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Understanding Depressive Symptoms Among Emerging Adults

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UNDERSTANDING DEPRESSIVE SYMPTOMS AMONG EMERGING ADULTS

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Dedication

To my family, friends, and mentors

UNDERSTANDING DEPRESSIVE SYMPTOMS AMONG EMERGING ADULTS

by

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DISSERTATION

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Abstract

As societies have progressed following the industrial revolution, the transitioning into adulthood has undergone constant changes. This shift has resulted in young adults delaying traditional roles such as marriage and parenthood to pursue tertiary education and other opportunities. Emerging adulthood (ages 18-25) is a phase during an individual's life where they undergo constant changes because of newfound independence, new relationships, and other life-changing events. Currently, it has transitioned into a period where symptoms of depression are commonly experienced more than any other time in life. Given the negative impacts that depressive symptoms can have on individuals' well-being, two studies were conducted to better understand emerging adults' experience with depressive symptoms.

Two aims were examined using secondary data analysis to understand the factors contributing to depressive symptoms among emerging adults. The first examined the risk and protective factors most prevalent during emerging adulthood and sought to determine their relationships with depressive symptoms. Protective factors such as self-esteem, family social support, neighborhood-related factors, and risk factors such as criminal engagement and substance abuse were examined. Of the factors examined, self-esteem, neighborhood-related factors, criminal engagement, and alcohol use were significantly associated with depressive symptoms. The second examined biopsychosocial factors related to depressive symptoms among emerging adults. Biopsychosocial factors such as nutrition, physical health, negative emotions, self-esteem, family social support, and having a mentor were studied. Nutrition levels, physical health, negative emotions, and self-esteem were significantly associated with the respondents' depressive symptoms. Based on these findings, this dissertation suggested that these protective and risk

factors, as well as the biopsychosocial factors related to depressive symptoms, should be the focus of future public health policies and interventions for emerging adults.

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Chapter 1: Introduction

The process of transitioning into adulthood has evolved throughout the years as industrialized societies have developed and expanded (Arnett, 2000, 2016; Arnett et al., 2014). Societal advancement has drastically increased the number of options available for young adults that weren't possible for previous generations, such as enrolling in higher education and exploring new employment opportunities. As a result of these changes, young adults in the United States often marry and have children later in their lives during this transitional period (Arnett, 2000, 2016; Arnett et al., 2014). As societies shifted from agricultural to industrial economies due to technological advances following the industrial revolution, the qualifications for available jobs changed (Arnett, 2014). Technological advancement of agricultural machines replaced manual tasks performed by laborers, drastically changing the landscape of the job market for young adults (Arnett, 2014). Changes in job requirements and the skills necessary to pursue these jobs pressured emerging adults (age between 18 and 25 years) to pursue tertiary education to secure stable employment (Arnett, 2014). Tertiary education has become crucial for emerging adults to attain financial independence and stability in life (Arnett, 2000; Arnett et al., 2014). The necessity for tertiary education has resulted in many emerging adults delaying marriage or parenthood until they can obtain the skills necessary to secure a stable job (Arnett et al., 2014). This delay of marriage and parenthood at an early age has also resulted in young Americans pursuing higher education at higher rates (i.e., 14% in 1940 versus 49% in 2019) (National Center for Education Statistics, 2020).

In addition to focusing on tertiary education, emerging adults value economic stability and the ability to take care of themselves and their families before pursuing marriage and parenthood (Carroll et al., 2009). Therefore, many prioritize achieving economic well-being

before settling into these permanent adult roles (Carroll et al., 2009). Many emerging adults also feel it is essential to reach maturity before pursuing marriage and parenthood (Arocho, 2019). For many, reaching maturity typically involves becoming independent and living away from their parents, and having financial security and a solid social support group that they can rely on (Arocho, 2019). Therefore, emerging adults tend to wait until they feel that they have successfully transitioned into adulthood and navigated through their younger years successfully before getting married and having children (Arocho, 2019). This delay in marriage can be seen by how the median age of marriage in the U.S. was 21 years for women and 23 years for men in 1970, while the median age of marriage increased to 28 years for women and 30 years for men in 2018 (Population Reference Bureau, 2020). Like the age of first marriage, the mean age of first birth increased from 21.4 years in 1970 to 26.8 years in 2017 (Guzzo & Payne, 2017). Therefore, not only are young adults more likely to take the time to obtain the education necessary to secure future employment and financial stability early in life, they are settling into long-term adult roles such as marriage and parenthood at a later period. As a result, these formative years (18-25 years) are associated with a period of constant exploration and change (Arnett, 2000, 2016; Arnett et al., 2014). Given the importance of these formative years in an individual's life, it is important to explore this period in further detail.

Several scholars have developed theories in an attempt to better explore this new transitional period of adulthood and to explain this phenomenon (Arnett, 2000, 2016). Erik Erikson was one of the first scholars to describe this developmental stage of psychosocial development (Erikson, 1994; Schachter & Galliher, 2018). Erikson perceived this period as prolonged adolescence that exists between early adolescence and adulthood where individuals engage in exploration and delay adult commitments and responsibilities (Erikson, 1994;

Schachter & Galliher, 2018). According to Erikson, this period between adolescence and young adulthood is full of exploration of opportunities and possibilities without the commitments and responsibilities of traditional adulthood (Erikson, 1994; Schachter & Galliher, 2018). A key feature of this period also focuses on building relationships and intimacy with others (Erikson, 1994; Schachter & Galliher, 2018). Erikson noted that individuals focus on forming various relationships, including friendships, romantic relationships, and relationships with work and school peers (Erikson, 1994; Schachter & Galliher, 2018). Many find their sense of identity and build a social support network of individuals that aligns with their identity (Erikson, 1994; Schachter & Galliher, 2018). They are also learning how to become closer to other individuals in their life and successfully navigate through these relationships (Erikson, 1994; Schachter & Galliher, 2018). Although Erikson did not specify this as a separate developmental period, his ideas have served as a foundation for understanding emerging adulthood (Erikson, 1994; Schachter & Galliher, 2018).

Daniel Levinson developed a concept similar to Erikson's, where he postulated that young adults experience a period of change and transition as they navigate through adulthood (Arnett, 2000, 2016). Levinson interviewed men in the US in their midlife about their experiences during their earlier years of adulthood and developed a theory to understand this new phase of adulthood (Agronin, 2014; Levinson, 1979). He referred to this new phase as the 'novice' phase of development (17-33 years) where young adults are transitioning into the adult world and building a stable life for themselves that allows them to be independent (Agronin, 2014; Levinson, 1979). Like Erikson, Levinson found that this phase involves a lot of changes, exploration, and instability in the lives of young adults in various areas such as work and relationships (Agronin, 2014; Levinson, 1979). In this phase, Levinson noted that the two main

tasks for young adults were to build and foster relationships with their family, friends, peers, and romantic partners and to begin the transition into middle adulthood (Agronin, 2014; Levinson, 1979). During this phase, individuals begin to become independent from their family as they move out and begin to seek out relationships with individuals that align with their interests and personality (Agronin, 2014; Levinson, 1979). Individuals also start to transition into adulthood by becoming independent, making their own choices, and exploring the opportunities presented to them (Agronin, 2014; Levinson, 1979). The focus of this period is to successfully transition into more permanent adult roles such as long-term employment, marriage, and parenthood (Agronin, 2014; Levinson, 1979). Levinson noted the similarities between his and Erikson's theories while conceptualizing this novice phase of development (Agronin, 2014; Levinson, 1979).

Lastly, Kenneth Keniston described a developmental phase, a youth phase, where young adults underwent many changes and transitions before settling into their permanent adult roles (Bynner, 2005; Keniston, 1971). Like the works of Erikson and Levinson, Keniston developed the idea of a youth phase that exists between adolescence and young adulthood (Bynner, 2005; Keniston, 1971). This phase involves constant experimentation and changes that eventually lead to youths finding their more permanent life role as adults (Bynner, 2005; Keniston, 1971). Echoing Erikson's ideas, Keniston noted that this phase also involves identity exploration as individuals begin to get a better sense of what kind of person they wish to become (Bynner, 2005; Keniston, 1971). Individuals in this phase are also experiencing a period of freedom (Bynner, 2005; Keniston, 1971). They are free from adult responsibilities (such as parenthood and marriage) and can explore various opportunities available in multiple areas of their life, such as employment, education, and relationships (Bynner, 2005; Keniston, 1971). Lastly, Keniston

noted that this phase is full of changes and transitions for individuals (Bynner, 2005; Keniston, 1971). Keniston indicated that many pursue various available opportunities such as tertiary education, different employment options, and new relationships (Bynner, 2005; Keniston, 1971). While Keniston's ideas were not widely adopted and accepted by other scientists (Arnett, 2000), these ideas also serve as a foundation for understanding the concept of emerging adulthood (Arnett, 2000). The unique work of these three scholars later served as the foundational knowledge for future research (Erikson, 1994; Keniston, 1971; Levinson, 1979). Building on the early work of these three scholars and their focus on these formative years of development (age 18-25) as well as looking at the trends and many changes that have occurred in industrialized cities, psychologist Jeffrey Arnett developed the concept of emerging adulthood to explain this new developmental phase (Arnett, 2000, 2016).

Emerging adulthood has been defined as a phase during an individual's life where they undergo constant changes due to newfound independence, new relationships, and various other life-changing events (Arnett, 2000, 2007, 2016). Emerging adulthood comprises five features that distinguish it from other developmental phases (Arnett, 2000, 2007, 2016). First, emerging adults undergo constant identity exploration as they try out new choices and options that life offers as they begin to settle into their permanent adult roles (Arnett & Mitra, 2020). This identity exploration occurs mainly in three key areas (i.e., love, work, and worldviews). During emerging adulthood, explorations in love involve emerging adults figuring out the type of partners suitable for creating deeper and longer-lasting relationships (Arnett & Mitra, 2020). Explorations of work choices involve emerging adults trying different jobs, educational opportunities, and experiences to narrow their fields of interest for long-term employment (Arnett & Mitra, 2020). Lastly, explorations of worldviews involve emerging adults beginning to

form their concept of the world around them, along with the beliefs and morals that shape their way of life (Arnett & Mitra, 2020). Many emerging adults experience these changes (or transformations) as they begin their tertiary education, explore different worldviews, and meet different kinds of individuals (Arnett & Mitra, 2020).

Emerging adults also undergo a period of instability due to the constant exploration in various areas of their lives, such as employment, relationships, and others. Emerging adults experience many job changes throughout this period, with some holding an average of eight different occupations (Arnett & Mitra, 2020). Emerging adulthood allows emerging adults the freedom to explore different job positions as they navigate through this period (Grosemans et al., 2020). Many begin this period in employment positions that are part-time or introductory positions that assist them in their pursuit of financial stability and independence while pursuing higher education (Grosemans et al., 2020). In addition, many pursue other training opportunities that will help them develop the skills necessary for more permanent employment opportunities that align with their interests (Grosemans et al., 2020). As emerging adults navigate through this phase, they pursue and explore different employment opportunities to lay the foundation for more permanent job positions focusing on their skills and interests (Grosemans et al., 2020). Eventually, most emerging adults find a more permanent job position that is satisfactory to the interests and skills developed throughout this period (Grosemans et al., 2020). In addition to job exploration, emerging adults have the highest rate of residence changes amongst all age groups (Benetsky et al., 2015). Thus, mobility is a key characteristic of emerging adulthood.

Many emerging adults move away from home to be closer to their university of choice while pursuing their tertiary education (Benetsky et al., 2015). In addition, some emerging adults experience residential change due to having to relocate to different areas as they pursue and

explore various employment opportunities (Benetsky et al., 2015). Emerging adults might also move back in with their parents while they continue to develop their financial stability and pursue more permanent job opportunities (Benetsky et al., 2015). They might also move in with their romantic partners as they explore and develop different forms of intimate relationships throughout this period (Benetsky et al., 2015). As individuals navigate through emerging adulthood, they are also likely to mature and become more financially independent. The various changes in residence, occupations, and relationships can lead to periods of instability throughout this developmental phase (Arnett, 2000, 2007, 2016).

Another key feature of emerging adulthood is a period of focusing on self. Throughout this period, emerging adults become more independent and make their own decisions leading to extensive self-exploration (Arnett, 2000, 2016). As a result, many do not marry or become parents until later in this phase when they feel that they have reached maturity and complete independence (Arnett, 2000, 2016). This allows them to focus entirely on themselves and develop the necessary skills, knowledge, and self-understanding as they begin to settle into long-term adult roles (Arnett & Mitra, 2020). During this period, emerging adults make independent decisions in various areas such as employment, education, romance, finances, and others, allowing them to focus on themselves as they navigate this period (Arnett & Mitra, 2020). This period of young adulthood is different from other eras where young adults married and had children at a younger age and could not experience this extended period of self-focus and exploration that emerging adults face (Parameswaran, 2020).

