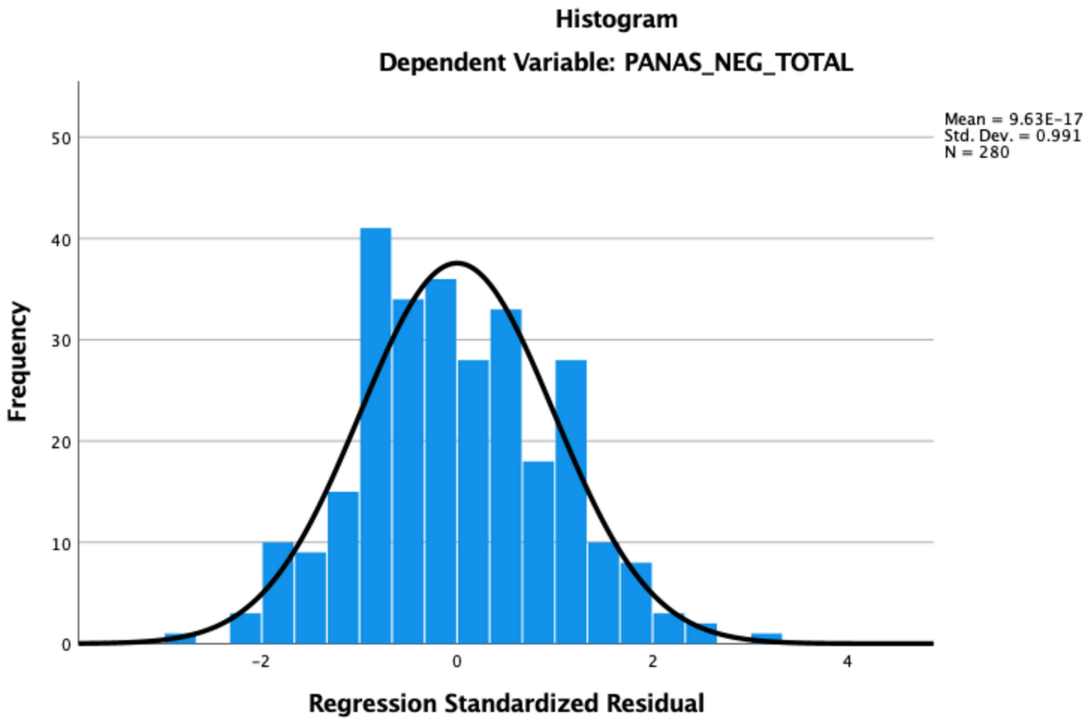

Scatterplot
Dependent Variable: SWLS_TOTAL
Regression Standardized Residual
Regression Standardized Predicted Value
3
2
1
0
−1
−2
−3

