ORIGINAL ARTICLE

The Mental Health of Emerging Adults: Hostile Home Environments and COVID-19

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Abstract

Purpose Due to shifts in societal and educational expectations alongside the COVID-19 pandemic, many emerging adults live with their family of origin for extended periods of time. Little is known about patterns of parent-perpetrated maltreatment in emerging adulthood. Therefore, this study evaluates the relation between forms of parent-perpetrated maltreatment, including economic abuse, and COVID stress, on symptoms of depression, anxiety, and traumatic stress.

Method 423 emerging adults who were enrolled in college in the United States in March of 2020 were recruited via MTurk to complete an online survey. An age-related COVID questionnaire and six empirically validated measures assess levels of COVID-19 exposure, lifetime maltreatment, economic abuse, and mental health status.

Results 13.0% of participants reported maltreatment that most recently occurred over the age of 18 in their household of origin. Mean COVID stress level was found to be significantly higher in the Maltreated Over 18 group compared to the Never Maltreated group ($t(345) = -3.03$, $p = 0.003$), and in the Maltreated Under 18 group compared to the Never Maltreated group ($t(346) = -3.20$, $p = 0.002$). In accounting for the contribution of demographic variables, maltreatment chronicity, economic abuse, and COVID stress, our model predicted 38.6% of variance in depression symptoms, 37.2% of variance in anxiety symptoms, and 42.9% of variance in traumatic stress.

Conclusions Findings indicate need for increased maltreatment screenings within the emerging adult population and calls for age-specific interventions to address the mental health disparities experienced by emerging adults with maltreatment histories.

Keywords Maltreatment chronicity · COVID-19 · Mental health · Emerging adult

In the United States, individuals are legally recognized as adults at age 18. However, many psychologists differentiate legal adulthood from social and psychological adulthood. Arnett's emerging adulthood theory describes a period in which 18 to 29-year-olds gradually achieve different markers of self-sufficiency (Arnett et al., 2014). For many in the US, this means finding stable employment, housing, and insurance immediately after high school. For others, this means paying tuition and housing costs while attending college away from their household of origin. However, 59% of emerging adults in the US reported insufficient financial support to complete their education (Clark University, 2015), requiring many to maintain some level of financial dependence upon their parents during college,

thus leaving them more vulnerable to parental control and *parent-perpetrated maltreatment*. Further, due to the COVID-19 pandemic, many college students returned to their households of origin, whether voluntarily or because of a lack of other housing options due to university closures. This increased proximity to households of origin creates the potential for patterns of abuse to persist. The present study evaluates the relation between these adverse experiences and emerging adults' mental health.

Parent–Child Relationships in Emerging Adulthood

Yet another area of potential risk is parental control of emerging adults' finances. One shift brought about by the transitions of emerging adulthood is that of the parent–child relationship: A tension arises between dependence upon parental guidance and resources and acquiring features of independence. For

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relationships that have been historically tumultuous, this strain can risky. Autonomy development may be supported or hindered depending on levels of parent psychological control. Gong and Wang (2021) found autonomy-supportive parenting to be related to greater capacity for emotional regulation and better self-esteem; however, increased levels of parent psychological control reduce capacity for emotion regulation and comparatively, levels of self-esteem. Recent studies have also found higher levels of parent psychological control to be positively associated with risk-behaviors during emerging adulthood (Faherty et al., 2020).

Financial independence is often seen as a marker of adulthood; however, finances frequently cause conflict between emerging adults and their parents. Parents may view a lack of financial independence beyond legal adulthood as a burden or as related to long-term failure to attain independence (Lowe & Arnett, 2020). However, emerging adults use familial financial support to ease their age-related stressors, including balancing work and academic commitments; Lindell and colleagues (2021) found increased financial support was associated with improved emotional adjustment at this time. Their findings also suggested that when financial support is unavailable, quality of parental-child relationship is related to improved emotional health among emerging adult women (Lindell et al., 2021). This study underscores the importance of financial communication to parent–child relationships and to the emerging adults' mental health.

Maltreatment of Children and Emerging Adults

Previous research by the U.S. Department of Health & Human Services (DHHS, 2021) established that rates of child maltreatment decrease as children age. Despite this trend and the legal implications of turning 18, there is no age or developmental milestone that immediately ends parental control and parent-perpetrated abuse. Notably, McKinney and colleagues (2020) found that in their sample of college students, 30% of men and 17.3% of women reported that one or both parents perpetrated a severe physical assault in the past year, and that 78.7% of men and 74.4% of women experienced at least one psychological aggression in the past year. However, few studies of this population assess parent-perpetrated maltreatment, and those that do measure the frequency of abuse in the previous year rather than the cumulative effects of abuse that persists from childhood into adulthood (McKinney et al., 2020; Rogers et al., 2018). Furthermore, a majority of family violence research essentially ignores the parent-perpetrated abuse endured by adolescents and emerging adults. Yet, the *Child Maltreatment 2019* report indicates that 3.7 per 100,000 17-year-olds were confirmed maltreatment victims (DHHS, 2021). While

the report includes a category for "unborn, unknown, and 18–21" (DHHS, 2021, p. 34), this categorization obfuscates accurate examination of maltreatment patterns among 18 to 21-year-olds. Additionally, abuse of older teens and 18 to 21-year-olds is rarely reported to Protective Services, with the blended category making up only 0.4% of victims (DHHS, 2021). These referrals are rarely screened-in, and reports are handled variably by state. Thus, the rate of parent-perpetrated maltreatment in emerging adults may be higher than reported, necessitating more research and specific intervention mechanisms to mitigate hardship and victimization of emerging adults transitioning out of hostile homes (Gochez-Kerr & Helton, 2017).