Emerging adulthood also entails a feeling of being ‘in-between,’ where they feel neither like an adolescent nor an adult (Arnett & Mitra, 2020). Many emerging adults describe this period of their lives as transitional (Arnett, 2000, 2007). A majority of emerging adults from the

U.S. and other industrialized countries reported feeling that they reached adulthood in some ways but not in others when queried (Arnett, 2000, 2007; Arnett & Mitra, 2020). This feeling of being 'in-between' typically resolves when emerging adults reach their late 20s to early 30s and they feel that they have reached full adulthood (Arnett & Mitra, 2020). This notion of in-between, is defined by anthropologists Arnold Van Gennep and Victor Turner as a time of "liminality" involving many changes and transformations associated with "being in-between" while experiencing change, transformation, and a lack of certainty (Turner, 1995; Van Gennep et al., 2001).

Lastly, emerging adulthood tends to be a period full of possibilities where emerging adults feel like they have many future opportunities and experiences that they can pursue (Arnett & Mitra, 2020). Emerging adulthood is also a period of optimism when many emerging adults are hopeful for their future and the opportunities available to them throughout this period (Arnett & Mitra, 2020). Many are excited about the unknown opportunities that exist during this period and the potential for personal growth (Arnett & Mitra, 2020). Yet, some emerging adults see this period as one that could be full of failures and setbacks as their dreams and hopes for the future haven't yet been tested in a real-world setting (Arnett, 2014; Arnett & Mitra, 2020). Many envision themselves in a future where they will have a well-paying, satisfying job and in a loving, successful marriage with their children after they have navigated through emerging adulthood (Arnett, 2014; Arnett & Mitra, 2020). Many emerging adults have yet to face the struggles of adult life, which may include divorce, employment dissatisfaction, issues with their children, and problems with other relationships in their lives (Arnett, 2014; Arnett & Mitra, 2020). For this reason, many emerging adults are still excited and hopeful for their future and development as adults (Arnett, 2014; Arnett & Mitra, 2020).

As emerging adults navigate and progress through the five key features of this period, they eventually settle into their permanent adult positions and responsibilities with a firm sense of identity (Arnett, 2000, 2016; Arnett et al., 2014). While the experience and overall development of emerging adulthood can be a positive experience for some emerging adults, it can result in negative behaviors for others (Arnett & Mitra, 2020). These negative behaviors can include exposure to risk factors and a propensity to engage in risky behavior, all of which can affect their physical and mental health (Arnett & Mitra, 2020). These risk factors and risky behaviors can include substance abuse, unprotected sex, dangerous driving behaviors, and mental health concerns (Arnett & Mitra, 2020; Costello et al., 2008; Schubert et al., 2017). Substance abuse is more common during emerging adulthood, as seen by how the rates of heavy alcohol use rise from 2.6% in adolescence to 14.9% in emerging adulthood, and drug use rose from 11.2% in adolescence to 20.3% in emerging adulthood (Wood et al., 2018).

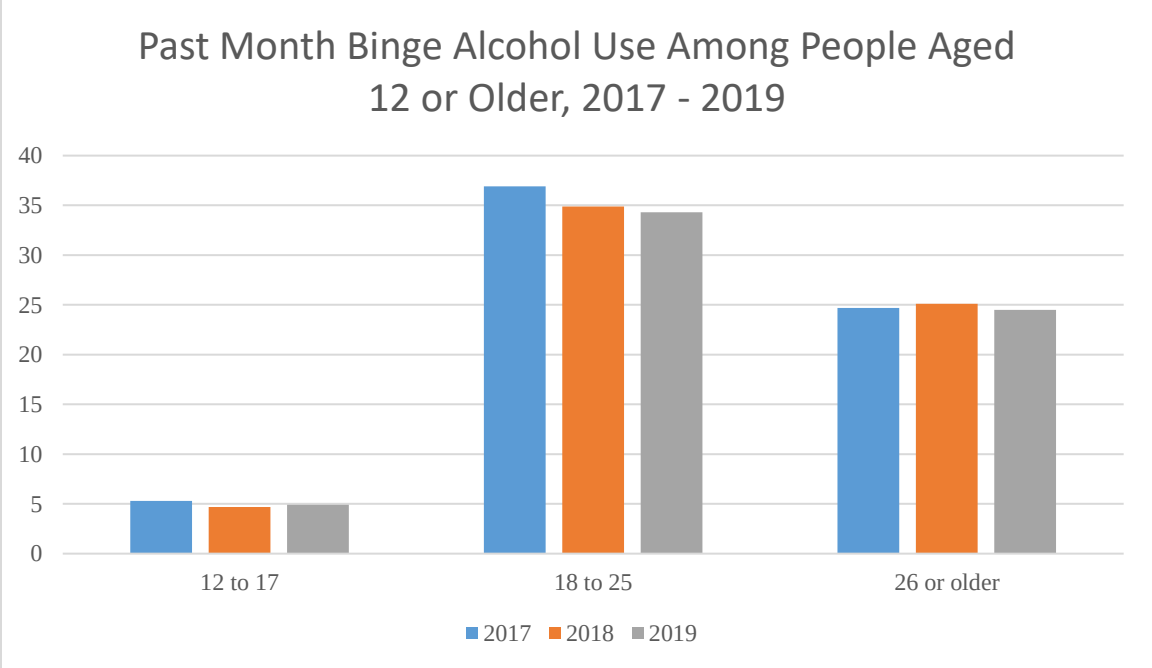

Figure 1. Rates of Alcohol Use in the U.S. Among People Aged 12 or older 2017-2019

Source: SAMSHA 2019 Key Substance Use and Mental Health Indicators in the United States: Results from the 2019 National Survey on Drug Use and Health

Emerging adults consistently have had the highest rate of alcohol use compared with all other age groups. Figure 1 shows binge alcohol use among people aged 12 or older from 2017-2019. U.S. emerging adults comprised 36.9% of individuals reporting binge alcohol use in 2017, 34.9% in 2018, and 34.3% in 2019 (SAMHSA, 2020). In comparison, U.S. adolescents (aged 12-17) comprised 5.3% of individuals reporting binge alcohol use in 2017, 4.7% in 2018, and 4.9% in 2019 (SAMHSA, 2020). Adults age 26 years and older also had lower rates of binge alcohol use compared to emerging adults, comprising 24.7% of individuals in 2017, 25.1% in 2018, and 24.5% in 2019 (SAMHSA, 2020).

Like alcohol use, rates of drug use are also consistently the highest among emerging adults. Figure 2 shows illicit drug use in the past year among people aged 12 or older from 2017-2019. Emerging adults in the U.S. comprised 39.4% of individuals who engaged in illicit drug use in 2017, 38.7% in 2018, and 39.1% in 2019 (SAMHSA, 2020). Adolescents in the U.S. (aged 12-17 years) had lower rates of illicit drug use as they comprised 16.3% of individuals who engaged in this behavior in 2017, 16.7% in 2018, and 17.2% in 2019 (SAMHSA, 2020). Adults age 26 years and older also had lower rates of illicit drug use when compared to emerging adults, comprising 16.1% of individuals who engaged in this behavior in 2017, 16.7% in 2018, and 18.3% in 2019 (SAMHSA, 2020). This higher prevalence of risky behaviors among emerging adults can increase their risk of exposure to dangerous situations (Arnett & Mitra, 2020; Schubert et al., 2017). In addition to identity exploration, the newfound independence that emerging adults experience enables them to take more risks due to the lack of parental authority and traditional responsibilities, such as marriage and parenthood (Arnett & Mitra, 2020). This lack of responsibility can result in emerging adults becoming more likely to take risks than older

adults (Schwartz & Petrova, 2019). Many feel as though they can act more freely and explore themselves as they are not bound by the social expectations of these more traditional roles such as marriage or parenthood (Schwartz & Petrova, 2019). Emerging adults are also trying to find their sense of identity and belonging during this period (Schwartz & Petrova, 2019). As a result, they are more likely to engage in these risky behaviors as they find their way into adulthood and establish their place in life (Schwartz & Petrova, 2019).

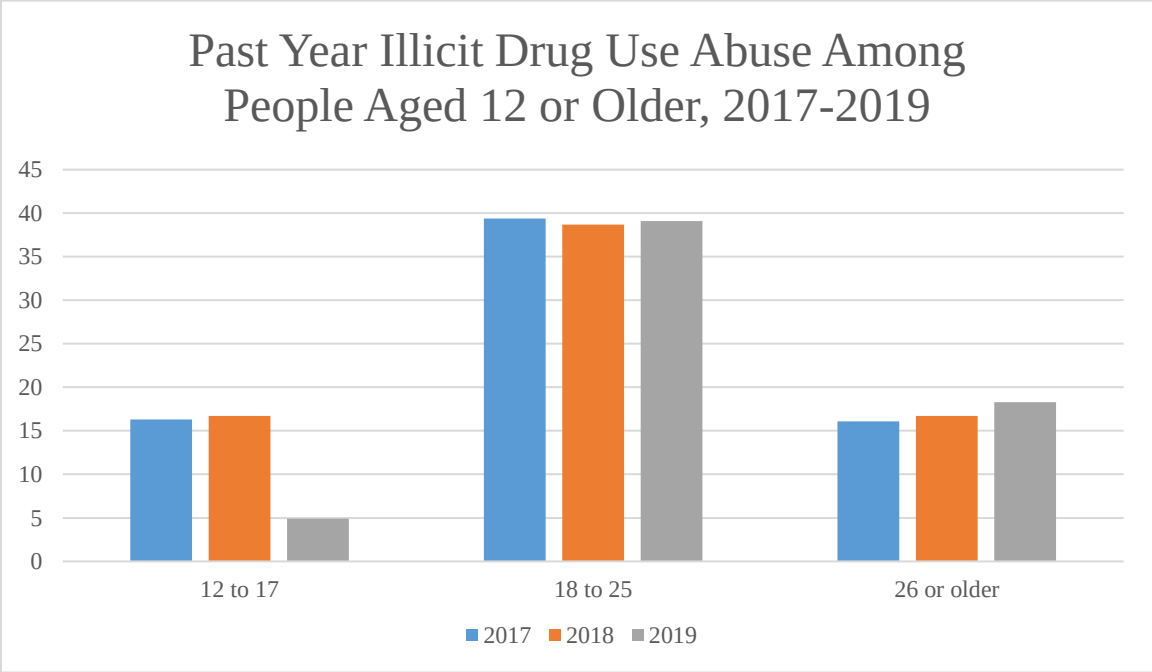

Figure 2. Rates of Illicit Drug Use in the U.S. Among People Aged 12 or older 2017-2019
Source: SAMSHA 2019 Key Substance Use and Mental Health Indicators in the United States: Results from the 2019 National Survey on Drug Use and Health

Mental health concerns can arise as emerging adults navigate through the instability and constant changes that can occur in various areas of their life, such as their living situation, relationships, employment, financial stability, and others (Arnett et al., 2014; Hill et al., 2011; Tanner, 2016). The constant exploration and transitions encountered during this phase present many challenges that they must overcome, which can lead to the development of mental health

concerns among some if they are unable to successfully overcome these challenges (Arnett et al., 2014; Hill et al., 2011; Tanner, 2016).

One of the significant mental health concerns among mental health professionals is the prevalence of depressive symptoms among emerging adults (Ferro et al., 2015; Mondi et al., 2017; Polanco-Roman & Miranda, 2013). The onset of depressive symptoms can lead to adverse outcomes, including suicidal ideation, major depressive disorder, substance abuse problems, and disruption of daily life (Aalto-Setälä et al., 2001; Hill et al., 2011; Weitzman, 2004). Depressive symptoms tend to be more common among emerging adults and can reach their peak as they navigate this phase (Costello et al., 2005). Most mental health concerns, such as depressive symptoms, manifest during emerging adulthood (Mondi et al., 2017). Previous studies found that most depression/depressive symptoms cases begin by 24 years of age (American Psychiatric Association, 2013; Kessler et al., 2005). In addition, emerging adults have the highest incidence and prevalence of depression/depressive symptoms compared to other age groups, with 25% of emerging adults more likely to develop these symptoms (Kuwabara et al., 2007; Mondi et al., 2017).

Emerging adulthood is the period where the prevalence of mental illness is consistently highest among adults. Figure 3 shows the rates of mental illness in the past year among U.S. adults aged 18 or older from 2017-2019. Emerging adults comprised 25.8% of individuals reporting mental illness in 2017, 26.3% in 2018, and 29.4% in 2019 (SAMHSA, 2020). In comparison, adults aged 26-49 years comprised 22.2% of individuals reporting mental illness in 2017, 22.5% in 2018, and 25% in 2019 (SAMHSA, 2020). Adults aged 50 years or older also had lower mental illness rates than emerging adults, as they comprised 13.8% of individuals reporting mental illness in 2017, 14% in 2018, and 14.1% in 2019 (SAMHSA, 2020). Emerging

adults can encounter hardships as they navigate many of the changes and transformations they are likely to experience during this period (Arnett & Mitra, 2020). As a result, some who are unable to cope with the stress and other issues during this period might develop mental health concerns (Arnett & Mitra, 2020).

