COVID-19 pandemic stresses and relationships in college students

Martin I. Gallegos | Brittany Zaring-Hinkle | James H. Bray

Abstract

Objective: The goal of this study was to understand how intergenerational intimacy and individuation associate with COVID-19 pandemic-related stresses and changes to relationship qualities, and consequentially, with substance use indicators, happiness, and life satisfaction.

Background: Intergenerational family systems theory suggests that dysfunctional relationship patterns in one’s family of origin contribute to greater stress, and consequentially, to poorer health outcomes. We examined how these patterns emerge for young adults during a pandemic.

Method: A sample (N = 501) of young adults at a large university in Texas completed an online questionnaire about health and happiness.

Results: More intergenerational intimacy was associated with more positive COVID-19 pandemic-related changes in relationship quality with family and friends, and with more happiness and life satisfaction. More intergenerational individuation was associated with less COVID-19 pandemic-related stress, fewer coping motives for alcohol use, and with more happiness and life satisfaction. Less COVID-19 pandemic-related stress and more positive COVID-19 pandemic-related changes in relationship qualities with family and friends were associated with more positive outcomes.

Conclusion: More positive intergenerational relationships are associated with more positive outcomes in regards to COVID-19 pandemic-related stress and relationship changes.

Implications: Promoting positive intergenerational relational qualities between young adults and their parents can buffer against pandemic-related consequences in health and happiness. Family health practitioners should promote these intergenerational qualities in families, which in turn should increase positive psychosocial and health outcomes in the context of a pandemic.
INTRODUCTION

According to intergenerational family systems theory, dysfunctional family of origin relational patterns contribute to greater stress, and consequently, leave individuals more vulnerable to physical and psychological problems (Bray et al., 1987; Williamson & Bray, 1985, 1987). For young adults in college in the spring of 2020, the COVID-19 pandemic brought unique stresses, and for many, possible changes to the dynamics of their relationships with family and friends – e.g., the detrimental impacts of pandemic-related quarantine on negative mental health outcomes (Brooks et al., 2020) and family health outcomes (Prime et al., 2020). Intergenerational family systems theory (e.g., Bray et al., 1987; Harvey et al., 1991) proposes that qualities of individuals’ psychological and physical health are associated with differentiation of self within their family of origin. Differentiation of self, or individuation, refers to an individual’s ability to function in an autonomous and self-directed manner without being controlled or feeling responsible for significant others (Bowen, 1978). Individuation within the family of origin is associated with affective, mutually respectful relationships, or intergenerational intimacy, that allows for separateness and autonomous differences, versus distance or detachment (Williamson, 1981). Less is known, however, about the consequences (e.g., health, happiness) of intergenerational (i.e., parent–child) relational patterns during a pandemic.

INTERGENERATIONAL INTIMACY AND INDIVIDUATION

The interactional processes of intimacy and individuation have important impacts on life stress and psychological and physical health of family members (Bray et al., 1987; Harvey et al., 1991). Intergenerational intimacy reflects closeness and openness in interactions with family members. It characterizes relationships in which the expression of mutual respect and self-disclosure is freely initiated (Bray & Harvey, 1992). Intergenerational individuation is a developmental process that includes de-idealizing parents, being less dependent on and differentiating from parents, and seeing parents as people with strengths and weaknesses (Steinberg & Silverberg, 1986). On the other hand, emotional fusion is the opposite pole of differentiation and reflects diminished autonomous functioning in relationships, more emotional reactivity in interactions, the tendency to take undue responsibility for others, and the avoidance of taking responsibility for self. Emotional fusion reflects a degree of unresolved emotional attachment to the family of origin (Bowen, 1978). In one study, individuation (described as separation-individuation) mediated the association between attachment to parents and college adjustment (Mattanah et al., 2004). Given their important effects on psychosocial and physical health, these intergenerational family patterns warrant further exploration during the COVID-19 pandemic.

COVID-19 PANDEMIC-RELATED STRESSES AND CHANGES IN RELATIONSHIP QUALITY

Recent research has highlighted how the COVID-19 pandemic has brought challenges to families, such as financial insecurities, caregiving burdens, and confinement-related stresses (Prime et al., 2020). In response to the COVID-19 pandemic, individuals with better general health, with a paid job, living with a partner, exercising daily, and avoiding loneliness, report less life
dissatisfaction and less anxiety (de Pedraza et al., 2020). Job-related changes due to the COVID-19 pandemic, such as income reduction and increase or decrease of workload, are also associated with more life dissatisfaction and more anxiety (de Pedraza et al., 2020). A study of online posts in response to the COVID-19 pandemic shows that individuals’ negative emotions (e.g., anxiety, depression) and sensitivity to social risks increased, whereas positive emotions and life satisfaction decreased, and individuals were more concerned about their health and family than about leisure and friends (Li et al., 2020).

The recent pandemic brought unique challenges to many families, including a need for thousands of college students to move back home with their parents, to quarantine together, and to pull resources together. Consequentially, these issues could potentially bring family members together in positive and/or negative ways, depending on their relationship qualities. Given the negative consequences of the pandemic, less is understood about how positive qualities can emerge from the pandemic on emerging adults’ health and happiness. We therefore sought to understand how intergenerational intimacy and individuation serve as protective factors against COVID-19 pandemic-related stress and how these relationship factors buffer against problematic substance use indicators and promote happiness during a pandemic.