Maltreatment comes in many forms, irrespective of age. Physical abuse, sexual abuse, and emotional abuse are known to occur under dynamics of power and control; this can describe scenarios of intimate partner violence, but also of parent-perpetrated abuse (Duron et al., 2021; Linell, 2017). Despite the awareness brought to this issue by Straka & Montminy in 2008, systems designed to detect and intervene in cases of family violence still vary greatly in modality by type (child abuse, intimate partner violence, elder abuse) and so struggle to meet the needs of individuals whose circumstances seem atypical (i.e., parent-perpetrated maltreatment in the emerging adult population). Further, parent-perpetrated maltreatment that has persisted into adulthood proves especially challenging to detect as systems meant to detect abuse in childhood have already failed; often, in emerging adulthood, maltreatment is often only detected by self-report. Lastly, there are few forms of support for parent-perpetrated maltreatment accessible to emerging adults without access to parent resources (for example, needing parent health insurance to access therapeutic services that can identify and intervene in patterns of enduring maltreatment).

Further, after adolescents turn 18, they may be susceptible to a new type of maltreatment: *economic abuse*. As defined by Adams and colleagues, economic abuse involves "behaviors that control a [person]'s ability to acquire, use, or maintain economic resources, thus threatening [their] economic security and potential for self-sufficiency" (2008, p. 565). Economic abuse has been established as a tool of coercive control among intimate partners, perpetuating cycles of abuse and producing adverse psychological and financial consequences (Adams et al., 2020; Crossman & Hardesty, 2018). Yet, little is known about the prevalence and outcomes of economic abuse between parents and their adult children. Of further complication, while covert mechanisms of economic abuse may be more difficult to detect than other forms of maltreatment (Postmus et al., 2020), they may significantly limit the victim's autonomy (Adams et al., 2020).

Central to this investigation is the cumulative effect of chronic maltreatment on mental health. While isolated events can contribute to traumatic stress reactions,

studies have found that single and combined types of chronic, repetitive maltreatment can result in devastating mental health consequences and increased vulnerability to later revictimization (Jonson-Reid et al., 2012; Schaaf & McCanne, 1998). Further, due to state-differentiated counting and reporting laws, national rates of chronic maltreatment are underestimated (Wildeman, 2019).

Mental Health in Emerging Adulthood

The World Health Organization World Mental Health Survey Initiative found emerging adults aged 18–22 to have a 12-month prevalence of any mental disorder of between 20.3% to 25.0%, with 11.7% to 14.7% expressing anxiety disorders (e.g., Generalized Anxiety Disorder; Post-Traumatic Stress Disorder), and 6.0% to 9.9% experiencing mood disorders (e.g., Major Depressive Disorder; Auerbach et al., 2016). Although emerging adults exhibit elevated prevalence of mental disorders compared to other age groups, little support is available to them. Specifically, few psychotherapy interventions have been adapted for the distinct conditions faced by emerging adult populations (e.g., role transition stress, identity formation, and sudden freedom from previously surveilled environments). Notably, when they do seek help, adolescents and emerging adults have high attrition rates in mental health services, with studies estimating that 20% to more than 60% of adolescents accessing mental health services discontinue care after turning 18 (Cohen et al., 2020; Copeland et al., 2015). Thus, further empirical attention is imperative for developing appropriate and supportive resources for emerging adults.

Stress Related to COVID-19 Pandemic

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), commonly known as COVID-19, originated in late 2019 in China. The international spread was rapid, and by March of 2020, COVID-19 was declared a pandemic by the World Health Organization and had reached much of the United States (Cucinotta & Vanelli, 2020). Millions of people were quarantined at home, with some facing acute financial and psychological distress. The global impact has been tremendous, causing uncertainty about the future, changes to existing plans, and concerns about personal and family health (Paredes et al., 2021; Reizer et al., 2021). This has been a particular stress for emerging adults who are in a stage of exploration, uncertainty, and transition (Arnett et al., 2014). Studies have shown that psychosocial stressors in the wake of the pandemic are associated with negative mental health outcomes, such as anxiety and depression (Kujawa et al., 2020). Further, studies have found that emerging adults with preexisting mental and physical health conditions, along with demographic risk factors, experience comparatively higher levels of distress within the context of COVID-19 (Alonzi et al., 2020). Therefore, the lack of sufficient mental health resources for this age group combined with maltreatment status may exacerbate the situational factors of the pandemic and lead to poor mental health.

Family Violence and the COVID-19 Pandemic

While stay-at-home orders were implemented nationally, slogans such as "Stay Home, Stay Safe" offered a false narrative to victims of family violence (State of Michigan, 2020). In the COVID-19 Special Report on the first 60 days of the pandemic released by The National Domestic Violence Hotline (NDVH), between March 16th and May 16th of 2020 there was a 9% increase in total contacts received (NDVH, 2020). 17% of these contacts were between 19 and 24-years-of-age, and 8% of these were contacts from non-IPV victims—those who have "experienced abuse from anyone other than an intimate partner (i.e., parent, sibling, caretaker)" (NDVH, 2020, p. 1). Notably, there was a 219% increase in reports of housing instability amongst contacts during 2020 (NDVH, 2021b), and within one year of the pandemic, 23,056 contacts to the NDVH cited COVID-19 as a contributor to their experience. Increased proximity to perpetrators due to quarantine and conditions of the pandemic including job loss and housing instability also contributed to domestic violence experiences (NDVAH, 2021a).

Stay-at-home orders not only failed to support those who lack safe living circumstances, but actively limited the potential for detection of and intervention in maltreatment. In a study comparing police reports of domestic violence in Chicago during March 2019 and March 2020, McLay (2021) identified a 67% drop in cases with child victims, stressing that further research is needed to distinguish between a true decrease in child victims or in reporting. Many mental health professionals have expressed concern about the impact of school closures on maltreatment reporting (Baron et al., 2020), with Rodriguez and colleagues highlighting the inadequacies of "a reactive welfare system rather than a proactive public-health oriented approach to child maltreatment" (2021, pg. 139). Further, studies have indicated that the pandemic has increased family violence risk factors, including isolation and resultant reduced detection, parental burnout, and parental job loss (Griffith, 2020; Lawson et al., 2020; Lee et al., 2021). Therefore, assessing prevalence of maltreatment in this population is both essential and firmly reliant on self-report.