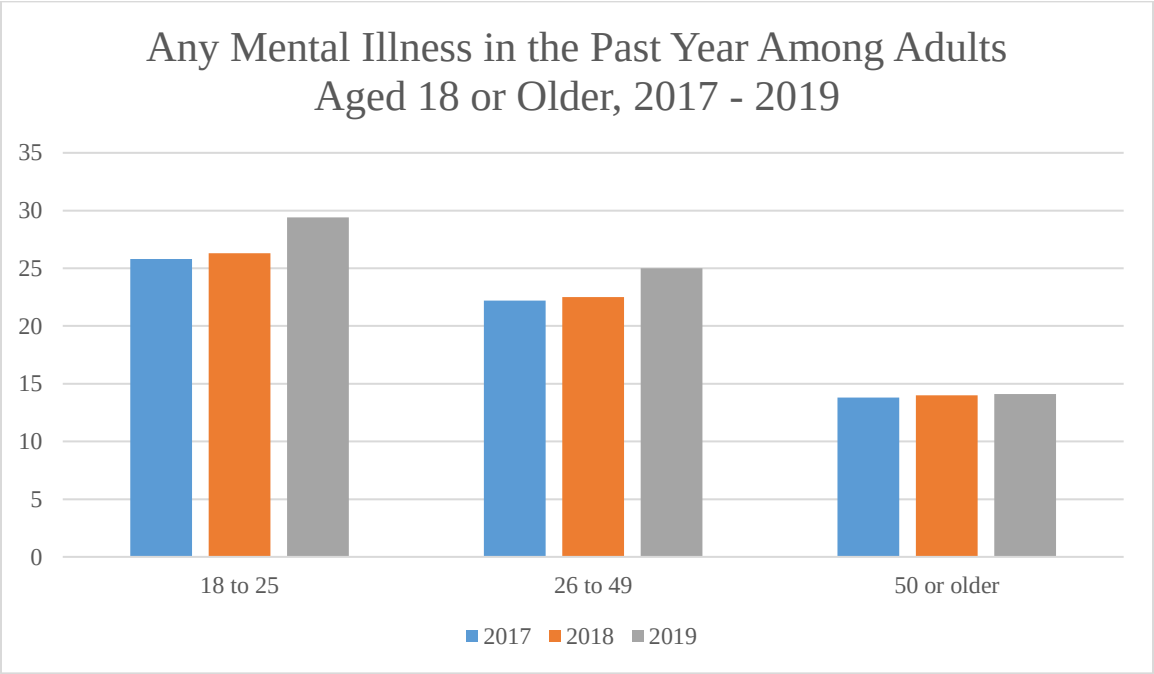

Figure 3. Rates of Mental Illness among Adults in the U.S. Aged 18 or Older 2017-2019
Source: SAMSHA 2019 Key Substance Use and Mental Health Indicators in the United States: Results from the 2019 National Survey on Drug Use and Health

The inability and challenges associated with coping with stress and change can contribute to emerging adults' increased risk for the development of depression/depressive symptoms (Mondi et al., 2017). This increased risk for depressive symptoms among emerging adults can vary depending on various sociodemographic characteristics. For example, sex-specific differences have been reported among emerging adults as female emerging adults are more likely to develop depressive symptoms than males (Lim et al., 2020). Studies found that this increased risk among females is due to biological factors such as how females process negative emotions and stress when faced with challenges during this period (i.e., financial struggles, employment

struggles, relationship struggles) compared to males (Coryell et al., 2020; Lim et al., 2020). In addition, other differences such as education level and employment status can affect emerging adults' risk for depressive symptoms (Fergusson et al., 2015; Liem et al., 2010). Emerging adults who are employed and have higher levels of education are less likely to experience depressive symptoms (Fergusson et al., 2015; Liem et al., 2010). These two factors can help individuals access more opportunities in various areas of their life (i.e., educational opportunities, employment options, social networking) (Fergusson et al., 2015; Liem et al., 2010). This access to more opportunities can increase their chances of success during this period and decrease their risk of depressive symptoms (Fergusson et al., 2015; Liem et al., 2010). Age-related differences have also been seen among emerging adults when examining the risk of depressive symptoms.

Older emerging adults are less likely to report depressive symptoms as they are typically in the later stages of emerging adulthood (Tanner & Arnett, 2016). As a result, they are more likely to feel confident and secure in their place in society (Tanner & Arnett, 2016). Older emerging adults are also more likely to obtain long-term employment, complete their education, and build long-term, meaningful relationships, significantly decreasing their risk for depressive symptoms (Tanner & Arnett, 2016). Lastly, factors such as Hispanic origin is related to the risk of depressive symptoms as Hispanic emerging adults who are not U.S.-born are more likely to report experiencing depressive symptoms (Cano et al., 2016, 2020; Thibeault et al., 2018). Hispanic emerging adults are susceptible to developing depressive symptoms as they can experience discrimination and higher stress levels from issues pertaining to their immigration status while transitioning through this period (Cano et al., 2016; Thibeault et al., 2018). In addition, they can struggle with the acculturation process as they are adjusting to the U.S. culture (Cano et al., 2020; Thibeault et al., 2018). This acculturation process can create additional

stressors and struggles for them, increasing their risk for mental health concerns (Cano et al., 2020; Thibeault et al., 2018). Thus, it is vital to explore these sociodemographic characteristics when examining depressive symptoms among emerging adults.

Depressive symptoms during emerging adulthood can affect newly transitioning adults in various ways. Depressed emerging adults are more likely to experience marital and parenting problems, substance abuse problems, and issues related to work than non-depressed emerging adults (Grob et al., 2020; Kuwabara et al., 2007). They are also more likely to have lower career and life satisfaction and lower educational attainment than non-depressed emerging adults (Grob et al., 2020; Kuwabara et al., 2007). Depressive symptoms during emerging adulthood can affect the overall development of emerging adults as they navigate this phase (Kuwabara et al., 2007). They can affect emerging adults' ability to develop and maintain healthy social relationships, complete their goals, and transition to stable and permanent adult roles that involve long-term employment and long-lasting relationships (Kuwabara et al., 2007). Depressed emerging adults can lag behind non-depressed adults in completing the transitions through emerging adulthood (Grob et al., 2020).

Depressive symptoms have also had a significant effect on the workplace and healthcare in the U.S. (Greenberg, 2015). Due to reduced work productivity and other costs associated with the care of individuals with depressive symptoms, the costs of depressive symptoms are estimated to be approximately $210 billion in the U.S. per year (Greenberg, 2015). Depression is known to incur the heaviest burden among individuals out of all the mental and behavioral health disorders in the U.S. (Greenberg et al., 2021). Individuals suffering from depression are more likely to miss days from work and be fired from work due to reduced work productivity, resulting in a loss of income (Greenberg et al., 2021). This loss of income results in an economic

burden on individuals and society as they become unable to financially provide for themselves (Greenberg et al., 2021). In addition to the economic burden due to work issues, individuals suffering from depression are more likely to incur medical bills due to emergency visits, regular doctor visits, and other treatments related to depression (Greenberg et al., 2021). Individuals suffering from depression are also more likely to use these health care services and might not be able to pay for them due to their lack of income (Greenberg et al., 2021). These healthcare-related costs can result in a further economic burden on individuals and society (Greenberg et al., 2021). Lastly, suicide-related costs among individuals suffering from depression can result in an economic burden for both individuals and society (Greenberg et al., 2021).

Due to the costs of depressive symptoms among emerging adults and the effects on their overall development, it is pertinent to discuss the importance of treating depressive symptoms during this period. Emerging adults who cannot obtain treatment for their depressive symptoms are less likely to develop the skills and knowledge necessary to successfully transition throughout emerging adulthood (Gibb et al., 2010; Lawrence et al., 2015). They are less likely to obtain an education or employment and develop meaningful relationships (Gibb et al., 2010; Lawrence et al., 2015). In addition, emerging adults with untreated depressive symptoms are more likely to report suicidal behaviors, other mental health issues, and substance abuse problems (Gibb et al., 2010; Lawrence et al., 2015). Treating depressive symptoms among this group will not only reduce the costs to society that come from reduced work productivity and increased medical bills but also help them successfully navigate through this period and become productive members of society (Liljeholm et al., 2020)

Given the costs of depressive symptoms among this age group and the benefits of reducing the prevalence of depressive symptoms, further research in this area is crucial. Further

research in this area will allow researchers to learn more about factors associated with depressive symptoms among this age group. It will also help healthcare professionals develop interventions that effectively treat and prevent these depressive symptoms. As emerging adulthood is the period where mental illness such as depressive symptoms is most prevalent among adults, this dissertation will expand the current knowledge on depressive symptoms among emerging adults by examining depressive symptoms among emerging adults from two different theoretical perspectives in two studies. The first study in this dissertation will provide an in-depth examination of the protective risk and factors prevalent during emerging adulthood and their effect on the prevalence of depressive symptoms among this age group. The second study will build upon previous studies that have studied various populations (such as the elderly, diabetic, and immigrant mothers) using biopsychosocial models (Davison et al., 2012; Garcia-Toro & Aguirre, 2007; Habtewold et al., 2016; Lara-Cinisomo et al., 2016) to examine depressive symptoms among emerging adults. This biopsychosocial model has not been widely examined among the emerging adult population, and thus this proposed second study will aim to fill the current gap in knowledge.

The dataset used for these studies came from the National Longitudinal Study of Adolescent to Adult Health (Add Health). The respondents for this study included individuals in emerging adulthood in the U.S. The two proposed studies in this dissertation will focus on emerging adults from Generation X and Generation Y (millennials). Generation X and Generation Y emerging adults have already navigated through emerging adulthood. Generation X individuals were born between 1965 and 1980, and many are currently between 39 and 54 years old (Dimock, 2019). As a result, many are presently well into middle adulthood and have become parents of the current generation of emerging adults (Dimock, 2019). They have

navigated through emerging adulthood that emphasized the need for tertiary education, usage of technologies (such as the internet and computers), and participation in the workforce for both women and men (Kowske et al., 2010). Generation Y individuals were born between 1981 and 1996, and many are currently between 23 and 38 years old. Many millennials are well into middle adulthood and are also parents of today's adolescents and emerging adults (Dimock, 2019). They have navigated emerging adulthood with a significant focus on technologies such as the internet and cell phones. Many became adept with the usage of such technologies as they became engrained in their everyday life (Kowske et al., 2010; Murray, 2019). A greater understanding of depressive symptoms among these age groups will help researchers understand depressive symptoms among current emerging adults, namely Generation Z, who are the current emerging adults (Kowske et al., 2010; Murray, 2019). Given that some Generation X and Generation Y emerging adults in the Add Health dataset are now the parents of the current generation of emerging adults, it is crucial to examine the overall developmental course of emerging adulthood among the generation X and Generation Y (Murray, 2019). The Add Health dataset provides unique information that allows the examination of both generations.

Understanding depressive symptoms among this age group can provide future researchers with foundational knowledge on how emerging adulthood can affect depressive symptoms of the current generation (Murray, 2019). The current generation of emerging adults, Generation Z, comprises individuals born after 1996 who are currently between 7-22 years old, and thus some are now navigating emerging adulthood (Dimock, 2019). They were born when access to the internet was commonplace and vital to everyday life (Dimock, 2019; Murray, 2019). Lastly, Generation Z individuals focus on acquiring tertiary education and securing a financially secure future. (Dimock, 2019; The Economist, 2019). Given the current global pandemic and the

possible effects it can have on the mental health of Generation Z emerging adults, it is important to understand mental health among emerging adults and the effects this period can have on their mental health (Magson et al., 2021; Rettie & Daniels, 2020).

Chapter 2: Protective and Risk Factors of Emerging Adulthood and Their Effect on Depressive Symptoms

Depression is a common mental health concern that affects approximately 8.4% of U.S. adults (National Institute of Mental Health, 2020). Symptoms that result from depression can affect an individual's ability to function in various areas of their life, such as work, school, and relationships (World Health Organization [WHO], 2021). Individuals with depressive symptoms can suffer from feelings of hopelessness and lack of concentration and energy, all of which can affect their ability to function in various domains of their life (WHO, 2021). Of particular concern is how depressive symptoms can also lead to suicide for some individuals (WHO, 2021). Additionally, the onset of depressive symptoms tends to be more common during emerging adulthood (Villarroel & Terlizzi, 2020). Emerging adults are 21% more likely to develop depressive symptoms compared to other adult age groups, such as adults age 30-44 years (16.8%), middle-aged adults age 45-64 years (18.4%), and elderly adults age 65 years or older (18.4%) (Villarroel & Terlizzi, 2020).