**ALCOHOL AND DRUG MISUSE**

Alcohol and drug misuse during a pandemic have the potential for important economic and health consequences. For instance, there is an increased risk for adult drug problems following natural disasters (Vetter et al., 2008). Online alcohol sales increased during a seven-week COVID-impacted period in March–April 2020 in the United States, up 234% from the same time in 2019 (Nielsen Company, 2020). In a sample of problem and nonproblem drinkers, drinking to cope – defined as a tendency to use alcohol to escape, avoid, or otherwise regulate unpleasant emotions – was the most significant predictor of alcohol misuse among predictors of drinking (Cooper et al., 1988). Excessive alcohol consumption can weaken the immune system and can make one more susceptible to disease, such as pneumonia, acute respiratory stress syndromes (ARDS), and sepsis (Sarkar et al., 2015).

In an emerging adult college sample, more intergenerational individuation and intimacy were associated with less alcohol and drug use (Harvey & Bray, 1991). Stress is a frequently reported motivation for heavy alcohol use (Dawson et al., 2005) and drug use (Grunberg et al., 2011). Among college students, negative relationship qualities with family and friends are associated with more alcohol use (Borsari & Carey, 2006; Fischer et al., 2007), and positive relationship qualities are associated with less likelihood of drug use (Stone et al., 2012), more happiness (Demir, 2010) and more life satisfaction (Wright & Perrone, 2010). Therefore, increases in positive relationship qualities with family and friends should predict better health outcomes during a pandemic.

**HAPPINESS AND LIFE SATISFACTION**

Happiness and life satisfaction are especially important to mental and physical health during a pandemic, as happy and satisfied people are more likely to have greater self-control, self-regulatory and coping abilities (e.g., Aspinwall, 1998; Fredrickson & Joiner, 2002; Keltner & Bonanno, 1997), a healthy immune system (e.g., Dillon et al., 1985), and a long life (e.g., Ostir et al., 2000). Additionally, greater intergenerational intimacy and individuation have been associated with less stress reactions and with greater well-being, including happiness (Bray & Harvey, 1992). Perceived stress is also inversely related to happiness (Schifffrin & Nelson, 2010) and life satisfaction (Burger & Samuel, 2017). Happiness refers to the cognitive and affective
evaluations of one’s life (Diener, 1984) and is often defined more as an enduring, chronic, and subjective state than as a description of momentary or daily moods (Lyubomirsky et al., 2005). Although happiness and life satisfaction both reflect similar positive aspects of subjective well-being (Diener et al., 1999), changes in life circumstances that bring life satisfaction do not necessarily make people chronically happy in the long run and are thus considered separate constructs (Lyubomirsky et al., 2005). For this reason, we assessed happiness and life satisfaction separately as outcomes of intergenerational qualities and COVID-19 pandemic-related stresses and relationship qualities.

THE PRESENT STUDY

The goal of the present study was to examine how intergenerational intimacy and individuation predicted COVID-19 pandemic-related stresses and changes in qualities of relationships with family and friends, and how these factors predict substance use indicators, happiness, and life satisfaction. We hypothesized that, in response to the COVID-19 pandemic, our sample would show high - versus moderate - amounts of COVID-19 pandemic-related stress and would show increases - versus no changes - in positive COVID-19 pandemic-related relationship quality changes. Second, we hypothesized that more intergenerational intimacy and individuation are related to less COVID-19 pandemic-related stress and to more positive changes in COVID-19 pandemic-related relationship qualities with family and friends. In addition, we hypothesized that more COVID-19 pandemic-related stress and fewer positive changes in COVID-19 pandemic-related relationship qualities with family and friends, and less intergenerational intimacy and individuation (directly and indirectly through COVID-19 pandemic-related stress and relationship quality changes) are related to more coping motives for alcohol use, more drug misuse, and less happiness and life satisfaction.

METHOD

Participants and procedure

Undergraduate students (N = 501) in psychology courses at a large university in Texas participated in a larger online study about college student health and happiness and COVID related stress for course credit in April 2020. Participants in this study were between 18 and 25 years old. The study protocol and materials were approved by the Institutional Review Board (IRB # 20-124E) at the University of Texas at San Antonio. The majority of students identified as Hispanic (55%), followed by non-Hispanic White (23%), African American (10%), Asian (9%) or of a multiracial or other background (3%). By gender, 58% were women, 41% were men (N = 2 of other gender identities), and ages ranged from 18–25 years (M = 19.62 years, SD = 1.49). Most students were freshmen (51%) or sophomores (24%), and 55% lived with their parents.