Research Hypotheses

The cost to individuals, to families and to society of maltreatment is enormous. The existing lack of resources for emerging adults presents prevents emerging adults from reaching their full potential. Accordingly, the present study seeks to evaluate the cumulative impact of parent-perpetrated maltreatment on mental health and to assess the extent to which the COVID-19 pandemic is associated with those effects within a sample of emerging adults. This study addresses the following hypotheses: (1) Emerging adults with a history of maltreatment will continue to experience parent-perpetrated maltreatment beyond age 18 when living in their households of origin; (2) Emerging adults who have experienced recent emotional, physical, or sexual abuse, emotional or physical neglect, or economic abuse will have higher levels of COVID stress compared to those who have not; (3) Emerging adults experiencing parent-perpetrated maltreatment while living at home during the COVID-19 pandemic will have higher levels of COVID stress than those who experienced parent-perpetrated maltreatment in childhood; and (4) The chronicity of parent-perpetrated abuse and neglect, degree of economic abuse, and level of COVID stress will significantly contribute to variance in mental health (here depression, anxiety, and traumatic stress).

Method

Procedures

Prior to the study, ethical clearance was obtained from the Institutional Review Board at the University of Michigan. The study included 423 participants recruited via Amazon Mechanical Turk (MTurk), a virtual Human Intelligence Task (HIT) marketplace, who completed a self-report survey administered via Qualtrics. This format adhered to contemporaneous COVID-mandated health and safety restrictions requiring physical distancing. This approach also meant that participants were randomly sampled across the United States.

Inclusion criteria restricted participants to emerging adults between 18 years 0 months and 25 years 11 months of age, who had been students at a higher education institution in the United States in March 2020. Additionally, MTurk workers must have (1) been located within the United States at the time of participation, as verified by IP address via MTurk, (2) had a HIT approval rate of over 97%, meaning their completed assignments had been approved by MTurk requesters at least 97% of the time, (3)

had at least 50 HITs approved prior to participation, (4) not previously completed the survey, and (5) completed the informed consent page. As data was collected online without direct participant contact, these qualifiers were established to ensure that the survey was completed with honest intent. Once posted to MTurk, the first 423 participants to complete the survey and have their response validated received a payment of one USD.

After electing to complete the study's HIT in MTurk, participants were directed to a Qualtrics survey where they entered a passcode given via MTurk. Participants read a description of the study and eligibility requirements, and began the questionnaire once they consented. If participants indicated within the survey that they did not meet inclusion criteria, they were directed to the end of the survey and their data was not included in our analyses. Participants took an average of 27.78 min to complete the survey ($SD = 80.409$). Upon completing the survey, participants were given instructions for MTurk submission along with a passcode used by researchers to confirm completion. Data was manually reviewed by the researchers, who identified and rejected participants who (1) clicked survey options in a rapid, patterned response, (2) provided answers that did not respond to the question, (3) provided multiple survey submissions, or (4) did not pass attention checks. For the purposes of this study, only complete cases were included. If the participant successfully completed the survey, they received payment via MTurk within 72 h. Below the consent, during the survey, and with the end-of-survey statement, national resources for maltreatment, suicidality, and COVID-19 were provided.

Participants

Initially, 2,094 MTurk workers clicked on the survey link. Of those, 1,508 did not complete the survey or did not submit it to MTurk. Of the 586 submissions, 163 did not pass validation checks and were rejected, leaving 423 validated responses. The average age was 23.25 years ($SD = 1.84$). Half of the sample identified as cisgender men (50.4%), while 47.0% identified as cisgender women and 2.6% identified as transgender or non-binary. Participant characteristics by maltreatment group are found in Table 1.

In all, participants reported seven living arrangements at three time points: dorm or community setting, alone, with one or more roommates, with significant other, household of origin/family home, with other/extended family, and with child. Notably, prior to the pandemic, participants most frequently reported living with one or more roommates (35.3%); only 18.2% of participants reported living in their household of origin or family home. However, in March 2020 at the beginning of

Table 1 Participant characteristics

Characteristic	Total *(%)*	NM	MU18	MHO18
N in group	423	292 (69.0%)	56 (13.2%)	55 (13.0%)
Gender				
Man	213 (50.4%)	176 (60.3%)	24 (42.9%)	8 (14.5%)
Woman	199 (47.0%)	115 (39.4%)	30 (53.6%)	42 (76.4%)
Trans Man	3 (0.7%)	0 (0.0%)	1 (1.8%)	1 (1.8%)
Trans Woman	1 (0.2%)	1 (0.3%)	0 (0.0%)	0 (0.0%)
Nonbinary	7 (1.7%)	0 (0.0%)	1 (1.8%)	4 (7.3%)
Ethnoracial Identity				
Asian	37 (8.7%)	25 (9.0%)	3 (5.8%)	7 (14.3%)
Black or African American	39 (9.2%)	26 (9.4%)	6 (11.5%)	5 (10.2%)
Hispanic, Latinx, or Spanish	18 (4.3%)	10 (3.6%)	3 (5.8%)	5 (10.2%)
Middle Eastern or North African	1 (0.2%)	1 (0.4%)	0 (0.0%)	0 (0.0%)
Native Hawaiian or Other Pacific Islander	1 (0.2%)	1 (0.4%)	0 (0.0%)	0 (0.0%)
Native or Indigenous American	2 (0.5%)	1 (0.4%)	1 (1.9%)	0 (0.0%)
White	294 (69.5%)	210 (75.5%)	39 (75.0%)	31 (63.3%)
Mixed	27 (6.4%)	15 (5.1%)	4 (7.1%)	6 (10.9%)
Participant Educational Background				
Some College, No Degree	176 (41.6%)	121 (41.4%)	15 (26.8%)	32 (58.2%)
Associate Degree	61 (14.4%)	39 (13.4%)	8 (14.3%)	11 (20.0%)
Bachelor's Degree	153 (36.2%)	110 (37.7%)	27 (48.2%)	8 (14.5%)
Master's Degree	32 (7.6%)	22 (7.5%)	5 (8.9%)	4 (7.3%)
Doctoral Degree	1 (0.2%)	0 (0.0%)	1 (1.9%)	0 (0.0%)
Parental Educational Background				
High School Degree/Equivalent	84 (19.9%)	53 (18.2%)	12 (21.4%)	18 (32.7%)
Some College, No Degree	48 (11.3%)	32 (11.0%)	8 (14.3%)	6 (10.9%)
Associate Degree	42 (9.9%)	29 (9.9%)	6 (10.7%)	4 (7.3%)
Bachelor's Degree	136 (32.2%)	98 (33.6%)	21 (37.5%)	10 (18.2%)
Master's Degree	75 (17.7%)	53 (18.2%)	7 (12.5%)	10 (18.2%)
Doctoral Degree	27 (6.4%)	20 (6.8%)	2 (3.6%)	4 (7.3%)
Personal Finances				
Much Worse	25 (5.9%)	9 (3.1%)	6 (10.7%)	8 (14.5%)
Worse	93 (22.0%)	50 (17.1%)	21 (37.5%)	17 (30.9%)
About Average	231 (54.6%)	180 (61.6%)	20 (35.7%)	23 (41.8%)
Better	59 (13.9%)	41 (14.0%)	8 (14.3%)	5 (9.1%)
Much Better	15 (3.6%)	12 (4.1%)	1 (1.8%)	2 (3.6%)
Family Finances				
Much Worse	17 (4.0%)	7 (2.4%)	2 (3.6%)	7 (12.7%)
Worse	72 (17.0%)	40 (13.7%)	18 (32.1%)	14 (3.3%)
About Average	236 (55.8%)	174 (59.6%)	29 (6.9%)	23 (41.8%)
Better	80 (18.9%)	57 (19.5%)	6 (10.7%)	8 (14.5%)
Much Better	18 (4.3%)	14 (4.8%)	1 (1.8%)	3 (5.5%)