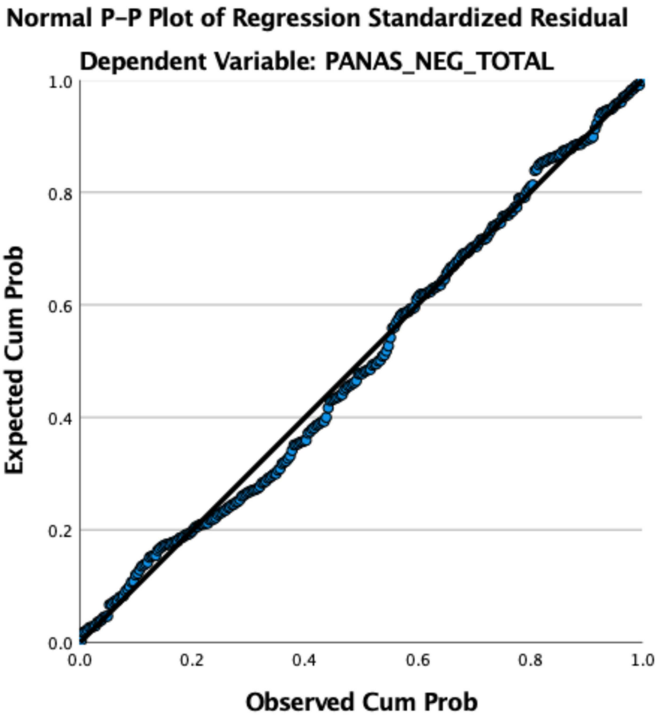

Histogram
Dependent Variable: PANAS_POS_TOTAL
Mean = 9.02E-17
Std. Dev. = 0.991
N = 280
Frequency
Regression Standardized Residual

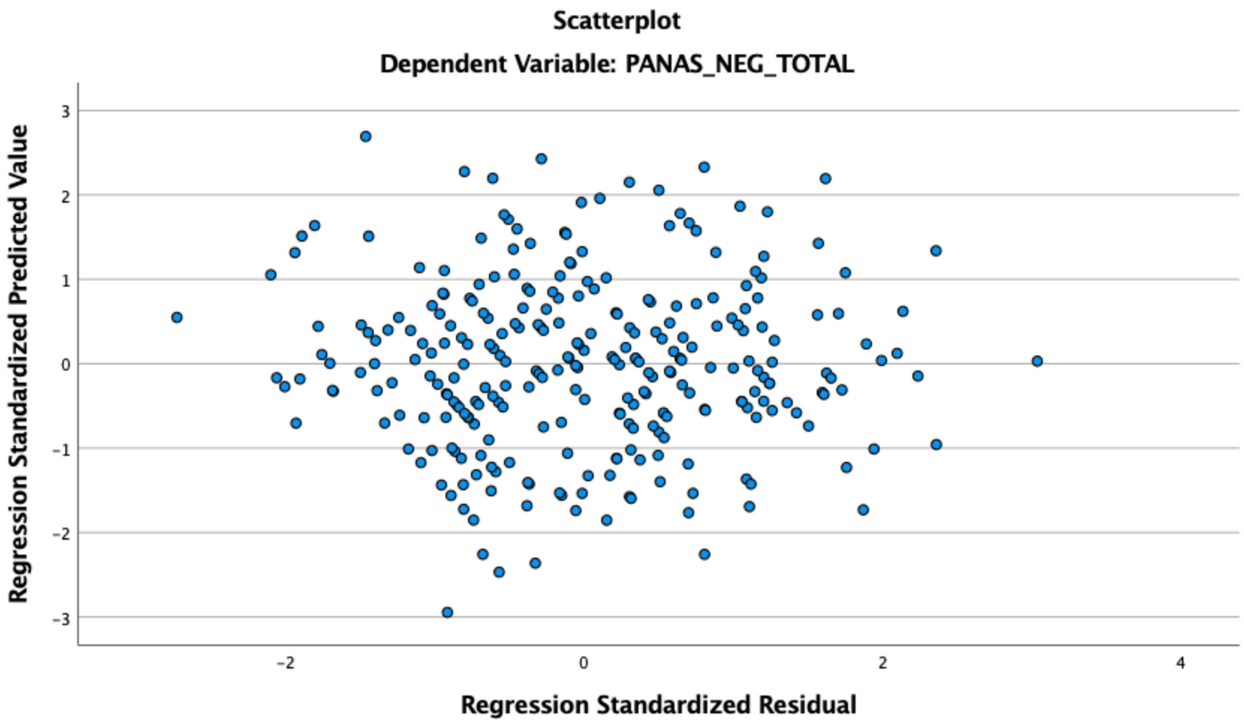

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: PANAS_POS_TOTAL
Expected Cum Prob
Observed Cum Prob