Measures

Intergenerational intimacy and intergenerational individuation

Intergenerational intimacy and intergenerational individuation were assessed with their scales from the Personal Authority in the Family System Questionnaire for College Students (PAFS-QVC; Bray & Harvey, 1992; Bray et al., 1984). Intergenerational intimacy was assessed with 23 items (all reverse-scored) from the PAFS-QVC reflecting voluntary closeness to parents with
COVID-19 pandemic-related stresses and changes in relationship quality with family and friends

COVID-19 pandemic-related stresses were assessed from the following set of questions, “In response to COVID-19, to what extent have you experienced each of the following?” The items included “financial stresses”, “work stresses”, “worry about the future”, and “academic stresses”, “social distancing in public places”, “social distancing at home”, and “negative changes in mental health”. Scores for each item were assessed on an eight-point scale (0 = none at all, 1 = a little, 3 = a moderate amount, 5 = a lot, 7 = a great deal). Higher scores reflected more stresses in response to the COVID-19 pandemic. A latent variable of COVID-19 pandemic-related stresses was assessed from financial, work, and academic stresses.

COVID-19 pandemic-related changes in relationship quality with family and friends were assessed from the following set of questions: “In response to COVID-19, to what extent have you experienced changes in each of the following?” The items included: “positive quality of relationships with family and friends”, “negative quality of relationships with family and friends”, “frequency of communication with family and friends”, “shared activities with family and friends”, and “sharing resources with family and friends”. Scores for each item were assessed on a seven-point scale (−3 = decrease, 0 = no change, 3 = increase). A latent variable of COVID-19 pandemic-related changes in relationship quality with family and friends was created from the three items about changes in positive quality, frequency of communication, and shared activities with family and friends. Given the positive valence associated with positive scores on these three items, higher scores of this latent variable reflect increasing positive changes (and negative scores, decreasing changes) in relationship quality with family and friends in response to the COVID-19 pandemic. An exploratory factor analysis with varimax rotation demonstrated that the six items for both latent variables loaded onto their appropriate separate latent factors. Other COVID-19 pandemic-related indicators – for example, “worry about the future”, “negative quality of relationships”, “sharing resources” – demonstrated collinearity in predicting outcome variables and thus were not included in the latent variables. Alpha reliabilities of both three-indicator latent variables were $\alpha = .70$. 

Intergenerational individuation was measured by seven items from the PAFS-QVC. In this context, individuation reflected a capacity to take responsibility for the self without being impaired by dominating parents and autonomy in the context of positive emotional relationships with parents. Response options were on a five-point scale (1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree). Sample items include, “I sometimes wonder how much my parents love me”, “My parents do things that embarrass me”, and “My problems would be fewer or less severe if my parents treated me differently.” The item scores were averaged, so final scores ranged from 1–5, and higher scores reflect more intergenerational intimacy and closeness with parents. Alpha reliability for this sample was $\alpha = .95$.

Distinct boundaries to the self, expression of mutual respect, and self-disclosure, as opposed to isolation. Response options were on a five-point scale (1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree, or 1 = very satisfied to 5 = very dissatisfied). Sample items include, “I usually help my parents understand me by telling them how I think, feel, and believe”, “I can trust my mother/father with the things I share”, and “I openly show tenderness towards my mother/father”. The item scores were averaged, so final scores ranged from 1–5, and higher scores reflect more intergenerational intimacy and closeness with parents. Alpha reliability for this sample was $\alpha = .95$.
Coping motives for alcohol use

Coping motives for alcohol use were assessed with five items from the Drinking Motives Questionnaire-Revised (Cooper, 1994). These items reflect coping motives for alcohol use, and participants were asked to denote the frequency of their drinking on a five-point scale (1 = almost never/never, 2 = some of the time, 3 = half of the time, 4 = most of the time, 5 = almost always/always). The items were “You drink… to forget your worries,” “… because it helps you when you feel depressed or nervous”, “… to cheer you up when you are in a bad mood”, “… because you feel more self-confident and sure of yourself”, and “… to forget about your problems.” Item scores were summed to total scores which ranged from 5–25, and higher scores reflected more frequent coping motives for alcohol use (α = .94). This measure has also shown good reliability in other college age samples (α = .86; Kilwein & Looby, 2018).

Drug misuse

Drug misuse was assessed from the 10-item Drug Abuse Screening Test (DAST; Skinner, 1982). The DAST assesses involvement with drugs excluding alcohol and tobacco, and “drug abuse” in items reflected “use of prescribed or over-the-counter in excess of the directions and any non-medical use of drugs”, including cannabis (e.g., marijuana, hash), solvents, tranquilizers (e.g., Valium), barbiturates, cocaine, stimulants (e.g., speed), hallucinogens (e.g., LSD) or narcotics (e.g., heroin). Item responses were either “No” (scored as a 0) or “Yes” (scored as a 1), and sample items were, “Have you used drugs other than those required for medical reasons?” (reverse-scored), and “Have you engaged in illegal activities in order to obtain drugs?” Item scores were summed to total scores which ranged from 0–9, and higher scores reflect more drug misuse. Alpha reliability in this sample was α = .76 and this measure has shown adequate reliability in other college student samples (α = .69; McCabe & Teter, 2007).