[*]Not all percentages total to 100% due to rounding or participant choice not to report

the pandemic in the United States, participants most frequently reported living in their household of origin or family home (41.8%). At the time of the survey in January and February 2021, participants still most frequently reported living in their household of origin or family home (35.9%). Further, a moderate degree of financial assistance from parents was most frequently reported ($M = 2.58$, min $= 1$, max $= 5$, $SD = 1.23$).

Measures

First, participant demographics and information concerning the participant's family was collected, including age, gender, years of education, (non)student status, ethnoracial status, annual family income, and the parent's highest level of education. For the purposes of this study, gender refers to either cisgender man or cisgender woman identity; trans and nonbinary genders were underrepresented in this sample (2.6%) and therefore not included in further gender-related analyses. Additionally, analyses based on ethnoracial identities underrepresented in the sample (here, Middle Eastern or North African, Native Hawaiian or Other Pacific Islander, and Native or Indigenous) were not completed. Finally, seven empirically validated measures were administered in a randomized order to assess levels of COVID-19 exposure, lifetime maltreatment, economic abuse, and mental health status. Two attention-check questions were included to ensure careful completion.

Assessment of COVID-19 exposure The *COVID-19 Adolescent Symptom & Psychological Experience Questionnaire (CASPE*; Ladouceur, 2020) is a 42-item survey assessing participants' general, emotional, cognitive, and social experiences at home and in their academic life within the COVID-19 pandemic context. While some items were modified for use with college students, none of the items included in this study required modification to be age appropriate. A sample item asks "COVID-19 presents a lot of uncertainty about the future. In the past 7 days, including today, how stressful have you found this uncertainty to be?". For the present study, a Likert scale anchored at 1 (*very slightly or not at all*) and 5 (*extremely*) was applied to three questions of the emotional experience section of the measure to describe COVID stress. These questions were treated as continuous variables in analyses, reflecting uncertainty, disruptions, and worry about family becoming sick. Here, reliability (α) was found to be 0.79.

Assessments of lifetime maltreatment The *Adverse Childhood Experiences (ACEs) Questionnaire* (Felitti et al., 1998) asks participants to report whether (*yes/no*) each of ten adverse experiences occurred before they were 18 years old. The measure was modified here to determine the most recent age the participant lived in their household of origin. It was also modified to include the chronicity of experiences that occurred while participants were living in their household of origin (including beyond age 18 if applicable). The chronicity modifier asked: 1) how frequently did this happen? and 2) when was the last time this happened? A subscale was developed to measure maltreatment from items one to five: emotional abuse, physical abuse, sexual abuse, emotional

neglect, and physical neglect. In subsequent analyses, participants were categorized as "Maltreated at Home Over the age of 18" (MHO18) if they reported at least one maltreatment item had most recently occurred after their eighteenth birthday while also reporting living in their household of origin at that age, "Maltreated Under 18" (MU18) if maltreatment in their household of origin most recently occurred under the age of 18, and "No Maltreatment" (NM) if no lifetime treatment was reported. Frequency of maltreatment was not included in analyses (see limitations). Studies have consistently shown the ACEs measure to have high reliability and validity (Felitti, 2017; Felitti et al., 1998). Here, reliability (α) was 0.71 for the maltreatment subscale and 0.70 for the total scale, which included all ten ACEs.

The *Revised Scale of Economic Abuse (SEA-2*; Adams et al., 2020) is a 14-item self-report scale in which participants indicate whether specific aspects of financial control have been used against them by their parents, beginning at age 16. Two 5-point Likert subscales measure economic restriction, or withholding access to economic resources (e.g., "keeping you from having the money you needed to buy food, clothes, and necessities"), and economic exploitation, or coercively taking advantage of someone's economic resources (e.g., "make you use your money to buy [them] things or pay [their] bills when you didn't want to"; Adams et al., 2020). In the present study, variables "economic restriction" and "economic exploitation" were conceptualized as continuous variables based on total score. While this measure was designed for use in situations of intimate partner violence, it has been adapted to detect economic abuse within the context of a parent–child relationship (e.g., changing "keep financial information from you" to "keep relevant/important financial information from you", as parental financial information is not expected to be shared within a parent–child relationship. The SEA-2 shows strong internal consistency and construct validity (Adams et al., 2020). Here, reliability (α) was 0.94 for the total scale, and 0.89 and 0.93 for the restriction and exploitation subscales respectively.