A possible explanation for the higher prevalence of depression among this group is partly due to the volatility that characterizes this developmental stage as emerging adults engage in self-exploration (Arnett & Mitra, 2020; Villarroel & Terlizzi, 2020). As emerging adults navigate this developmental period, they are exposed to protective and risk factors that significantly impact their mental health outcomes, such as depressive symptoms. (Arnett, 2007; Wood et al., 2018). Previous research has described emerging adulthood as a period that is full of positive changes and opportunities for individuals who navigate through this phase (i.e., the pursuit of tertiary education, financial independence, new relationships) (Arnett, 2007; Hawkins et al., 2011; Newcomb-Anjo et al., 2017). Several studies have looked at various protective

factors relevant to this developmental period and their effect on depressive symptoms among this age group (Finan et al., 2018; Germani et al., 2020; Hawkins et al., 2011). During emerging adulthood, individuals begin to build their social support network by becoming involved with their community and peers (Hawkins et al., 2009; O'Connor et al., 2011; Wood et al., 2018). Emerging adults typically experience an increase in self-esteem throughout this period as they grow and begin to settle into their permanent adult roles (Barlett et al., 2020; Wood et al., 2018). Previous research has emphasized the importance of protective factors such as positive self-esteem as well as healthy and secure relationships in reducing depressive symptoms among individuals (Galambos et al., 2006; Marganska et al., 2013; Moore II & Shell, 2017). Emerging adulthood is a period where these critical protective factors are more prevalent as individuals navigate through this phase and begin the transition into middle adulthood (Barlett et al., 2020; Hawkins et al., 2009; O'Connor et al., 2011; Wood et al., 2018).

Conversely, other studies have found that emerging adulthood can also be a period of increased risk for adverse outcomes for individuals (i.e., delinquency, substance abuse problems, mental health problems) (Arnett & Mitra, 2020; Jun et al., 2019; Newcomb-Anjo et al., 2017). In addition to these protective factors, previous studies have examined the risk factors prevalent during this period and their effect on the prevalence of depressive symptoms (Jun et al., 2019; Yu et al., 2017; Wood et al., 2018). Emerging adulthood is a period where the rates of alcohol use and illicit drug use are the highest among adults (SAMSHA, 2020). This is important as substance use has been previously linked to a higher prevalence of depressive symptoms among emerging adults in previous studies (Jun et al., 2019; Schuler et al., 2015; Wilkinson et al., 2016; Wood et al., 2018)

Criminal engagement is more common during emerging adulthood. Figure 4 shows the total arrest in the U.S. by age in 2019. Emerging adults comprise 36.8% of the total arrests in the U.S. compared to 7% of individuals aged 17 years and younger, 35% of individuals aged 30 to 40 years, and 12% of individuals aged 50 years and older in 2019 (U.S. FBI CJISD, 2019). Emerging adults with a history of criminal engagement are more likely to be at risk for depressive symptoms than those with no history of criminal engagement (Jun et al., 2019; Mondi et al., 2017; Yu et al., 2017). Emerging adults encounter a lot of uncertainties as they transition into this new period of their life and begin to explore opportunities available to them while developing the skills, knowledge, and self-understanding necessary for later adult life (Arnett, 2016; Arnett & Mitra, 2020; Newcomb-Anjo et al., 2017). As a result of these uncertainties, emerging adults are more likely to engage in risky behaviors, such as substance use and criminal engagement (Jun et al., 2019; Yu et al., 2017; Wood et al., 2018).

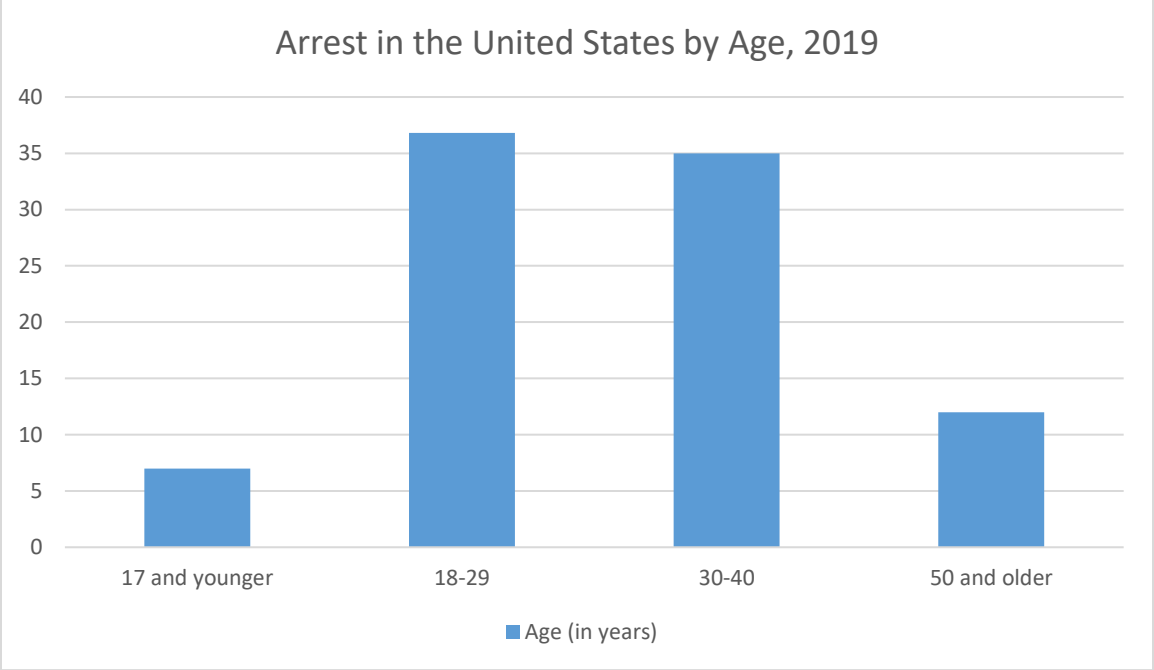

Figure 4. Arrests in the U.S. Among Adults of Various Age Groups

Source: U.S. Federal Bureau of Investigation Criminal Justice Information Services Division Report: 2019 Crime in the United States

Given the previous research has examined protective and risk factors that can emerge during this period separately, the proposed study will be looking at both protective and risk factors that are relevant during emerging adulthood simultaneously and their connection with depressive symptoms among this age group (Arnett & Mitra, 2020; Jun et al., 2019; Newcomb-Anjo et al., 2017). Given how emerging adulthood can have varying outcomes that can negatively or positively impact an individual's life, researchers have focused on understanding these protective and risk factors and how these factors affect their mental health (Arnett, 2007; Arnett & Mitra, 2020). Some researchers have focused on the importance of examining protective factors and their association with depressive symptoms in this age group, while others have focused on investigating risk factors (Germani et al., 2020; O'Connor et al., 2011; Wood et al., 2018; Yu et al., 2017).

In addition to examining both protective and risk factors, this study will also look at several sociodemographic characteristics, such as age, sex, employment status, educational attainment, Hispanic origin, and nativity. These sociodemographic characteristics have been shown to be significantly associated with the risk of depressive symptoms in various studies (Cano et al., 2020; Fergusson et al., 2015; Lim et al., 2020; Tanner & Arnett, 2016). For example, the prevalence of depressive symptoms has been shown to decrease as emerging adults reach their late 20s, with most cases of depressive symptoms occurring during the beginning of emerging adulthood (i.e., their early 20s) (Finan et al., 2018; Galambos & Krahn, 2008). Sex-based differences have also been observed as female emerging adults tend to have a higher risk of depressive symptoms compared to their male counterparts (Debowska et al., 2020; Wirback, 2018). In addition, educational attainment and employment status can have a significant impact on the risk of depressive symptoms among emerging adults. For example, emerging adults who

have higher education levels and are currently employed were less likely to report depressive symptoms in various studies that have been conducted (Copeland et al., 2015; Witt et al., 2021). Lastly, a person's ethnicity, such as nativity (place of birth) and being of Hispanic origin, can have a significant impact on the risk of depressive symptoms. It is important to note that Hispanic origin can refer to several ethnic groups such as Mexican, Mexican-American, Chicano, Puerto Rican, Cuban, among others (Bureau, 2021). Previous research has found that non-U.S.-born Hispanic emerging adults are at an increased risk for depressive symptoms owing to various factors such as discrimination, socioeconomic status, and lack of opportunities due to immigration status (Becerra et al., 2020).

The purpose of this study is to examine both the protective and risk factors prevalent during adolescence and emerging adulthood and their relationship with the incidence of depressive symptoms among this age group using a nationally representative dataset. Exploring both these protective and risk factors can aid healthcare professionals in better understanding which factors of emerging adulthood to focus on in order to develop effective interventions aimed at reducing the incidence of these symptoms among this population (Bulhões et al., 2021; Kwong et al., 2019).

PROTECTIVE FACTORS

Some emerging adults describe emerging adulthood primarily as a positive experience (Arnett, 2007; Hawkins et al., 2009, 2011). After conducting interviews and examining data from studies conducted among emerging adults in the U. S., Arnett argued that emerging adulthood could be a mostly positive experience (Arnett, 2007). In fact, Arnett found that most emerging adults he interviewed reported emerging adulthood as an overall positive experience for them (Arnett, 2007). Most emerging adults felt that their overall well-being improved as they

navigated this developmental stage (Arnett, 2007). With less emphasis placed on traditional adult responsibilities such as marriage, parenthood, long-term employment, and other roles during emerging adulthood, other protective factors common during this period have become the focus of this developmental stage (Hawkins et al., 2011). Other protective factors that have received much attention include increasing self-esteem and different forms of relationships. Emerging adulthood is a period where individuals tend to experience an increase in their self-esteem as they navigate this developmental stage and transition into middle adulthood (Barlett et al., 2020; Hawkins et al., 2009; O'Connor et al., 2011; Wood et al., 2018). Self-esteem typically increases as emerging adults mature and undergo many positive changes during this phase (Orth & Robins, 2019; Wood et al., 2018). These changes include achieving financial independence, developing their sense of self-worth, obtaining employment, and building and maintaining meaningful relationships with their partners, family, friends, and peers (Orth & Robins, 2019; Wood et al., 2018). In addition, this is also a period where emerging adults begin to build and foster long-term and secure relationships with their family and friends (Barlett et al., 2020; Hawkins et al., 2009; O'Connor et al., 2011; Wood et al., 2018).

Self-Esteem

Self-esteem is an essential factor in promoting healthy development. Early scholars have defined self-esteem as an individual's overall positive evaluation of oneself (Holloway, 2016; Rosenberg et al., 1989). Following these earlier scholars, other researchers have defined self-esteem as an individual's perception or subjective appraisal of their self-worth, feelings of self-respect and self-confidence, and the extent to which they hold positive or negative views about themselves (Hogg & Cooper, 2003; Holloway, 2016). Self-esteem can also refer to an individual's evaluation of themselves and their emotional reaction towards themselves.

(Holloway, 2016). Self-esteem recently refers to the way individuals evaluate their various attributes and abilities and how they feel about themselves (Holloway, 2016). Self-esteem develops throughout an individual's life as they transition through multiple stages of their life (Holloway, 2016). Individuals develop self-esteem as early as age 5, and it continues to grow as they enter adolescence (Holloway, 2016). Adolescence is a critical period for self-esteem development as individuals begin to communicate their feelings about themselves, accept responsibility, and realize that they control their behaviors and actions (Holloway, 2016). Self-esteem increases as individuals move from adolescence to adulthood, with individuals reaching higher levels of self-esteem during emerging adulthood (Bleidorn et al., 2016).

Self-esteem serves as an important protective factor against various mental health concerns (Germani et al., 2020). Higher levels of self-esteem serve as a protective factor by helping individuals in multiple areas of their lives, such as aiding an individual's ability to develop competency to maintain healthy relationships, develop a more positive outlook of themselves, and build a social support network (Germani et al., 2020; Moore & Shell, 2017; Orth et al., 2009). For this reason, self-esteem can serve an essential role in reducing the likelihood of mental health concerns such as depressive symptoms (Germani et al., 2020; Moore & Shell, 2017; Orth et al., 2009). Studies have found that emerging adults who reported higher levels of self-esteem were less likely to be at risk for developing mental health concerns typical during this developmental period, such as depressive symptoms, suicidality, and anxiety (Allen et al., 1996; Germani et al., 2020; Hawkins et al., 2011; Moore & Shell, 2017; O'Connor et al., 2011; Orth et al., 2009). These higher levels of self-esteem that are common during emerging adulthood are thus an important protective factor for depressive symptoms among this age group.

Emerging adults also experience an increase in life satisfaction as they navigate through this developmental phase (Switek & Easterlin, 2018). This increase is of interest as life satisfaction is another protective factor that has received much focus from various researchers due to its importance in the positive development of emerging adults (Barlett et al., 2020; Howard et al., 2010; O'Connor et al., 2011; Switek & Easterlin, 2018). Earlier researchers have defined life satisfaction as an individual's overall contentment with life and accomplishments (Diener, 1994). Life satisfaction also includes whether they feel like they have what they want in life (Diener, 1994). Life satisfaction has also been referred to as an individual's assessment of their overall conditions when comparing their current achievements with their life aspirations (Cribb, 2000). More recently, life satisfaction refers to the cognitive and affective evaluations of an individual's life (Karataş et al., 2021).