Happiness

Happiness (i.e., general evaluations of one’s subjective happiness) was assessed with four questions from the Subjective Happiness Scale (Lyubomirsky & Lepper, 1999). In order, items were: “In general, I consider myself:”, “Compared to most of my peers, I consider myself:”, “Some people are generally very happy. They enjoy life regardless of what is going on, getting the most out of everything. To what extent does this characterization describe you?”, and “Some people are generally not very happy. Although they are not depressed, they never seem as happy as they might be. To what extent does this characterization describe you?” Score responses ranged from 1–7, ranging from (in item order) “not a very happy person” to “a very happy person”; “less happy” to “more happy”; and (for the last two items) “not at all” to “a great deal”. Item scores were summed to total scores which ranged from 4–28, and higher scores reflected more happiness (α = .83). This measure has shown good reliability and validity in multiple U. S. college and community samples (α > .84; Lyubomirsky & Lepper, 1999).

Life satisfaction

Life satisfaction (i.e., general cognitive evaluations of one’s life) was assessed from five questions from the Satisfaction with Life Scale (Diener et al., 1985). Scores responses ranged from 1 (“strongly disagree”) to 4 (“neither agree nor disagree”) to 7 (“strongly agree”). Items were: “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”, and “If I could live my life over, I would change almost nothing”. Item scores were summed to total scores which ranged from 5–35, and higher scores reflected more life satisfaction. Alpha reliability in this sample was $\alpha = .90$ and this measure has shown good reliability and validity in other college student samples ($\alpha = .84$; Lepp et al., 2014). An exploratory factor analysis with promax rotation demonstrated that the items of happiness and life satisfaction loaded onto two separate factors.

Covariates

At the end of the online survey, participants reported demographic information about their gender, race (here, coded as either White American, African American, Asian American, or multi/other-racial), ethnicity (Hispanic or non-Hispanic), employment status (employed or unemployed), school year (freshman, sophomore, junior, or senior), and living situation (living with parents or not living with parents). Anxiety and depressive symptoms were assessed, given their association with substance use (Cranford et al., 2009; Walters et al., 2018), less well-being (Ridner et al., 2016) and life satisfaction (Renshaw & Cohen, 2014) in college samples. Anxiety symptoms were assessed with seven items from the Generalized Anxiety Disorder 7-Item Scale (Spitzer et al., 2006). Score responses ranged from 0 to 3 ($0 = \text{not at all}, 1 = \text{several days}, 2 = \text{over half the days}, 3 = \text{nearly every day}$). Item scores were summed to total scores which ranged from 0 to 21, and higher scores reflected more anxiety symptoms ($\alpha = .93$). This measure has shown good reliability and validity in other college student samples ($\alpha = .93$; Tavakoli et al., 2019). Depressive symptoms were assessed with nine items from the Patient Health Questionnaire 9-Item Scale (Kroenke et al., 2001). Responses options ranged from 0 to 3 ($0 = \text{not at all}, 1 = \text{several days}, 2 = \text{more than half the days}, 3 = \text{nearly every day}$). Item scores were summed to total scores which ranged from 0 to 27, and higher scores reflected more depressive symptoms ($\alpha = .91$). This measure has shown good reliability and validity in other college student samples ($\alpha = .86$; Bierhoff et al., 2019). Participants were also asked if, in response to COVID-19 pandemic, they were either sheltering alone or with someone (scored 0 or 1, respectively), and if prior to the COVID-19 pandemic, they were already more likely to stay home (“be a homebody”) rather than go out unless necessary (scored 0 or 1, respectively).

Data analyses

The hypotheses were tested with structural equation modeling (SEM) using Mplus 8.1 software with maximum likelihood estimation with standard errors robust to nonnormality (MLR estimator). No variables demonstrated skewness greater than $+/− 1.96$, except for drug misuse (drug misuse skew = 2.25). Therefore, drug misuse was listed as a count variable for a zero-inflated negative binomial regression estimation in our model, which is recommended for endogenous variables with a high propensity for zero-score responses (O’Hara & Kotze, 2010), and our model was calculated with Monte Carlo integration. We used R software (R Core Team, 2017) for multivariate analyses and the R “semTools” package for latent measurement invariance testing (Jorgensen et al., 2018).

Figure 1 demonstrates the model hypotheses and direction of regression paths. The four outcome variables (coping motives for alcohol use, drug misuse, happiness, life satisfaction) were regressed on the two latent COVID-19 pandemic-related variables (stress and changes in relationship quality with family and friends) and on intergenerational intimacy and individuation. Both COVID-19 pandemic-related latent variables were regressed on both intergenerational
family variables. Indirect effects of intergenerational intimacy and individuation on the four outcome variables through both COVID-19 pandemic-related latent variables were calculated using the “Model Indirect” commands in Mplus, providing an asymmetric distribution of products test for indirect effects (MacKinnon et al., 2002). Group invariance tests across the structural models were compared with chi-square estimates of the models with paths unrestrained to those with successive paths restrained, and the power of direct and indirect effects were calculated using Mplus software.