Assessments of mental health status The *Patient Health Questionnaire-9 (PHQ-9*; Kroenke et al., 2001) is a 9-item self-report measure assessing frequency and severity of depressive symptoms through ratings on a 4-point Likert scale, anchored by "not at all" and "nearly every day" (Kroenke et al., 2001). Studies have shown consistent reliability and validity (Kroenke et al., 2001); current study reliability (α) was 0.92. In analyses, this data was conceptualized as a continuous variable for depressive symptoms based on total score.

The *Generalized Anxiety Disorder Scale-7 (GAD-7*; Spitzer et al., 2006) is a seven-item self-report measure assessing anxiety symptoms and associated severity. Ratings

fall on a 4-point Likert scale, ranging from "not at all" to "nearly every day". The measure has been shown to be both reliable and valid with college student populations (Lee & Kim, 2019); in the present study, reliability (α) was 0.94. In analyses, this data was treated as a continuous variable for anxiety symptoms based on total score.

The *PTSD Checklist for DSM-5 (PCL-5*; Weathers et al., 2013) uses 20 items to assess the 20 DSM-5 symptoms of PTSD. This measure was administered if adverse life experiences were reported. It has been shown to be internally reliable and valid across diverse populations (Carvalho et al., 2020; Ghazali & Chen, 2018); current study reliability (α) was 0.97. In analyses, this data was treated as a continuous variable for traumatic stress symptoms based on total score.

Statistical Analyses

All analyses were performed using SPSS 27.0 (2021). For the purposes of this study, gender refers to either cisgender men or cisgender women. Descriptive analyses were used to characterize maltreatment chronicity within the sample, including considerations of demographic differences. Correlations were used to assess statistically significant correlations between continuous variables. Demographic differences and associations with COVID stress and the three mental health outcomes (anxiety, depression, and traumatic stress) were similarly evaluated. Linear regression was used to assess the relation between significant demographics, maltreatment chronicity status, economic abuse, COVID stress, and mental health. Separate analyses were conducted for depression, anxiety, and traumatic stress symptoms.

Results

Demographic Effects and Maltreatment

Results of the ACEs measure indicate that of the 423 participants, 292 (69.0%) reported *no lifetime maltreatment* (NM), 56 (13.2%) reported *maltreatment that last occurred under the age of 18 in their household of origin* (MU18), and 55 (13.0%) reported *maltreatment that last occurred over the age of 18 in their household of origin* (MHO18). The 20 (4.7%) participants who reported maltreatment that occurred over the age of 18 while living outside their household of origin were not included in subsequent analyses, as parent-perpetrated maltreatment could not be distinguished from other perpetrators, such as intimate partners. Of the 423 participants, 294 (69.5%) reported at least one form of economic restriction, and 144 (34.0%) reported at least one form of economic restriction happened often or very often.

Additionally, 153 (36.2%) participants reported at least one form of economic exploitation and 59 (13.9%) reported at least one form of economic exploitation happened often or very often. Of all 423 participants, only 4 (0.9%) reported economic exploitation but not economic restriction. These findings support our first hypothesis and indicate that a many emerging adults continue to experience parent-perpetrated maltreatment beyond age 18 while living in their households of origin.

A one-way analysis of variance (ANOVA) was conducted to test for demographic differences among the three maltreatment groups (NM, MU18, MHO18). No age differences were found for any of the three maltreatment groups ($F(2, 402) = 1.64$, $p = 0.20$). However, personal financial situation ($F(2, 402) = 10.00$, $p = 0.001$), family financial situation ($F(2, 402) = 7.69$, $p = 0.001$), and level of education ($F(2, 402) = 7.11$, $p = 0.001$) differed significantly between maltreatment groups; parent education did not ($F(2, 402) = 0.83$, $p = 0.44$). Here, the No Maltreatment (NM) group reported significantly higher SES (personal and family) compared to both maltreatment groups, but the maltreated at home over the age of 18 (MHO18) group reported having completed significantly less education compared to the other groups. Chi-Square tests revealed significant gender differences in maltreatment group ($\chi^2(2, 395) = 35.56$, $p < 0.001$), such that men were more likely to report no lifetime maltreatment, while women were more likely to report maltreatment happening while living in their households of origin over the age of 18. There were no statistically significant differences in maltreatment status between ethnoracial groups ($\chi^2(16, 403) = 13.54$, $p = 0.63$).

Results of the strength of the relationship between economic abuse and continuous demographic variables is shown in Table 2.

T-tests result revealed no significant difference between men and women for economic restriction ($t(410) = -0.90$, $p = 0.37$) and economic exploitation ($t(410) = 0.56$, $p = 0.58$). A one-way ANOVA detected no differences in economic restriction ($F(8, 422) = 0.86$, $p = 0.55$) or economic exploitation ($F(8, 422) = 1.05$, $p = 0.34$) between ethnoracial identities.

Demographic Effects and Mental Health

Participants reported a mean score of 7.14 ($SD = 6.55$) on the measure of depression (PHQ-9), a mean score of 6.27 ($SD = 5.80$) on the measure of anxiety (GAD-7), and a mean score of 19.02 ($SD = 19.180$) on the traumatic stress symptom measure (PCL-5). The PCL-5 indicates that scores of 31 and over are considered clinically significant; thus, 21% of the sample reported clinically significant symptoms. As seen in Table 2, while personal and family finances were significantly negatively correlated with depression, anxiety, and

Table 2 Correlation matrix showing Pearson's r for mental health outcomes, economic abuse, and demographic data