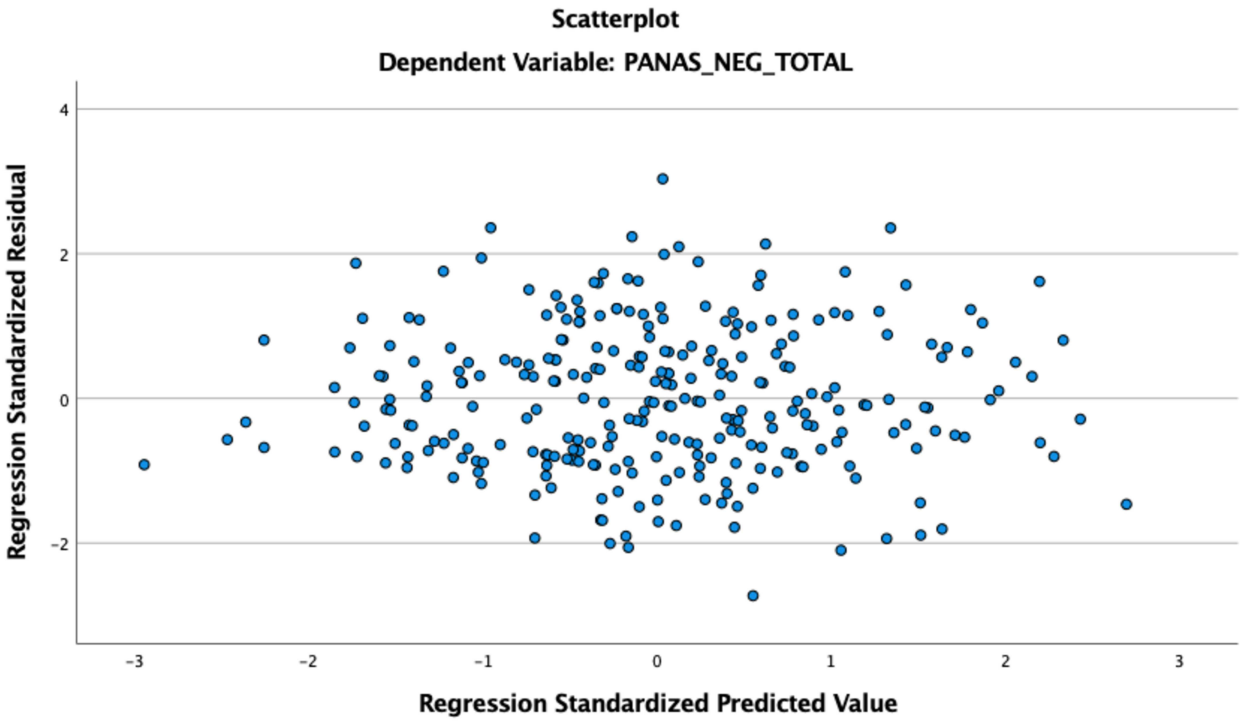

Scatterplot
Dependent Variable: PANAS_POS_TOTAL
Regression Standardized Predicted Value
Regression Standardized Residual
3
2
1
0
-1
-2
-3
-3
-2
-1
0
1
2
3


Scatterplot
Dependent Variable: PANAS_POS_TOTAL
Regression Standardized Residual
Regression Standardized Predicted Value
3
2
1
0
-1
-2
-3
-3
-2
-1
0
1
2
3


Histogram
Dependent Variable: PANAS_NEG_TOTAL
Mean = 9.63E-17
Std. Dev. = 0.991
N = 280
Frequency
Regression Standardized Residual


Normal P-P Plot of Regression Standardized Residual
Dependent Variable: PANAS_NEG_TOTAL
Expected Cum Prob
Observed Cum Prob


Scatterplot
Dependent Variable: PANAS_NEG_TOTAL
Regression Standardized Predicted Value
Regression Standardized Residual
3
2
1
0
−1
−2
−3
−2
0
2
4


Scatterplot
Dependent Variable: PANAS_NEG_TOTAL
Regression Standardized Residual
Regression Standardized Predicted Value
4
2
0
−2
−3
−2
−1
0
1
2
3