There were 69 patterns of missingness, with \( N = 261 \) participants having complete reporting of data, and all but eight patterns demonstrated missing less than six scores per pattern. A significant multivariate analysis of variance (MANOVA) of predictors of missingness (i.e., age, gender, race, ethnicity, employment, school year, living situation, anxious and depressive symptoms, sheltering alone, likeliness to stay home; Wilks’ \( \lambda = .93, F[11, 448] = 2.78, p = .001 \); missingness categorized as complete cases versus non-complete cases) demonstrated that missingness was more likely among men than women (\( \chi^2[1] = 11.44, p < .001 \)), unemployed students versus employed students (\( \chi^2[1] = 5.56, p = .02 \)), and students with less (\( M = 5.45 \)) versus more anxiety (\( M = 6.93 \)) symptoms, \( t(489) = 2.79, p = .006 \). Anxious and depressive symptoms were highly correlated, but their collinearity condition index (26) did not exceed 30, indicating acceptable inclusion of both variables. Thus, gender, employment status, and anxiety and depressive symptoms were added as auxiliary covariates in the model, as suggested for attenuating for missingness (Collins et al., 2001). Multivariate analyses of covariance demonstrated no significant overall differences in the study variables across race/ethnicity, year in school, living situation, or sheltering alone. Coping motives for alcohol use scores did not differ by age younger than versus at or older than the legal drinking age of 21, \( t(478) = -1.52, p = .12 \). Monte Carlo power analyses with 5000 samples using Mplus software demonstrated sufficient power to yield the direct effects (> .80) and indirect effects (> .90) in our model.
RESULTS

Table 1 provides the means, standard deviations, sample sizes, correlations for the continuous variable scores, and scores by gender. A significant MANOVA in the study variables emerged by gender (Wilks’ λ = .86, F[14, 241] = 2.87, p < .001), in that men reported more intergenerational individuation than women. Women reported more COVID-19 pandemic-related academic stress than men and more COVID-19 pandemic-related increases in frequency in communicating and sharing resources with family and friends than men. Another significant MANOVA emerged by employment status (Wilks’ λ = .86, F[14, 241] = 2.82, p < .001) in that employed participants (M = 3.65) reported more COVID-19 pandemic-related work stress than unemployed students (M = 2.49), t(382) = −4.55, p < .001.

COVID-19 pandemic-related stresses and changes in relationship quality with family and friends

To demonstrate whether or not our sample averages of COVID-19 pandemic-related stresses and changes in relationship quality significantly differed from central tendency values (i.e., for stresses, a score of 3 denoting “a moderate amount” of stress; for relationship changes, a score of 0 denoting no change), a series of one-sample t-tests were conducted. Our sample demonstrated significantly higher COVID-19 pandemic-related financial stress (t[432] = 2.49, p = .01) and academic stress (t[479] = 21.66, p < .001) than “a moderate amount”, but not for greater work-related stress, t(383) = −0.06, p = .95. Our sample also demonstrated significant increases in COVID-19 pandemic-related positive changes in relationship quality (t[406] = 8.08, p < .001) and in frequency in communicating with family and friends (t[432] = 9.72, p < .001), but no significant change in shared activities with family and friends, t(428) = 1.16, p = .25.

Measurement and structural equation model

A confirmatory factor analysis of the hypothesized two-factor latent measurement model of COVID-19 pandemic-related stresses and changes in relationship quality showed good fit according to previously accepted thresholds for model fit adequacy (Hu & Bentler, 1999): χ²(8, N = 496) = 10.12, p = .26; comparative fit index (CFI) = .99; standardized root mean square residual (SRMR) = .027; root mean square error of approximation (RMSEA) = .023 (90% confidence interval = .00, .06); Akaike information criterion (AIC) = 103467.13; Bayesian information criterion (BIC) = 10427.05. After adding the structural paths, traditional fit indices for the model remained good without the zero-inflated negative binomial regression: χ²(32, N = 501) = 80.49, p < .001, ratio of χ²/df = 2.52; CFI = .96; SRMR = .04; RMSEA = .05 (90% confidence interval = .04, .07); and with the zero-inflated negative binomial regression, AIC = 23278.05; BIC = 23505.75. Statistical power was .97 to arrive at our RMSEA with our sample size, degrees of freedom (32), and alpha at .05, differentiating from an upper threshold of reasonable approximation error of .08 (Preacher & Coffman, 2006).