As emerging adults navigate this developmental stage, they experience major life events. These life events include developing financial stability, gaining independence from their parents, acquiring the skills and knowledge necessary to secure employment, and the formation of new relationships, all of which can increase their life satisfaction (Switek & Easterlin, 2018). This is important as life satisfaction is negatively associated with the development of depressive symptoms among emerging adults (Howard et al., 2010). Emerging adults who felt satisfied with their life were more likely to report a higher quality of life and overall well-being, all of which can influence their mental health (Hawkins et al., 2009). Higher levels of life satisfaction are associated with a decrease in the prevalence of depressive symptoms among emerging adults (Barlett et al., 2020; Hawkins et al., 2005, 2011; O'Connor et al., 2011). In addition, emerging adults with these higher levels of life satisfaction are more likely to be happy and optimistic about their life and less likely to be affected by negative thoughts, all of which can reduce the

risk of depressive symptoms (Koivumaa-Honkanen et al., 2004; Seo et al., 2018). Due to this, life satisfaction can have a significant protective effect against the prevalence of depressive symptoms among this age group (Koivumaa-Honkanen et al., 2004; Seo et al., 2018).

Family-Related Variables

Individuals also begin to build and maintain long-term relationships with their family, friends, and community during this time period. Protective factors related to family factors during this developmental stage include volunteerism in their community, perception of neighborliness, and social support received from their family (Hawkins et al., 2009, 2011; O'Connor et al., 2011). Engaging in these activities can increase emerging adults' overall social support and allow them to form relationships, increase self-confidence, and build connections to foster opportunities for future success (Hawkins et al., 2009, 2011; O'Connor et al., 2011). Emerging adults who engage in at least some of these activities are more likely to report a higher level of life satisfaction, and build and maintain strong social support groups (Hawkins et al., 2009). These protective factors are also associated with a higher likelihood of success and better adaptation to adult roles and responsibilities. These protective factors are associated with an increase in an individual's overall well-being and a decrease in the risk of depressive symptoms (Hawkins et al., 2011).

Volunteerism has been linked to decreased adverse outcomes such as mental health concerns and substance abuse (O'Connor et al., 2011). Volunteerism involves individuals engaging in an activity where they offer their services and aid to others without pay. Individuals who volunteer are more likely to have better mental health, resulting in a lower risk of depressive symptoms (Creaven et al., 2018; Kim & Morgül, 2017; Yeung et al., 2018). Volunteerism involves individuals becoming involved in their community as most volunteering efforts tend to

be community-focused (Creaven et al., 2018; Kim & Morgül, 2017; Yeung et al., 2018). As a result, volunteerism can improve social connectedness among individuals as they become more involved in their community through volunteering (Creaven et al., 2018). Social connectedness is particularly important as it can help individuals build and foster relationships with their peers and community members (Creaven et al., 2018).

Volunteerism is crucial as it can help individuals build and develop their social network (Creaven et al., 2018). In addition, volunteering can assist individuals in developing new skills and improving their professional development, all of which can help foster their personal growth and improve their life satisfaction (Kim & Morgül, 2017; Yeung et al., 2018). Given that higher levels of social connectedness and life satisfaction are associated with decreased depressive symptoms, volunteerism can be a vital protective factor against depressive symptoms (Creaven et al., 2018; Kim & Morgül, 2017; Yeung et al., 2018). Emerging adults might be more likely to volunteer as they are more open to taking the opportunities available to them as they navigate through this developmental phase (Marinica & Negru-Subtirica, 2020). They are also forming their own identities and values during this period, and thus they might be more likely to volunteer if the activities align with their interests (Marinica & Negru-Subtirica, 2020). Volunteerism is important as emerging adults who engage in their community through volunteering in community organizations and other community activities are more likely to report positive outcomes (Hawkins et al., 2009, 2011; O'Connor et al., 2011). These positive outcomes can include higher levels of life satisfaction, a lower likelihood of risky behaviors, and a lower prevalence of depressive symptoms (Hawkins et al., 2009, 2011; O'Connor et al., 2011). Volunteering helps emerging adults foster and build trust in their relationships with others, take responsibilities, and strengthen their attachment to their community and society, which can help

promote personal development (Hawkins et al., 2011). Emerging adulthood is a period where individuals are beginning to form their social networks as well as building and maintaining relationships with peers and others in their community. Thus, volunteering can serve as a pathway for them to strengthen their social connectedness (Arnett, 2014; Creaven et al., 2018; Marinica & Negru-Subtirica, 2020).

In addition to volunteering in their community, neighborliness is another way that emerging adults can build their social network and increase their levels of social connectedness. Neighborliness refers to the social interactions and relationships between neighbors in a community (Aiyer et al., 2020; Beaudoin, 2009; Mann, 1954). Neighborliness includes the positive social interactions and favorable attitudes among neighbors in a community (Aiyer et al., 2020; Beaudoin, 2009; Mann, 1954). Neighborhoods practicing neighborliness are those where neighbors are offering to help each other and maintain positive relationships (Aiyer et al., 2020; Beaudoin, 2009; Mann, 1954). Neighborliness can also include neighbors sharing resources and providing social and emotional support to each other when needed (Aiyer et al., 2020; McDonnell & Sianko, 2021). Building a solid social network and social support due to neighborliness can result in better mental health outcomes among individuals (King et al., 2022; McDonell & Sianko, 2021). In addition, individuals who live in a neighborhood with a higher level of neighborliness are more likely to feel safe and close to their community (King et al., 2022). Individuals who feel comfortable and secure in their neighborhood are more likely to have better mental health outcomes than those who live in communities where they don’t feel comfortable (King et al., 2022; McDonell & Sianko, 2021). Several studies have found that neighborhoods’ higher levels of neighborliness, safety, and closeness among neighbors were associated with an improvement in residents' overall mental health (Kim & Morgül, 2017;

Ludwig et al., 2012, 2013). Higher levels of neighborliness have also been found to be associated with decreased adverse outcomes such as depressive symptoms, substance abuse, and other risky behaviors (O'Connor et al., 2011). Emerging adults who feel safe in their neighborhood, and attached to their neighbors and others in their community are more likely to report positive outcomes during emerging adulthood and are less likely to report depressive symptoms (Hawkins et al., 2009, 2011; O'Connor et al., 2012). Many individuals going through emerging adulthood are experiencing their first time moving away from their family and living on their own (Arnett, 2007; Arnett & Mitra, 2020). Thus, neighborliness can be an important protective factor for their mental health (Arnett, 2007; Arnett & Mitra, 2020). Studies on emerging adults found that higher levels of neighborliness can help improve their mental health outcomes during this developmental period (Hawkins et al., 2009, 2011; King et al., 2022; O'Connor et al., 2012). Neighborhoods with higher levels of neighborliness can provide emerging adults with a supportive environment that can help them cope with challenges that arise during this developmental period (Hawkins et al., 2009, 2011; King et al., 2022; O'Connor et al., 2012).

In addition to becoming more involved with their community and neighborhood, many emerging adults also look to their families for social support. Social support entails the extent to which individuals receive assistance and resources from individuals in their social network (Fasihi Harandi et al., 2017; House et al., 1985; Werner-Seidler et al., 2017). Social support can include emotional support and instrumental support, such as providing advice and other forms of assistance (Fasihi Harandi et al., 2017; Werner-Seidler et al., 2017). Social support can also offer several benefits to individuals who receive it (Fasihi Harandi et al., 2017; Werner-Seidler et al., 2017). Individuals who received social support from their social network are more likely to report better mental health outcomes than those who did not receive any social support (Fasihi

Harandi et al., 2017; Werner-Seidler et al., 2017). Some studies have found that social support was associated with an increase in overall mental health (Alsubaie et al., 2019; O'Connor et al., 2011; Werner-Seidler et al., 2017).

Family social support, in particular, is important for emerging adults as they are more likely to turn to their families for assistance when confronting challenges in emerging adulthood (Johnson et al., 2011). Because emerging adulthood can be a turbulent period for some, having family social support is especially important. Individuals who feel supported by their families are typically better equipped at handling stressful situations and mental health concerns that they encounter (Arnett, 2014; Johnson et al., 2011). It has been found that individuals who felt supported by their family were less likely to display higher stress levels than those who had no family social support (Finan et al., 2018; Johnson et al., 2011; Salmela-Aro et al., 2008). In addition, family social support is significantly associated with depressive symptoms (Germani et al., 2020). Emerging adults who felt supported by their family during adolescence and emerging adulthood are less likely to develop depressive symptoms and more likely to seek support for mental health concerns (Finan et al., 2018; Germani et al., 2020; Mondi et al., 2017; O'Connor et al., 2011). Family support also helps emerging adults develop healthy, longer-lasting relationships, which can act as a buffer against the development of depressive symptoms (Finan et al., 2018; Germani et al., 2020; Mondi et al., 2017; O'Connor et al., 2011). Emerging adults who did not feel supported by their families are more likely to become socially withdrawn and unsatisfied with life, all of which can contribute to the development of depressive symptoms (Germani et al., 2020; Salmela-Aro et al., 2008).

RISK FACTORS

While emerging adulthood can be a period of personal and professional growth for most individuals as they navigate through this developmental stage, they also face a higher likelihood of exposure to risk factors and risky behaviors, which can result in different adverse outcomes. This exposure to risk factors and risky behaviors may be a reason why emerging adults have an increased likelihood of developing depressive symptoms compared to other age groups (Salmela-Aro et al., 2008: Barlett et al., 2020). It has also been postulated that emerging adults have a higher prevalence of engaging in these behaviors than individuals in other age groups as their brains are still developing (Schwartz & Petrova, 2019). Previous evidence has shown that regions of the brain associated with desires and impulsivity are more developed for emerging adults than regions of the brain associated with reasoned problem solving and decision making (Schwartz & Petrova, 2019). As a result, emerging adults are more likely to act impulsively and less likely to think about how engaging in risky behaviors might affect their overall life (Schwartz & Petrova, 2019). In addition, they are more open to engaging in risky behavior due to their freedom from other obligations such as marriage, parenthood, and long-term employment (Schwartz & Petrova, 2019). Emerging adults struggling to navigate through this developmental period might also be more likely to engage in this risky behavior (Schwartz & Petrova, 2019). Emerging adulthood is a developmental period where risky behaviors such as binge drinking, illicit drug use, and criminal behaviors are the most common (Arnett, 2000, 2007; Sussman & Arnett, 2014). For this reason, it is crucial to discuss the various risk factors prevalent throughout this period.

Criminal Engagement

Criminal engagement encompasses various antisocial behaviors such as a history of violence and other criminal behavior (i.e., arrests or convictions involving the use of weapons, theft, or damage of other's property) (Yu et al., 2017). Some studies found that emerging adults with a history of criminal engagement are more likely to suffer from mental health concerns such as depressive symptoms (Jun et al., 2019; Mondi et al., 2017; Vermeiren, 2003; Yu et al., 2017). Of particular concern are emerging adults who are incarcerated or had a history of arrest as they are the most susceptible to developing depressive symptoms (Grisso et al., 2005; Yu et al., 2017). These studies also found that prior engagement in violent acts could predict the development of depressive symptoms among emerging adults as they navigated through this period (Jun et al., 2019; Mondi et al., 2017; Yu et al., 2017).

Criminal engagement can thus significantly impact the lives of emerging adults who engage in criminal acts (Barnert et al., 2017). Specifically, individuals with a history of criminal engagement are less likely to complete critical developmental milestones such as finishing their education, finding employment, and becoming financially independent (Barnert et al., 2017). The inability to achieve these critical developmental milestones due to criminal engagement can result in them reporting lower levels of life satisfaction, thereby increasing their risk of depressive symptoms (Barnert et al., 2017; Mondi et al., 2017). In addition, individuals with a history of criminal engagement are also less likely to have a solid social network and adequate social support due to the stigma associated with involvement in criminal behavior (Barnert et al., 2017; Mondi et al., 2017; Yu et al., 2017). Individuals with a history of criminal engagement are more likely to be shunned by their peers and community (Barnert et al., 2017; Mondi et al., 2017; Yu et al., 2017). Thus, they may experience social isolation, which increases their risk of

depressive symptoms (Barnert et al., 2017; Mondi et al., 2017; Yu et al., 2017). Individuals currently suffering from depressive symptoms might be at a higher risk for criminal engagement (Barnert et al., 2017). Individuals might commit criminal acts to cope with the negative emotions that stem from these depressive symptoms (Barnert et al., 2017). Thus, criminal histories can be a risk factor among emerging adults. In addition to an increased risk for depressive symptoms, emerging adults who participated in criminal behavior were less likely to be satisfied with their lives or have a positive outlook on life (Wood et al., 2018).