	1	2	3	4	5	6	7	8	9	10	11
1. Depression	–										
2. Anxiety	.85**	–									
3. Traumatic Stress	.79**	.76**	–								
4. Economic Restriction	.42**	.39**	.52**	–							
5. Economic Exploitation	.36**	.33**	.46**	.78**	–						
6. Age	-.04	-.001	-.04	.04	.08	–					
7. Personal Finances	-.20**	-.22**	-.18**	-.17**	-.07	-.12*	–				
8. Family Finances	-.11*	-.13**	-.11	-.12*	-.10*	-.13**	.54**	–			
9. Financial Dependence	.05	-.02	.08	.005	.02	-.19**	.12*	.30**	–		
10. Participant Education	-.01	-.03	-.02	.14**	.20**	.37**	.11*	.08	-.05	–	
11. Parental Education	-.03	-.003	.002	.03	-.05	-.09	.05	.22**	.19**	.10**	–

$^*p<.05$, $^{**}p<.01$

trauma, there was no significant association found between depression, anxiety, or trauma and age, financial dependence on family, participant level of education, or parent level of education. Women displayed significantly higher levels of depression ($t(409)=-2.51$, $p=0.01$), anxiety ($t(410)=-3.02$, $p=0.003$), and traumatic stress symptoms ($t(366)=-2.15$, $p=0.03$) compared to men. A one-way ANOVA indicated no statistically significant associations between any ethnoracial identity and depression ($F(8, 421)=1.00$, $p=0.44$), anxiety ($F(8, 422)=1.46$, $p=0.17$), or trauma symptoms ($F(7, 378)=0.47$, $p=0.86$).

Demographic Effects and COVID Stress

COVID stress levels incorporated uncertainty about the future, disruptions to plans, and worry about family becoming sick. Mean level stress level regarding uncertainty about the future was slight to moderate ($M=2.72$, min$=1$, max$=5$, $SD=1.09$). Their stress level regarding disruptions to plans had a mean of 2.68 (min$=1$, max$=5$, $SD=1.12$). Participants' mean stress level regarding a family member becoming sick was 2.68 (min$=1$, max$=5$, $SD=1.22$).

Women reported significantly higher levels of COVID uncertainty ($t(410)=-3.26$, $p<0.001$), disruptions ($t(410)=-2.74$, $p=0.003$), and worry about family becoming sick ($t(410)=-2.99$, $p=0.002$) compared to men. A one-way ANOVA showed no statistically significant associations between any ethnoracial identity and uncertainty ($F(8, 414)=1.31$, $p=0.24$), disruptions ($F(8, 414)=0.77$, $p=0.63$), or worry about becoming sick ($F(8, 414)=1.79$, $p=0.08$). While personal and family finances were significantly negatively correlated with uncertainty ($r(423)=-0.20$, $p<0.001$; $r(423)=0.16$, $p=0.001$) and disruptions ($r(423)=-0.16$, $p=0.001$; $r(423)=-0.12$, $p=0.02$), there was no significant association between uncertainty and

disruptions and age, financial dependence on family, or participant or parent level of education. There were no significant associations between worry about family becoming sick and any continuous demographic variable.

Maltreatment and COVID Stress

Regarding our second hypothesis, mean COVID stress level scores were found to be significantly higher in the MU18 group compared to the NM group ($t(346)=-3.20$, $p=0.002$). Similarly, mean COVID stress level was significantly higher in the MHO18 group compared to the NM group ($t(345)=-3.03$, $p=0.003$). It was hypothesized that emerging adults experiencing parent-perpetrated maltreatment while living at home during the pandemic would have higher levels of COVID stress than those who experienced parent-perpetrated maltreatment only during childhood; however, this hypothesis was not supported ($t(109)=0.17$, $p=0.87$). As hypothesized, we found both types of economic abuse to be significantly positively associated with all three types of COVID stress ($r(421)=0.27$, $p<0.001$). Economic restriction and COVID stress regarding uncertainty ($r(421)=0.25$, $p<0.001$), disruptions ($r(421)=0.33$, $p<0.001$), and worry about family becoming sick ($r(421)=0.20$, $p<0.001$) were all significantly correlated. Similarly, economic exploitation was positively correlated with COVID stress regarding uncertainty ($r(421)=0.15$, $p=0.002$), disruptions ($r(421)=0.21$, $p<0.001$), and worry about family becoming sick ($r(421)=0.13$, $p=0.01$).

Predicting Variance in Mental Health

Results of regression analyses are shown in Table 3. In the first block of the model, significant demographics of gender, personal finances and parental finances were entered. The second block added the three forms of COVID stress, and

Table 3 Multiple regression results predicting depression, anxiety, and traumatic stress by demographics, maltreatment chronicity, economic abuse, and COVID stress

	Depression		Anxiety		Traumatic Stress	
	B	ß	B	ß	B	ß
Block 1						
Demographics						
Gender	1.47	.12*	1.50	.13**	4.08	.11*
Personal Finances	-1.002	-.13*	-1.07	-.16**	-1.31	-.06
Family Finances	-0.38	-.05	-0.46	-.07	-2.17	-.10
Block 2						
Demographics						
Gender	0.63	.05	0.68	.06	1.75	.05
Personal Finances	-0.54	-.07	-0.70	-.10*	-0.23	-.01
Family Finances	0.09	.01	-0.04	-.01	-0.93	-.04
COVID Stress						
Uncertainty	1.55	.26***	1.46	.28***	3.56	.21**
Disruptions	1.72	.30***	1.19	.23***	4.18	.25***
Becoming Sick	-0.004	-.001	0.35	.07	1.73	.11*
Block 3						
Demographics						
Gender	0.72	.06	0.76	.07	2.19	.06
Personal Finances	-0.50	-.07	-0.68	-.10*	-0.06	-.003
Family Finances	0.29	.04	0.13	.019	0.08	.004
COVID Stress						
Uncertainty	1.68	.28***	1.57	.29***	4.04	.24**
Disruptions	1.31	.23***	0.88	.17**	2.69	.16*
Becoming Sick	-0.18	-.03	0.22	.05	0.94	.06
Economic Abuse						
Restriction	0.16	.15*	0.12	.12	0.67	.22**
Exploitation	0.19	.14*	0.16	.13*	0.77	.20**
Block 4a						
Demographics						
Gender	0.10	.01	0.30	.03	0.49	.01
Personal Finances	-0.41	-.05	-0.60	-.09	0.25	.01
Family Finances	0.40	.05	0.22	.03	0.38	.02
COVID Stress						
Uncertainty	1.49	.25***	1.43	.27***	3.52	.21***
Disruptions	1.36	.24***	0.90	.18**	2.81	.17**
Becoming Sick	-0.08	-.02	0.29	.06	1.20	.08
Economic Abuse						
Restriction	0.10	.09	0.07	.07	0.48	.16*
Exploitation	0.20	.15*	0.16	.13*	0.78	.21**
Maltreatment Chronicity						
NM v MU18	1.98	.11*	1.85	.11*	7.65	.15***
NM v MHO18	3.28	.17***	2.38	.14**	8.44	.16***
Block 4b						
Demographics						
Gender	0.10	.01	0.30	.03	0.49	.01
Personal Finances	-0.41	-.05	-0.60	-.09	0.25	.01
Family Finances	0.40	.05	0.22	.03	0.38	.02
COVID Stress						
Uncertainty	1.49	.25***	1.43	.27***	3.52	.21***
Disruptions	1.36	.24***	0.90	.18**	2.81	.17**