As shown in Table 2, more intergenerational intimacy was associated with more positive COVID-19 pandemic-related changes in relationship quality with family and friends. Less intergenerational individuation was associated with more COVID-19 pandemic-related stress. Less COVID-19 pandemic-related stress was associated with more happiness and more life satisfaction, whereas more positive COVID-19 pandemic-related changes in relationship qualities were associated with fewer coping motives for alcohol use and with more happiness and life satisfaction. As shown in Table 3, intergenerational intimacy and individuation had statistically significant total effects (i.e., the sum of the direct and indirect effects) on each of the four outcome
|   | 1         | 2         | 3         | 4         | 5         | 6         | 7         | 8         | 9         | 10        | 11        | 12        | 13        | 14        |
|---|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|-----------|
| 1. Int. Intimacy | –        |          |          |          |          |          |          |          |          |            |           |           |           |           |
| 2. Int. Individuation | .31***   | –        |          |          |          |          |          |          |          |            |           |           |           |           |
| 3. COVID-related Financial stress | -.18*** | -.16**  | –        |          |          |          |          |          |          |            |           |           |           |           |
| 4. COVID-related Work stress | -.08     | -.17**  | .56***   | –        |          |          |          |          |          |            |           |           |           |           |
| 5. COVID-related Academic stress | -.09*    | -.20*** | .38***   | .33***   | –        |          |          |          |          |            |           |           |           |           |
| 6. COVID-related Positive changes | .28***   | .12*    | .03      | .01      | -.01    | –        |          |          |          |            |           |           |           |           |
| 7. COVID-related Freq. of comm.| .11*     | .06     | .13*     | .13*     | .09     | .47***   | –        |          |          |            |           |           |           |           |
| 8. COVID-related Shared activities | .11*     | .01     | .08      | .03      | -.03    | .42***   | .46***   | –        |          |            |           |           |           |           |
| 9. Coping motives for alcohol use | -.17***  | -.23*** | .07      | .16**    | .10*    | -.18***  | -.07     | -.07     | –        |            |           |           |           |           |
| 10. Drug misuse | -.12*    | -.16*** | .03      | .06      | .08     | -.02     | -.06     | -.11*    | .25***   | –          |           |           |           |           |
| 11. Happiness | .40***   | .40***   | -.14**   | -.12*    | -.26*** | .29***   | .13**    | .10*     | -.33***  | -.21***   | –          |           |           |           |
| 12. Life satisfaction | .48***   | .37***   | -.14**   | -.14**   | -.20*** | .30***   | .16**    | .15**    | -.21***  | -.12*     | .61***    | –          |           |           |
| 13. Anxiety symptoms | -.22***  | -.27***  | .29***   | .30***   | .33***   | -.19***  | .01      | -.09     | .34***   | .22***    | -.59***   | -.41***   | –          |           |
| 14. Depressive symptoms | -.29***  | -.31***  | .22***   | .21***   | .29***   | -.32***  | -.10*    | -.12*    | .36***   | .18***    | -.64***   | -.43***   | .80***    | –          |

|   | 1         | 2         | 3         | 4         | 5         | 6         | 7         | 8         | 9         | 10        | 11        | 12        | 13        | 14        |
|---|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|-----------|
| N | 465      | 482      | 433      | 384      | 480      | 407      | 433      | 429      | 482      | 488       | 500       | 496       | 491       | 494       |
| M | 3.79     | 3.26     | 3.28     | 2.99     | 5.03     | .59      | .78      | .11      | 9.64     | 1.27      | 18.49     | 22.03     | 6.23      | 8.38      |
| SD| .80      | .87      | 2.36     | 2.54     | 2.06     | 1.48     | 1.67     | 1.92     | 5.66     | 1.58      | 5.32      | 7.36      | 5.93      | 6.69      |
| Women M| 3.77     | 3.13     | 3.61     | 3.24     | 5.40     | .65      | .97      | .26      | 9.61     | 1.19      | 18.06     | 22.01     | 7.17      | 9.30      |
| Men M  | 3.80     | 3.43     | 2.82     | 2.61     | 4.51     | .50      | .49      | -.11     | 9.66     | 1.37      | 19.15     | 22.15     | 4.91      | 7.06      |
| Gender F (1, 254) | .35      | 3.76     | 3.04     | 1.39     | 13.95*** | 3.73     | 9.72**   | 11.90*** | .55      | 2.46      | .74       | .01       | 3.93*     | 3.32      |

Abbreviations: *, changes in relationship quality; b, frequency of communication; COVID-19 pandemic-related (abbreviated for space); Int., Intergenerational; COVID-related.

*p < .05.

**p < .01, ***p < .001.
variables, though they varied in their significant direct and indirect effects. Intergenerational intimacy had both direct effects on happiness and life satisfaction and indirect effects through COVID-19 pandemic-related changes in relationship quality, and had significant total indirect effects on coping motives for alcohol use, but no significant individual indirect effects on coping motives for alcohol use. More intergenerational individuation was directly associated with fewer coping motives for alcohol use and with more happiness and life satisfaction, and neither