Substance Use

In addition to criminal engagement, substance use is another risk factor associated with adverse outcomes such as depressive symptoms among emerging adults. Substance use can entail behavior such as binge drinking, where individuals consume five or more alcoholic drinks in two hours on at least one day in the past month (National Institute on Alcohol Abuse and Alcoholism, *2020*; Orui et al., 2021). Substance use can also entail the usage of illicit drugs such as marijuana, heroin, and cocaine (Kim et al., 2019; Walters et al., 2018). It is important to note that substance use tends to peak during emerging adulthood, as seen by how emerging adults have the highest prevalence of substance abuse among adults (Esmaeelzadeh et al., 2018; Jun et al., 2019). It has been found that 38.4% of emerging adults have engaged in some form of substance abuse compared to 24.2% of adults over the age of 25 (Esmaeelzadeh et al., 2018; Jun et al., 2019). This higher prevalence of substance abuse among emerging adults is of concern (Esmaeelzadeh et al., 2018; Jun et al., 2019) as it can lead to short- and long-term challenges, including mental health and behavioral concerns and lower socioeconomic status (Esmaeelzadeh et al., 2018; Jun et al., 2019). Individuals who engage in substance abuse are more likely to fail at completing critical developmental milestones such as finishing their education and obtaining

long-term employment (Jun et al., 2019; Schuler et al., 2015). In addition, individuals who engage in substance abuse are less likely to have a strong social network and are more likely to be socially isolated from their family, friends, and peers (Jun et al., 2019; Schuler et al., 2015). Substance abuse typically results in addictive, destructive behavior for individuals who engage in it, causing them to ignore their responsibilities such as their education, employment, and relationships with others (Esmaeelzadeh et al., 2018; Jun et al., 2019). Individuals who struggle to complete these critical developmental milestones and form long-lasting, meaningful relationships due to substance abuse are more likely to report lower levels of life satisfaction and mental health concerns (Esmaeelzadeh et al., 2018; Jun et al., 2019). Several studies have found that binge drinking is associated with increased depressive symptoms among emerging adults (Jun et al., 2019; Schuler et al., 2015, 2017; Wilkinson et al., 2016; Wood et al., 2018). In addition, studies have also found that emerging adults who participate in illicit drug use, which includes marijuana and other drugs, are more likely to develop depressive symptoms (Schuler et al., 2015; Wilkinson et al., 2016; Wood et al., 2018). Emerging adults are more susceptible to engaging in substance abuse for various reasons. Emerging adults have fewer personal obligations as many pursue tertiary education and undertake short-term employment opportunities (Fitzgerald & Puttler, 2018). Thus, they are more inclined to engage in substance use as they have fewer social norms and pressure to adhere to (Fitzgerald & Puttler, 2018). In addition, many emerging adults are more open to the use of illicit substances such as drugs and alcohol as they tend to have more positive attitudes toward these substances compared to other age groups (Fitzgerald & Puttler, 2018). As a result, emerging adults might be more willing to experiment with these various substances, potentially leading to substance abuse among some (Arnett, 2016; Wood et al., 2018). It is also important to note that emerging adults suffering

from depressive symptoms might be more likely to engage in substance use to cope with these symptoms (Schubert et al., 2017). Engaging in substance use to cope with these depressive symptoms can increase their severity (Schubert et al., 2017). For this reason, it is important to look at substance use as a risk factor for depressive symptoms among emerging adults. Figure 5 summarizes the protective and risk factors related to depressive symptoms among emerging adults in this study.

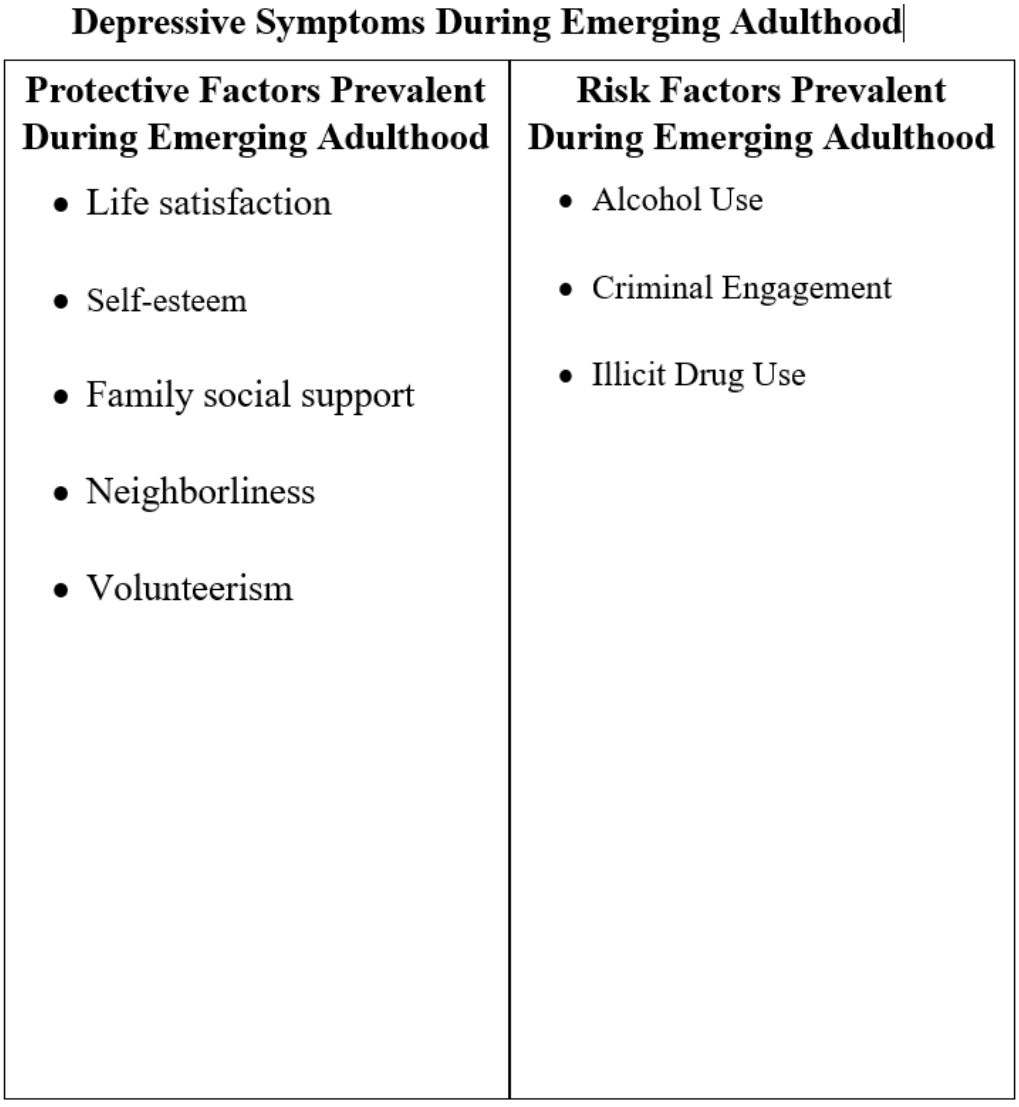

Figure 5. Framework for Protective and Risk Factors Related to Depressive Symptoms Among Emerging Adults

HYPOTHESES

Given the literature based on the protective and risk factors prevalent during adolescence and emerging adulthood and their impact on depressive symptoms, several hypotheses were proposed:

Depressive symptoms during adolescence

H_1: Emerging adults with a history of depressive symptoms during adolescence would report a higher prevalence of depressive symptoms during emerging adulthood.

Self-esteem related variables

H_2: Emerging adults who felt satisfied with life would report a lower prevalence of depressive symptoms during emerging adulthood compared to those who were not satisfied with life.

H_3: Emerging adults who felt that they had many good qualities would report a lower prevalence of depressive symptoms during emerging adulthood compared to those who felt they didn't have many good qualities.

Family-related Variables

H_4: Emerging adults who felt that they received social support from their families during adolescence would report a lower prevalence of depressive symptoms during emerging adulthood.

Neighborhood-related Variables

H_5: Emerging adults who felt that people looked out for each other in their community would report a lower prevalence of depressive symptoms during emerging adulthood compared to those who felt that people didn't look out for each other in their community.

H_6: Emerging adults who felt safe in their neighborhood would report a lower prevalence of depressive symptoms during emerging adulthood compared to those who did not feel safe in their neighborhood.

H_7: Emerging adults who participated in volunteering would report a lower prevalence of depressive symptoms during emerging adulthood compared with their counterparts who didn't.

Risk Factors

H_8: Emerging adults who engaged in criminal activities would report a higher prevalence of depressive symptoms during emerging adulthood.

H_9: Emerging adults who used alcohol would report a higher prevalence of depressive symptoms during emerging adulthood.

H_{10}: Emerging adults who engaged in illicit drug use would report a higher prevalence of depressive symptoms during emerging adulthood.

Sociodemographic Variables

H_{11}: Male emerging adults would report a lower prevalence of depressive symptoms during emerging adulthood compared to their female counterparts.

H_{12}: Emerging adults who were currently employed would report a lower prevalence of depressive symptoms during emerging adulthood compared to those who were not currently employed.

H_{13}: Emerging adults who obtain a high school degree/GED would report a lower prevalence of depressive symptoms during emerging adulthood compared to their counterparts who didn't.

H_{14}: U.S.-born emerging adults would report a lower prevalence of depressive symptoms during emerging adulthood compared to those who were not U.S.-born.

H_{15}: Older emerging adults would report a lower prevalence of depressive symptoms during emerging adulthood.

H_{16}: Hispanic emerging adults would report a higher prevalence of depressive symptoms during emerging adulthood compared to those who were not Hispanic.

METHODS

The data for this study came from the Add Health study, also known as "The National Longitudinal Study of Adolescent to Adult Health," a longitudinal study of a nationally representative sample of over 20,000 adolescents in grades 7-12. The respondents were recruited during the 1994-95 school year and followed for five waves, with the latest occurring in 2016-18 (Harris et al., 2019). The dataset was made available through the Inter-university Consortium for Political and Social Research (ICPSR). This organization provides access to the archive of social science data for researchers (ICPSR, 2019). Respondents for this study were recruited from 145 middle, junior, and high schools across the U.S. Respondents completed an in-school questionnaire and an-in home interview (Harris et al., 2019). Parental consent was obtained through two methods, depending on the schools participating in the study (Harris et al., 2019). Specifically, most schools used passive consent forms, which assumed that parents granted permission for their child unless the form was returned with a signature that indicated otherwise (Harris et al., 2019). Some schools used active consent forms, which required parents to sign a form to let their child participate in the study (Harris et al., 2019). Adolescents gave written informed consent before participating in the in-home interview (Harris et al., 2019).

This dataset was well-suited for this study as it contains information regarding their mental health, sociodemographic characteristics, and variables related to protective factors and risk factors. This dataset also contains information on emerging adults who have fully navigated through emerging adulthood. This study examined the relationship between the protective and risk factors prevalent during adolescence and emerging adulthood and their depressive symptoms in emerging adulthood among respondents from Generation X and Y. Data analyses for this study used data collected during Wave 2 and Wave 3 (n= 3,831). Wave 2 data were collected in

1996 while they were in adolescence, while wave 3 data were collected in 2001-2002 while they were in their emerging adulthood (aged 18-26 years) (Harris et al., 2019). This study was exempted from UTEP Institutional Review Board (IRB Study Protocol No. 1670644-2). Table 1 shows a description of variables in the analyses for this study. Table 2 shows the descriptive statitistics for the variables in this study.

Table 1. Description of variables in analyses:

Variables	**Sample Items**	**Response Format**	**Alpha**
Dependent variable			
Depressive symptoms, W_3	1.You could not shake off the blues, even with help from your family and your friends, during the past seven days. 2.You were bothered by things that usually don't bother you. 3.You had trouble keeping your mind on what you were doing, during the past seven days. 4.You were too tired to do things, during the past seven days. 5.You were sad, during the past seven days. 6.You felt that people disliked you, during the past seven days.	4-point Likert response scale ranging from "never or rarely" to "most of the time or all of the time"	0.74
Mental health variable			
Depressive symptoms, W_2	1.You could not shake off the blues, even with help from your family and your friends, during the past seven days. 2.You were bothered by things that usually don't bother you. 3.You had trouble keeping your mind on what you were doing, during the past seven days. 4.You were too tired to do things, during the past seven days.	4-point Likert response scale ranging from "never or rarely" to "most of the time or all of the time"	0.76

	5.You were sad, during the past seven days. 6.You felt that people disliked you, during the past seven days.		
Protective Factors			
<u>Self-esteem related variables</u>			
Satisfied with life, W_3	Recoded from "How satisfied are you with your life as a whole?"	0 = "very dissatisfied," "dissatisfied," and "neither dissatisfied nor satisfied;" 1 = "satisfied" and "very satisfied"	NA
Had many good qualities, W_3	Recoded from" Do you agree or disagree that you have many good qualities?"	0 = "neither agree nor disagree," "disagree," and "strongly disagree;" 1 = "agree" and "strongly agree"	NA
<u>Family related variable</u>			
Family social support, W_2	1. How much do you feel that people in your family understand you? 2. How much do you feel that you and your family have fun together? 3. How much do you feel that your family pays attention to you?	5-point Likert response scale ranging from "not at all" to "very much"	0.79
<u>Neighborhood related variables</u>			
People looked out for each other, W_2	People in this neighborhood look out for each other.	0 = False; 1 = True	NA
Felt safe in neighborhood, W_2	Do you usually feel safe in your neighborhood?	0 = No; 1 = Yes	NA
Participated in volunteering, W_3	During the last 12 months did you perform any unpaid volunteer or community service work?	0 = No; 1 = Yes	NA
Risk Factors			
<u>At-risk variables</u>			
Criminal engagement, W_3	1. In the past 12 months, how often did you deliberately	4-point Likert response scale	0.73

	damage property that didn't belong to you? 2. In the past 12 months, how often did you steal something worth more than $50? 3. In the past 12 months, how often did you go into a house or building to steal something? 4. In the past 12 months, how often did you steal something worth less than $50? 5. In the past 12 months, how often did you buy, sell, or hold stolen property?	ranging from "never" to "5 or more times"	
Alcohol use, W_3	During the past 12 months, on how many days did you drink alcohol?	Number of days	NA
Illegal drug use, W_3	In the past year, have you used any of these types of illegal drugs?	0 = No; 1 = Yes	NA
<u>Sociodemographic variables</u>			
Male	Respondent's gender	1 = Male; 2 = Female	NA
High school graduate/GED	Recoded from "What is the highest grade or year of regular school you have completed?"	0 = 6^{th} grade, 7^{th} grade, 8^{th} grade, 9^{th} grade, 10^{th} grade, 11^{th} grade; 1 = 12^{th} grade, 1 year of college, 2 years of college, 3 years of college, 4 years of college, 5 or more years of college, 1 year of graduate school, 2 years of graduate school, 3 years of graduate, 4 years of graduate school, and 5 or more years of graduate school	NA
Currently employed	Are you currently working for pay for at least 10 hours a week?	0 = No; 1 = Yes	NA
U.S. born	Were you born in the United States?	0 = No; 1 = Yes	NA