Table 3 (continued)

	Depression		Anxiety		Traumatic Stress	
	B	ß	B	ß	B	ß
Becoming Sick	-.08	-.02	0.29	.06	1.20	.08
Economic Abuse						
Restriction	0.10	.10	0.07	.07	0.480	.16*
Exploitation	0.20	.15*	0.16	.13*	0.79	.21**
Maltreatment Chronicity						
MU18 v NM	-1.98	-.14*	-1.85	-.14*	-7.65	-.19**
MU18 v MHO18	1.31	.07	0.55	.03	.79	.02

Block 1: Depression: $R^2 = 0.045$, Adj $R^2 = 0.037$, F = 6.06***, Anxiety: $R^2 = 0.064$, Adj $R^2 = 0.057$, F = 8.92***, Traumatic Stress: $R^2 = 0.034$, Adj $R^2 = 0.026$, F = 4.10***

Block 2: Depression: $R^2 = 0.305$, Adj $R^2 = 0.294$, F = 28.32***, Anxiety: $R^2 = 0.316$, Adj $R^2 = 0.305$, F = 29.88***, Traumatic Stress: $R^2 = 0.270$, Adj $R^2 = 0.257$, F = 21.16***

Block 3: Depression: $R^2 = 0.373$, Adj $R^2 = 0.360$, F = 28.68***, Anxiety: $R^2 = 0.367$, Adj $R^2 = 0.353$, F = 27.93***, Traumatic Stress: $R^2 = 0.414$, Adj $R^2 = 0.401$, F = 30.24***

Block 4a: Depression: $R^2 = 0.401$, Adj $R^2 = 0.386$, F = 25.67***, Anxiety: $R^2 = 0.388$, Adj $R^2 = 0.372$, F = 24.32***, Traumatic Stress: $R^2 = 0.445$, Adj $R^2 = 0.429$, F = 27.26***

Block 4b: Depression: $R^2 = 0.401$, Adj $R^2 = 0.386$, F = 25.6***, Anxiety: $R^2 = 0.388$, Adj $R^2 = 0.372$, F = 24.32***, Traumatic Stress: $R^2 = 0.445$, Adj $R^2 = 0.429$, F = 27.26***

the third block considered two forms of economic abuse. The fourth block tested the added contribution of maltreatment chronicity. Here, the maltreatment chronicity variable was created through a series of dummy variables comparing a) the *no maltreatment* (NM) group (0) to the *maltreatment under the age of 18* (MU18) group (1); b) the NM group (0) to the *maltreatment that last occurred over the age of 18* (MHO18) group (1); c) the MU18 group (0) to the NM group (1), and d) the MU18 group (0) to MHO18 group (1). Block 4a weighs the NM/MU18 and NM/MHO18 contributions, while block 4b weighs the MU18/NM and MU18/MHO18 contributions. The same model was repeated for each mental health variable.

When predicting depression symptoms, gender (ß = 0.12) and personal finances (ß = -0.13) were significant in the first block. However, after COVID stress variables were entered into the next block, gender and finances were no longer significant. In the second block, uncertainty about the future (ß = 0.26) and disruptions (ß = 0.30) added to the prediction of depression. Both economic restriction (ß = 0.15) and economic exploitation (ß = 0.14) were significant predictors of depression when entered in the third block. Here, uncertainty (ß = 0.25) and disruptions (ß = 0.24) remained significant. In the final blocks, individuals who had experienced enduring maltreatment (MHO18 ß = 0.17) or childhood maltreatment (MU18 ß = 0.14) also reported greater depression compared to the NM group. However, there was no significant difference between the enduring maltreatment (MHO18) and childhood maltreatment (MU18) groups (ß = 0.07) in depression symptoms. In all, this model accounted for 38.6% of the variance in depression symptoms, with COVID stress and enduring maltreatment accounting for more variance than childhood maltreatment or economic exploitation.

A similar pattern arose for anxiety. As before, gender (ß = 0.13) and personal finances (ß = -0.16) predicted anxiety in the first block. However, the contribution of gender was no longer significant when COVID uncertainty (ß = 0.28) and COVID disruptions (ß = 0.23) were added. Here, personal finances (ß = -0.10), COVID stress around uncertainty (ß = 0.29) and disruptions (ß = 0.17), and economic exploitation (ß = 0.13) were significant contributors in the third block. In the final blocks, individuals who experienced childhood maltreatment (MU18 ß = 0.112) or enduring maltreatment (MHO18 ß = 0.14) reported significantly more depression compared to the NM group. However, individuals experiencing enduring maltreatment did not report more symptoms of anxiety than those who reported childhood maltreatment, ß = 0.031. Here, COVID stress variables (ß = 0.27; ß = 0.18) and economic exploitation (ß = 0.13) remained significant contributors to anxiety. This model contributed to 37.2% of the variance in anxiety, with the largest beta values for COVID uncertainty and COVID disruptions.