TABLE 2  Structural equation model parameter estimates

| Parameter | Unstandardized Estimate | SE | p     | Standardized Estimate |
|-----------|-------------------------|----|-------|-----------------------|
| Latent factor measurement loadings: | | | | |
| COVID-19 pandemic-related stress: | | | | |
| Financial | 1.00 | – | – | .74 |
| Work | 1.02 | .11 | <.001 | .70 |
| Academic | .60 | .10 | <.001 | .50 |
| COVID-19 pandemic-related changes in relationship quality: | | | | |
| Positive changes | 1.00 | – | – | .69 |
| Frequency in communication | 1.10 | .16 | <.001 | .68 |
| Shared activities | 1.14 | .16 | <.001 | .61 |
| Structural model estimates | | | | |
| Intergenerational intimacy $\rightarrow$ COVID-related stress | $-.26$ | .16 | .11 | $-.12$ |
| Intergenerational individuation $\rightarrow$ COVID-related stress | $-.40$ | .14 | .004 | $-.20$ |
| Intergenerational intimacy $\rightarrow$ COVID-related changes in relationship quality | $.30$ | .11 | .004 | $.23$ |
| Intergenerational individuation $\rightarrow$ COVID-related changes in relationship quality | $.03$ | .08 | .70 | $.03$ |
| COVID-related stress $\rightarrow$ Coping motives for alcohol use | $.47$ | .29 | .11 | $.14$ |
| COVID-related changes in relationship quality $\rightarrow$ Coping motives for alcohol use | $-.98$ | .39 | .01 | $-.18$ |
| Intergenerational individuation $\rightarrow$ Coping motives for alcohol use | $-.41$ | .41 | .32 | $.06$ |
| Intergenerational indivdiation $\rightarrow$ Coping motives for alcohol use | $1.07$ | .36 | .003 | $.17$ |
| COVID-related stress $\rightarrow$ Drug misuse | $.13$ | .13 | .33 | $.60$ |
| COVID-related changes in relationship quality $\rightarrow$ Drug misuse | $-.24$ | .18 | .17 | $-.69$ |
| Intergenerational intimacy $\rightarrow$ Drug misuse | $.02$ | .10 | .82 | $-.05$ |
| Intergenerational individuation $\rightarrow$ Drug misuse | $.14$ | .08 | .09 | $-.33$ |
| COVID-related stress $\rightarrow$ Happiness | $-.61$ | .26 | .02 | $-.19$ |
| COVID-related changes in relationship quality $\rightarrow$ Happiness | $1.15$ | .34 | .001 | $.22$ |
| Intergenerational intimacy $\rightarrow$ Happiness | $1.54$ | .33 | <.001 | $.23$ |
| Intergenerational individuation $\rightarrow$ Happiness | $1.57$ | .30 | <.001 | $.26$ |
| COVID-related stress $\rightarrow$ Life satisfaction | $-.61$ | .26 | .02 | $-.14$ |
| COVID-related changes in relationship quality $\rightarrow$ Life satisfaction | $1.51$ | .36 | <.001 | $.21$ |
| Intergenerational intimacy $\rightarrow$ Life satisfaction | $3.16$ | .46 | <.001 | $.34$ |
| Intergenerational individuation $\rightarrow$ Life satisfaction | $1.76$ | .45 | <.001 | $.21$ |

Note: Values bolded if regression paths are significant ($p < .05$).
Abbreviations: COVID-related = COVID-19 pandemic-related (abbreviated for space).
|                              | Coping motives for alcohol use | Drug misuse | Happiness | Life satisfaction |
|------------------------------|--------------------------------|-------------|-----------|------------------|
|                              | Estimate | SE  | 95% CI   | Estimate | SE  | 95% CI   | Estimate | SE  | 95% CI   | Estimate | SE  | 95% CI   |
| Intergenerational intimacy   |          |    |          |          |    |          |          |    |          |          |    |          |
|                              | -.41     | .41 | (-1.20, .39) | -.02     | .10 | (-.23, .18) | 1.54     | .33 | (.90, 2.18) | 3.16     | .46 | (2.27, 4.06) |
| COVID-19 pandemic-related stress | -.12     | .11 | (-.32, .09) | -.03     | .04 | (-.11, .04) | 1.15     | .11 | (-.07, .37) | .16      | .11 | (-.06, .38) |
| COVID-19 pandemic-related changes in relationship quality | -.29     | .16 | (-.60, .02) | -.07     | .06 | (-.18, .04) | .34      | .15 | (.04, .64) | .45      | .19 | (0.08, .82) |
| Total indirect effects:      | -.41     | .20 | (-.81, -.01) | -.10     | .08 | (-.26, .06) | .49      | .20 | (.10, .89) | .61      | .15 | (.19, 1.02) |
| Total effects:               | -.82     | .34 | (-1.49, -.14) | -.13     | .06 | (-.25, -.01) | 2.03     | .28 | (1.48, 2.58) | 3.77     | .44 | (2.91, 4.63) |
| Intergenerational individuation | -1.07    | .36 | (-1.78, -.37) | -.14     | .08 | (-.29, .02) | 1.57     | .30 | (.98, 2.16) | 1.76     | .45 | (.87, 2.64) |
| COVID-19 pandemic-related stress | -.19     | .14 | (-.45, .08) | -.05     | .05 | (-.16, .06) | .23      | .13 | (-.02, .48) | .24      | .13 | (-.02, .51) |
| COVID-19 pandemic-related changes in relationship quality | -.03     | .08 | (-.19, .13) | -.008    | .02 | (-.05, .03) | .04      | .09 | (-.15, .22) | .05      | .12 | (-.19, .29) |
| Total indirect effects:      | -.22     | .15 | (-.51, .08) | -.06     | .06 | (-.18, .06) | .27      | .15 | (-.02, .56) | .29      | .17 | (-.04, .63) |
| Total effects:               | -1.29    | .34 | (-1.96, -.62) | -.19     | .06 | (-.32, -.07) | 1.84     | .29 | (1.27, 2.41) | 2.05     | .44 | (1.18, 2.92) |

Note: Values bolded and considered significant if CI does not include zero. Indirect paths denoted by arrows. Abbreviation: CI, confidence intervals.
intergenerational intimacy nor individuation had individual direct or indirect effects on drug misuse.