Age (in years)	Calculated age at the time of the interview	Age in years	NA
Hispanic origin	Are you of Hispanic or Latino origin?	0 = No; 1 = Yes	NA

Table 2. Descriptive statistics:

Variables	**Min**	**Max**	**Mean**	**SD**	**%(n)**
Dependent variable					
Depressive symptoms, W_3	6	23	8.90	2.69	
Mental health variable					
Depressive symptoms, W_2	6	24	9.41	2.85	
Protective factors					
Self-esteem related variables					
Satisfied with life, W_3	0	1	0.85	0.36	84.70(3,243)
Had many good qualities, W_3	0	1	0.96	0.19	96.11(3,677)
Family related variable					
Family social support, W_2	3	15	11.30	2.54	
Neighborhood related variables					
People looked out for each other, W_2	0	1	0.74	0.44	74.02(2,800)
Felt safe in neighborhood, W_2	0	1	0.90	0.30	89.74(3,430)
Participated in volunteering, W_3	0	1	0.30	0.46	29.90(1,141)
Risk factors					
At-risk variables					
Criminal engagement, W_3	0	15	0.36	1.15	
Alcohol use, W_3	0	6	2.20	1.76	
Illegal drug use, W_3	0	1	0.09	0.29	9.34(352)
Sociodemographic variables					
Male	0	1	0.46	0.50	45.91(1,759)
High school graduate/GED	0	1	0.87	0.34	86.78(3,322)
Currently employed	0	1	0.72	0.45	71.99(2,585)
U.S. born	0	1	0.95	0.22	95.09(3,643)
Age (in years)	18	25	21.41	1.6	
Hispanic origin	0	1	0.11	0.31	11.01(421)

Dependent Variable

Depressive symptoms during emerging adulthood measured the frequencies and prevalence of depressive symptoms experienced by respondents in the week prior to the data collection, using a 4-point Likert response scale ranging from “never or rarely” to “most of the time or all of the time.” The variable was constructed by summing the response scores from six survey items to assess their depressive symptoms during emerging adulthood. The Cronbach’s alpha from the reliability test was 0.74 (range of scale = 6-23). Survey items were selected based on the results from the factor analysis.

Independent Variables

Depressive symptoms during adolescence

Depressive symptoms during adolescence indicated the frequencies and prevalence of depressive symptoms experienced by the respondents during the past week prior to the data collection, using a 4-point Likert response scale ranging from "never or rarely" to "most of the time or all of the time." The variable was constructed by summing the response scores from six survey items that measured depressive symptoms during adolescence. The reliability test indicated a Cronbach’s alpha of 0.76. This variable was constructed as a control variable to ensure that the effects of the other independent variables were related to the respondents’ depressive symptoms in emerging adulthood rather than the respondents’ previous history of depressive symptoms (range of scale values = 6-24).

Self-esteem related variables

Two variables were used as proxies to examine respondents’ self-esteem during emerging adulthood. First, a variable which measured life satisfaction was dichotomized where those who indicated that they were “satisfied” or “very satisfied” with life were coded as 1, while those who

indicated that they were “very dissatisfied,” “dissatisfied,” or “neither satisfied nor dissatisfied” with life were coded as 0. Approximately 84.70% of the respondents indicated that they felt satisfied with life as a whole. Next, another variable which examined whether respondents felt like they had many good qualities was dichotomized where those who indicated they “agree” or “strongly agree” were coded as 1, while those who indicated that they “neither agreed or disagreed,” “disagreed,” or “strongly disagreed” were coded as 0. Approximately 96.11% of the respondents agreed that they had many good qualities.

Family-related variable

Family social support indicated the levels and types of social support respondents received during adolescence from their families, using a 5-point Likert response scale ranging from "not at all" to "very much.” The variable was constructed by summing the response scores from three survey items that assessed family social support. The reliability test indicated an alpha Cronbach of 0.79 (range of the scale values = 3-15). Items were selected based on the results from the factor analysis.

Neighborhood related variables

Three variables examined respondents’ attachment and familiarity with their neighborhood and how active they remained in their community. First, a variable was created to examine if the respondents felt like people looked out for each other in their neighborhood. This was a dichotomous variable where respondents who felt that people in their neighborhood looked out for each other were coded as 1, while those who did not feel that way were coded as 0. Approximately 74.02% of the respondents felt that people in their neighborhood looked out for each other. Next, a variable that examined whether respondents felt safe in their neighborhood was created where respondents who felt safe in their neighborhood were coded as 1, while those

who did not feel safe were coded as 0. Approximately 89.74% of the respondents felt safe in their neighborhood. Lastly, a variable that examined whether respondents participated in volunteering was created. This was a dichotomous variable where respondents who indicated that they had performed any unpaid volunteer or community service work during the past year were coded as 1, while those who had not performed any unpaid volunteer or community service work were coded as 0. Approximately 29.90% of the respondents had performed unpaid volunteer or community service work in the last 12 months.

Risk factors

Three variables that examined the risk factors for the respondents in their emerging adulthood were included in this study. First, a variable that indicated the prevalence and types of criminal acts committed over the past 12 months at the time the data were collected, using a 4-point Likert response scale ranging from "never" to "5 or more times." The variable was constructed by summing the response scores from the five survey items that assessed criminal engagement. Cronbach's alpha of this variable was 0.73 (range of the scale values = 0-15). Next, a variable that measured the number of days respondents drank alcohol during the past 12 months was created (range = 0-6). Lastly, illicit drug use indicated whether or not respondents had used any illicit drugs during the past year. Respondents who had used illicit drugs in the past year were coded as 1, while those who had not used were coded as 0. Approximately 9.34% of respondents had used illicit drugs in the past year.

Sociodemographic variables

Males were coded as 1, while females were coded as 0. Approximately 45.91% were male. Respondents were also asked to indicate their educational attainment. High school graduates/GED holders were coded as 1, while those who had neither were coded as 0. This

variable was dichotomized where those who indicated that the highest education they had completed was between "12th grade" to "5 or more years of graduate school" were coded as 1, while those who had only completed between "6th grade" to "11th grade" were coded as 0. Approximately 86.78% of the respondents had graduated from high school or obtained a GED. Respondents were also asked whether they were currently employed at the time of the study. This variable was dichotomized where those who indicated that they were currently working for pay for at least 10 hours a week were coded as 1, and those who did not were coded as 0. Approximately 71.99% of the respondents were currently employed at the time of the study. Further, US-born respondents were coded as 1, while non-U.S.-born respondents were coded as 0. Approximately 95.09% of the respondents were U.S.-born. The age variable measured in years was also included in the data analyses (range = 18-25 years). Lastly, respondents of Hispanic origin were coded as 1, while non-Hispanic origin respondents were coded as 0. Approximately 11.01% of the respondents were of Hispanic origin.

Analytical approach

This study utilized multiple regression with Full Information Maximum Likelihood as the estimation procedure to test the hypotheses proposed. The data analyses were conducted on Stata, version 16. Multiple regression was used to examine the relationship between the dependent and an independent variable while controlling for the effect of other independent variables. The mental health and family-related factors were measured during their adolescence (Wave 2). The self-esteem-related variables and other risk factors were measured during their emerging adulthood (Wave 3). Some of the neighborhood-related factors were measured during adolescence (i.e., people looked out for each other, felt safe in neighborhood), and some were measured during their emerging adulthood (i.e., participated in volunteering). Depressive

symptoms (dependent variable) were measured during their emerging adulthood. Table 3 shows the results of the multiple regression analyses with depressive symptoms during emerging adulthood as a dependent variable.

RESULTS

Table 3. Multiple regression analyses with depressive symptoms during emerging adulthood as the dependent variable:

Variables	B		SE	ß	95% CI		
Intercept	11.000	*	(0.673)	4.081	9.680	-	12.319
Mental health variable							
Depressive symptoms, W_2	0.255	*	(0.015)	0.269	0.225	-	0.284
Protective Factors							
Self-esteem related variables							
Satisfied with life, W_3	-2.052	*	(0.112)	-0.274	-2.271	-	-1.832
Had many good qualities, W_3	-0.974	*	(0.201)	-0.070	-1.368	-	-0.580
Family related variable							
Family social support, W_2	0.006		(0.017)	0.006	-0.026	-	0.039
Neighborhood related variables							
People looked out for each other, W_2	-0.235	*	(0.091)	-0.038	-0.414	-	-0.056
Felt safe in neighborhood, W_2	-0.366	*	(0.132)	-0.041	-0.624	-	-0.108
Participated in volunteering, W_3	-0.055		(0.086)	-0.009	-0.224	-	0.114
Risk Factors							
At-risk variables							
Criminal engagement, W_3	0.134	*	(0.036)	0.057	0.063	-	0.206
Alcohol use, W_3	0.048	*	(0.023)	0.031	0.002	-	0.094
Illegal drug use, W_3	-0.066		(0.141)	-0.007	-0.344	-	0.211
Sociodemographic variables							
Male	-0.501	*	(0.081)	-0.093	-0.661	-	-0.342
High school graduate/GED	-0.248	*	(0.117)	-0.031	-0.477	-	-0.018
Currently employed	0.046		(0.090)	0.008	-0.130	-	0.223
U.S. born	0.069		(0.185)	-0.006	-0.293	-	0.431
Age (in years)	-0.056	*	(0.025)	-0.033	-0.104	-	-0.008
Hispanic origin	0.248	*	(0.128)	0.029	-0.003	-	0.498
R-Squared	0.232						

Source: Source: National Longitudinal of Adolescent to Adult Health Study (Wave 2 and 3)
* refers to $p < 0.05$

N = 3,831

Depressive symptoms during adolescence

Respondents who indicated that they experienced depressive symptoms during adolescence were more likely to report depressive symptoms during emerging adulthood (B = 0.255, $p<0.05$).

Self-esteem related factors

Respondents who indicated that they were satisfied with life (B= -2.052, $p<0.05$) and felt that they had many good qualities (B= -0.255, $p<0.05$) were less likely to report depressive symptoms during emerging adulthood compared to those who indicated that they were not satisfied with life and did not feel like they had many good qualities.

Family-related factors

Family social support during adolescence was not significantly associated with depressive symptoms during emerging adulthood.

Neighborhood related factors

Respondents who felt that people in their neighborhood looked out for each other (B= -0.235, $p<0.05$) and felt safe in their neighborhood (B= -0.366, $p <0.05$) were less likely to report depressive symptoms during emerging adulthood compared to those who felt that people in their neighborhood did not look out for each other and did not feel safe in their neighborhood. Participation in volunteering in their community was not significantly associated with depressive symptoms during emerging adulthood.

Risk factors

Respondents who indicated that they had engaged in criminal acts in the past were more likely to report depressive symptoms during emerging adulthood (B= 0.134, $p<0.05$). Drinking alcohol was positively related to depressive symptoms during emerging adulthood (B=0.048,

p<0.05). Illegal drug use was not significantly associated with depressive symptoms during emerging adulthood.

Sociodemographic factors

Male respondents (B= -0.501, p<0.05) were less likely to report experiencing depressive symptoms during emerging adulthood than females. Respondents who were either high school graduates or GED holders (B= -0.248, p<0.05) were less likely to report experiencing depressive symptoms during emerging adulthood compared to their counterparts who were not high school graduates or GED holders. Age was negatively related to depressive symptoms during emerging adulthood (B= -0.056, p<0.05). Respondents who indicated that they were of Hispanic origin (B= 0.248, p<0.05) were more likely to report experiencing depressive symptoms during emerging adulthood compared to non-Hispanic respondents. Being currently employed and U.S.-born were not significantly associated with depressive symptoms during emerging adulthood.