The final model predicted 42.9% of the variance in traumatic stress. Participant gender (ß = 0.11) was a significant predictor of traumatic stress in the first block, while all three forms of COVID stress (uncertainty ß = 0.21; disruptions = 0.25; family becoming sick ß = 0.11) were significant in the second block. Both forms of economic abuse were found to be significant in the third block (restriction ß = 0.22; exploitation ß = 0.20). COVID uncertainty (ß = 0.24) and disruptions (ß = 0.16) also remained significant in the third block. Both COVID stress variables

and economic abuse variables remained significant in the fourth blocks when enduring and childhood maltreatment were considered in comparison to non-maltreated groups (MHO18/NM ß = 0.16; MU18/NM ß = 0.15). Economic exploitation and COVID uncertainty accounted for the most variance.

Discussion

The findings of this study provide empirical support that parent-perpetrated maltreatment occurs beyond the age of 18 and is associated with poor mental health outcomes, including depression, anxiety, and traumatic stress. Whereas previous literature has not addressed cumulative, parent-perpetrated maltreatment, our sample's high rate of reported maltreatment occurring in the household of origin indicates the persistence of parent-perpetrated maltreatment. In our study, 13% of participants reported any type of maltreatment happening in emerging adulthood, somewhat similar to other studies investigating parent-perpetrated maltreatment among college students (McKinney et al., 2020). To interrupt enduring patterns of maltreatment, large changes such as the victim moving out of the home or focused therapeutic interventions are often needed; especially given pandemic's influence on housing accessibility, which has allowed parent-perpetrated maltreatment to continue well beyond the age of 18 for many.

Our results also support the hypothesis that emerging adults who have experienced emotional, physical, or sexual abuse, emotional or physical neglect, or economic abuse will have higher levels of COVID stress compared to those who did not experience abuse or neglect. Still, the data did not show that one group of emerging adults, those who experienced parent-perpetrated maltreatment while living in their household of origin over the age of 18, had significantly higher levels of COVID stress compared to those who experienced abuse or neglect in childhood alone. This may be due to the enduring health effects of traumatic stress, even in the absence of abuse or neglect during the college years (Springer et al., 2003). Individuals who had experienced parent-perpetrated maltreatment over the age of 18 may be experiencing similar traumatic stress symptoms; research by Seery and colleagues (2013) would suggest that this group was more resilient to COVID stress due to steeling effects of the high levels of home environment stress, thus producing similar levels of COVID stress between groups.

Finally, the findings supported that chronicity of parent-perpetrated abuse and neglect, level of economic abuse, and level of COVID stress account for significant variance in mental health (depression, anxiety, and traumatic stress). Maltreatment chronicity, economic exploitation, and COVID stress around uncertainty about the future

and disruptions due to COVID each contributed to depression. This is consistent with the findings of other studies regarding the relation between COVID stress and mental health outcomes (Alonzi et al., 2020; Kujawa et al., 2020). Given our similar results for anxiety and traumatic stress, it appears that not only do abusive elements of the home environment add significant challenge to mental health, but chronic maltreatment extending into emerging adulthood exacerbates these challenges.

Strengths and Limitations

Important strengths of our study include the consideration of developmentally relevant stressors for emerging adults. Our study assessed for three mental health outcomes (depression, anxiety, and traumatic stress), which, consistent with previous research on child maltreatment, were strongly associated with parent-perpetrated maltreatment in emerging adults. Finally, our study was able to account for associations between both COVID stress and maltreatment within each mental health outcome, contributing to previous literature on mental health during COVID-19. However, despite these strengths, our study also has limitations. Our findings may not be generalizable to populations outside of the cultural norms and higher education system of the United States. Studies of more ethnoracially diverse populations of emerging adults should be conducted to establish their prevalence of varying types of parent-perpetrated maltreatment and related mental health outcomes. Additionally, the use of MTurk to conduct this study assumes a certain financial privilege (access to computer, internet), so other inclusive methodologies should be considered. Furthermore, the methodology selected by the researchers utilized a digital, self-report questionnaire, wherein participants may have been reluctant to report the true severity of their symptoms; although literature has shown that self-report is a valid methodology within the emerging adult population (An & Zhang, 2018), and especially due to the difficulty of detection with pandemic isolation, maltreatment identification is increasingly reliant on self-report.

Additionally, omission of some items from our measure of chronicity, (e.g., "frequency of maltreatment") is a limitation. Researchers felt that considering frequency without severity gives incomplete insight into the degree of maltreatment; yet our online methodology limited safe and ethical evaluation of the maltreatment endured. Further, reports of maltreatment were counted without type distinction, due to the overall desire to understand prevalence of any type of maltreatment in this age group. However, future studies should consider that specific types of chronic maltreatment (e.g., combined physical and sexual abuse, physical neglect only) have been differentially associated with mental health outcomes and later life revictimization.

Finally, our study is limited within the context of COVID-19: while some maltreatment measured here is a function of living at home due to COVID-19, we are unable to distinguish between ongoing maltreatment participants may have experienced had the pandemic not occurred. Future studies should aim to measure this outside the context of COVID-19.

Clinical Implications and Further Research

The findings of this study indicate that parent-perpetrated maltreatment of emerging adults is more prevalent than previously shown. Therefore, we recommend increased screening for this concern through healthcare providers and higher education institutions. Results of this study reveal that many participants have experienced multiple forms of chronic, traumatic, and stressful events, thus indicating the need to address both their safety and their mental health. Further research could use qualitative data to inform both preventative and reactive measures for maltreatment in this age group, allowing for broader description of maltreatment issues and their effects. A natural progression of this work is to ethically and robustly assess both the chronicity and severity of maltreatment endured by the participant in relation to mental health outcomes. Furthermore, studies could assess emerging adult access to, use of, and efficacy of established mental health resources currently available to the population of emerging adults transitioning out of hostile homes. Future investigations could explore how to design interventions tailored to the unique needs of emerging adults. As the results of this study show, at least for this sample of participants, chronic maltreatment is a serious and deleterious part of the lives of many emerging adults whose plight is often left unrecognized and untreated.

Data Availability Data used in this study are available from the corresponding author (SGB) upon reasonable request.

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