Proportions of variance of the mediators and outcomes were estimated in the model: COVID-19 pandemic-related stress, $R^2 = .07$; COVID-19 pandemic-related changes in relationship quality, $R^2 = .06$; coping motives for alcohol use, $R^2 = .11$; happiness, $R^2 = .30$; life satisfaction, $R^2 = .34$ ($R^2$ not provided for drug misuse as a count variable with latent predictors in SEM; without the count designation, drug misuse $R^2 = .03$). Tests of group invariance showed no significant differences in measurement or structural models across race/ethnicity, school year, employment status (except for the aforementioned work-stress difference), living situation, sheltering alone, or staying home. Across gender, one path demonstrated a significant gender difference ($\chi^2[1] = 13.70, p < .001$), in that more intergenerational individuation was associated with greater life satisfaction for women ($\beta = .45, p < .001$), but not for men ($\beta = .07, p = .43$).

**DISCUSSION**

This study demonstrated that COVID-19 pandemic-related stresses and changes in relationship qualities with family and friends were associated with intergenerational intimacy and individuation, coping motives for alcohol use, and happiness among emerging adults in college. More intergenerational intimacy was associated with more positive COVID-19 pandemic-related changes in relationship quality with family and friends, with more happiness, and with more life satisfaction. There were significant indirect effects of intergenerational intimacy on happiness and life satisfaction through COVID-19 pandemic-related changes in relationship quality. Students who are emotionally close with their parents report more positive COVID-19 pandemic-related relationship qualities with their parents, and consequentially, more happiness and satisfaction with life. Less intergenerational individuation was associated with more COVID-19 pandemic-related stress and with more coping motives for alcohol use, whereas more individuation was associated with more happiness and life satisfaction.

Less COVID-19 pandemic-related stress was associated with more happiness and more life satisfaction, whereas more positive COVID-19 pandemic-related changes in relationship qualities were associated with fewer coping motives for alcohol use and more happiness and life satisfaction. Given that thousands of college students moved back home after the closing of campuses, an understanding of the nature of the relationship with their families of origin is important for understanding consequences on their health and happiness. In light of the challenges brought on by the pandemic, our results show both consequences of risk and positive aspects of resilience.

These findings support intergenerational family systems theory, in that individuals who are more individuated from their parents are able to cope better with stress and the consequences of stress (Williamson & Bray, 1987). Individuals who have more positive family consequences from the COVID-19 pandemic may feel better about the pandemic-related stresses and thus may be happier and more satisfied with their lives. Given these positive family consequences, individuals may not feel the need to use alcohol and drugs to cope with their pandemic-related situation. Our results were similar between individuals who either lived with their parents or away from their parents, across race/ethnicity, and almost unanimously across gender. Our study demonstrated a significant average amount of COVID-19 pandemic-related financial stress and academic stress – more than a “moderate” amount – and significant increases in positive relationship quality and frequency in communicating with family and friends. Employed students understandably reported more COVID-19 pandemic-related work stress than unemployed students. We found that more intergenerational individuation was associated with increased life satisfaction for women, but not for men. Allen and Stoltenberg (1995) found that women experience more satisfaction with the quality of their familial relationships and felt more
supported during young adulthood, whereas men reported families to be less interpersonally supportive. This may explain the lack of significance in the association between life satisfaction and intergenerational individuation for men.

**Strengths & limitations**

Our study has several strengths, including a diverse sample that is largely ethnic minorities and Hispanic, the use of a SEM framework, a novel conceptualization of COVID-19 pandemic-related stress and changes in relationship qualities, and sufficient power for our analyses. Our results also replicated across racial and ethnic groups and living situations after controlling for gender, anxious and depressive symptoms, and employment. Some limitations of our study include being limited to college students and using a cross-section design, so implications of causality from our results should be avoided. Future research should examine whether our model differs for non-college students. Future researchers might consider differentiating family from friends in pandemic-related changes in relationship qualities and exploring how our model replicates longitudinally (e.g., Harvey & Bray, 1991) and across pandemic-related changes in living situations. The latter concept might include examining how parents and adult children contribute to each other’s health and happiness during and after pandemic-related events. Future researchers might also consider examining whether our conceptualization of pandemic-related stress and relationship changes replicate in different large-scale pandemics, social events, or disasters, as well as examining relations of happiness and life satisfaction with other mental and physical health measures during a pandemic.

**Implications**

The results of our study provide implications for health and family researchers and practitioners who work with college students. Our results suggest that emerging adults that have positive relationships with their parents and family of origin should be able to more easily adapt to COVID-19 pandemic-related stresses and have more positive COVID-19 pandemic-related changes in relationship qualities. These results show that greater intergenerational individuation and intimacy, even in times of a global pandemic, can buffer against negative health behaviors such as drinking to cope, drug use and against decreases in life satisfaction and happiness. Therefore, college counselors and family health practitioners may be encouraged to consider how to promote intergenerational intimacy and individuation in students during this pandemic and future personal, familial, or societal crises. Further, they should consider how returning home to parents may be either sources of stress or potential avenues for positive change within the family of origin, with consequences on health and happiness.

**ORCID**

*Martin I. Gallegos* [https://orcid.org/0000-0003-1954-6727]

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