Depressive symptoms during emerging adulthood

Collectively, the independent variables including the protective factors, risk factors, and sociodemographic variables in the model explained 23.2% of the variance in depressive symptoms during emerging adulthood ($R^2 = 0.232$)

DISCUSSION

This study examined protective and risk factors during adolescence and emerging adulthood and their influence on depressive symptoms among emerging adults. Several hypotheses for this study were supported. Emerging adults who felt satisfied with life (H_2) and had many good qualities (H_3) were less likely to report depressive symptoms. In addition, emerging adults who felt that people in their community looked out for each other (H_5) and felt safe in their neighborhood (H_6) were also less likely to report depressive symptoms. Emerging

adults who had engaged in criminal acts (H_8) and alcohol use (H_9) were more likely to report depressive symptoms. Males were less likely to report depressive symptoms (H_{11}). Emerging adults who had obtained a high school diploma or completed their GED were also less likely to report depressive symptoms (H_{13}). Lastly, emerging adults who were older were less likely to experience depressive symptoms (H_{15}). Hispanic emerging adults were more likely to report depressive symptoms during this period (H_{16}).

Depressive symptoms during adolescence

Consistent with previous studies, having depressive symptoms during adolescence were associated with having depressive symptoms during emerging adulthood (H_1) (Angold et al., 2002; Ferro et al., 2015; Patton et al., 2014; Twenge & Nolen-Hoeksema, 2002). Having mental health concerns such as depressive symptoms during adolescence can influence and predict the reoccurrence of these symptoms, especially during emerging adulthood. Previous studies have found that emerging adults suffering from depressive symptoms were likely to have suffered an earlier episode during their adolescent years, with more than 60% of adolescents suffering from depressive symptoms likely to suffer another episode during their emerging adulthood (Johnson et al., 2018; Moffitt et al., 2007; Patton et al., 2014). Adolescents with a history of depressive symptoms can struggle with persistent mental health concerns as they transition into emerging adulthood. Thus, addressing these symptoms during an individual's earlier years may reduce the impact these symptoms can have on their overall mental health during emerging adulthood (Ssegonja et al., 2019). Emerging adults with a previous history of depressive symptoms might be more susceptible to engaging in substance abuse and criminal behaviors than those with no prior history of depressive symptoms (Arnett, 2016; Ssegonja et al., 2019). During this period, they might also struggle to complete milestones necessary for personal growth and development,

such as forming meaningful relationships, succeeding in academic and employment endeavors, and successfully transitioning into middle adulthood (Arnett, 2016; Ssegonja et al., 2019). Thus, emerging adults suffering from depressive symptoms at an earlier stage of their life might be more susceptible to adverse outcomes during emerging adulthood.

Self-esteem related factors

This study highlighted two self-esteem-related factors that were negatively linked to depressive symptoms among emerging adults. First, life satisfaction was associated with decreasing depressive symptoms among emerging adults (H_2) (Dwivedi & Rastogi, 2016; Fergusson et al., 2015; Lombardo et al., 2018; Strine et al., 2008). Life satisfaction has been one of the most effective protective factors against depressive symptoms (Lombardo et al., 2018). Respondents who felt satisfied with their lives might be better equipped at handling the volatility that characterized this period (Dwivedi & Rastogi, 2016; Lombardo et al., 2018). Emerging adults typically tend to be more positive and optimistic about their current status in life (Dwivedi & Rastogi, 2016; Lombardo et al., 2018). As a result, they are more likely to deal with the setbacks that can occur during this period (Dwivedi & Rastogi, 2016; Lombardo et al., 2018). They will also experience better mental health outcomes (Dwivedi & Rastogi, 2016; Lombardo et al., 2018). It is important to examine whether respondents with higher life satisfaction are those who successfully transitioned through this period. The relationship between life satisfaction and depressive symptoms can be bidirectional (Fergusson et al., 2015). That is, respondents suffering from depressive symptoms might be more likely to report lower levels of life satisfaction and vice versa (Fergusson et al., 2015). Recent studies have found that individuals with depressive symptoms were more likely to report lower levels of life satisfaction compared to those without any symptoms (Gao et al., 2019; Gigantesco et al., 2019). Thus,

interventions should focus on increasing life satisfaction among emerging adults to reduce the impact that depressive symptoms could have on their lives. Recent interventions have used mediums such as social media or interventions such as mindfulness-based stress reduction techniques to increase emerging adults' self-esteem and life satisfaction (Chi et al., 2018; Ridout & Campbell, 2018). Therefore, the use of these kinds of interventions among emerging adults should be considered.

This study also found that self-esteem was associated with a decrease in depressive symptoms among emerging adults (H_3), a finding which is consistent with previous studies (Germani et al., 2020; Mossakowski, 2015; Steinhausen et al., 2007). Respondents with higher levels of self-esteem were more likely to explore the various opportunities available to them as they navigate through emerging adulthood (i.e., new employment opportunities, new relationships, different educational options) (Germani et al., 2020; Mossakowski, 2015). In addition, they are more likely to feel confident about themselves and their progress as they navigate through this developmental stage, which decreases their risk for depressive symptoms (Germani et al., 2020; Mossakowski, 2015). They are also less likely to question their self-worth and isolate themselves from others, decreasing their risk for depressive symptoms (Germani et al., 2020; Mossakowski, 2015). It is also important to note that self-esteem tends to increase for emerging adults as they age and navigate through this phase (Germani et al., 2020; Mossakowski, 2015). Higher self-esteem levels can also act as a buffer to decrease the severity of depressive symptoms in depressed individuals (Hilbert et al., 2019). Self-esteem levels in depressed individuals can affect their self-preservation and suicidality, and thus improving self-esteem in this age group can improve their outcomes (Kunikata et al., 2016). Several interventions focused on increasing self-esteem among depressed individuals have successfully

reduced the severity of their symptoms and improved their mental health outcomes (Hilbert et al., 2019; Kunikata et al., 2016). These interventions successfully used group-based cognitive behavioral therapy strategies to enhance an individual's self-esteem (Hilbert et al., 2019; Kunikata et al., 2016). Overall, this study showcased the importance of self-esteem as a protective factor against depressive symptoms among emerging adults.

Family-related factors

Contrary to previous studies (Cano et al., 2020; Ioannou et al., 2019; Martínez-Hernáez et al., 2016; Pössel et al., 2018), family social support was not associated with depressive symptoms among emerging adults in this study (H_4). A possible explanation for this result is that this study focused mainly on respondents' relationships with their families during adolescence. While family social support is vital for emerging adults, it is important to note that many move away from their families and begin to establish their independence from parental authority. For this reason, in addition to family social support, other forms of social support might start to influence the respondents' mental health. Previous studies have found that social support from friends, peers from school, and nonparental adults such as teachers, in addition to family support, exert a protective effect on the prevalence of depressive symptoms among emerging adults (Bronfenbrenner & Morris, 2006; O'Connor et al., 2011 Pössel et al., 2018). Given that emerging adults spend most of their time around school peers, friends, teachers, and family, it is important to examine the impact of social support from all these various groups (Park et al., 2014). Therefore, examining social support among these various groups might provide a greater understanding of their effect on depressive symptoms during emerging adulthood (Park et al., 2014).

Neighborhood related factors

This study found that neighborhood-related factors, such as feelings of safety (H_6) and attachment to the community (H_5), were associated with depressive symptoms among emerging adults. These findings support similar findings in previous studies (Assari et al., 2015; Barr, 2018; Goldstein et al., 2019; Solmi et al., 2017). During emerging adulthood, many emerging adults are moving away from their family home for the first time in their lives. Thus, their new neighborhood environment can significantly impact their overall mental health (Barr, 2018; Goldstein et al., 2019). Respondents who live in a neighborhood where they feel connected to their neighbors are more likely to obtain the support needed to cope with mental health concerns they encounter and, as a result, are less likely to experience depressive symptoms (Barr, 2018; Goldstein et al., 2019). In addition, respondents who live in a neighborhood where they feel safe are less likely to be stressed and less likely to report mental health problems (Barr, 2018; Goldstein et al., 2019). Given that emerging adulthood can be a stressful period for many individuals, a supportive neighborhood environment can serve as a buffer for the adverse outcomes during this period (Barr, 2018; Goldstein et al., 2019; Solmi et al., 2017). Further research and interventions to decrease mental health concerns among emerging adults should look at how individuals' neighborhood environment can affect their transition during emerging adulthood.

While other studies have found a significant association between volunteerism and depressive symptoms, the current study did not find a significant association between them (H_7) (Hawkins et al., 2009; Hawkins et al., 2011). A possible explanation is that respondents only reported whether they had participated in any form of volunteering in the past 12 months. In addition, previous studies have found that the type of volunteering an individual engages in can

have different effects on their overall mental health (Fujiwara et al., 2018; Ripamonti et al., 2017; Wicker & Downward, 2020). For example, volunteer activities that involved an individual having a more visible, active role in their community, such as hosting community events or providing support to community events, were associated with an increase in overall well-being and a decrease in mental health concerns (Wicker & Downward, 2020). Conversely, volunteering activities that involved individuals having a less visible role, such as administrative positions, were less likely to help increase their overall well-being and mental health (Wicker & Downward, 2020). In addition, volunteering activities in high-stress settings such as hospices or hospitals might negatively impact some individuals' overall well-being and mental health due to the stress and emotional cost involved with these activities (Fujiwara et al., 2018; Ripamonti et al., 2017). Therefore, it is crucial to examine the types of volunteering individuals participated in as different types of volunteering activities can have varying effects on an individual's risk for mental health concerns, such as depressive symptoms.

Risk factors

Consistent with past studies, emerging adults who engage in criminal acts were more likely to report depressive symptoms (H_8) (Barboza, 2020; Bauer et al., 2014; Yu et al., 2017). It is important to note that individuals with depressive symptoms are more likely to engage in criminal acts. For this reason, the association between criminal engagement and depressive symptoms may be bidirectional (Bauer et al., 2014). Respondents with depressive symptoms might be more likely to engage in criminal behavior as these symptoms might increase their impulsive tendencies and reduce their level of self-control (Ozkan et al., 2019). As a result, they might be more likely to commit criminal acts as they may not think about the long-term consequences of their actions due to their depressive symptoms (Ozkan et al., 2019). For this

reason, it would be interesting to examine if respondents reporting a history of criminal engagement were those who were also suffering from depressive symptoms. Respondents who engage in this criminal behavior are also more likely to be shunned from society, affecting their ability to transition through this phase successfully (Barboza, 2020; Vaske & Gehring, 2010). Emerging adulthood is a period of autonomy, where many feel like they can obtain independence in their lives, and thus, engagement in the criminal justice system due to criminal engagement can negatively impact this autonomy (Arnett, 2016; Boen, 2020). Individuals who commit criminal acts might be arrested or incarcerated, resulting in a loss of autonomy, which is critical during this period (Arnett, 2016; Boen, 2020). This loss of autonomy during emerging adulthood can negatively impact their mental health outcomes during this period, as they feel like they are not in control of their lives (Arnett, 2016; Boen, 2020). Therefore, respondents with a history of delinquency might be at an increased risk for mental health problems and other risky behaviors such as substance abuse and further delinquent criminal acts (Barboza, 2020; Vaske & Gehring, 2010). For this reason, it is also vital to implement interventions among emerging adults who have a history of criminal engagement to prevent depressive symptoms and other risky behaviors that might affect their overall wellbeing and success. Various interventions focused on mindfulness techniques aimed at helping individuals with a history of criminal engagement have been successful (Murray et al., 2018; Samuelson et al., 2007; Shonin et al., 2013). These interventions focused on helping individuals regulate and control their emotional and mental responses to adverse situations, improve their self-esteem, and reduce their hostility, all of which helped improve their mental health (Murray et al., 2018; Samuelson et al., 2007; Shonin et al., 2013). Thus, the use of these interventions might be helpful to reduce the incidence of depressive symptoms among emerging adults with a history of criminal engagement.

This study also examined two substance use-related factors, alcohol and illegal drug use. Emerging adults who reported regular alcohol use were more likely to report depressive symptoms (H_9), a finding observed in earlier studies (Bravo et al., 2018; Kenney et al., 2017; Kenney et al., 2018; Schuler et al., 2015; Simons-Morton et al., 2016; Villarosa et al., 2018). It is possible that respondents who engaged in regular drinking to cope with the uncertainties they might have experienced during this period were more likely to report depressive symptoms (Villarosa et al., 2018). Emerging adults experience changes in their living situations, employment status, and relationships (Villarosa et al., 2018). Some might resort to binge drinking to deal with the stress from these changes (Villarosa et al., 2018). This binge drinking can increase their likelihood of experiencing mental health concerns (Kenney et al., 2017; Kenney et al., 2018). It is also important to note that respondents who engaged in binge drinking might be using it as a coping strategy to deal with their existing depressive symptoms (Villarosa et al., 2018). Thus, it is important to explore if the respondents who consumed alcohol regularly suffered depressive symptoms. Emphasis should be placed on developing interventions to help emerging adults currently engaging in unhealthy substance use. Cognitive-behavioral therapy interventions have been previously successful at reducing substance abuse and depressive symptoms among individuals by teaching them cognitive and behavioral coping skills to reduce these behaviors (Al et al., 2010; Kay-Lambkin et al., 2009; Vujanovic et al., 2017). Thus, cognitive-behavioral therapy interventions serve as an effective tool to help emerging adults currently engaging in unhealthy substance use.

Interestingly, illicit drug use was not significantly associated with depressive symptoms among emerging adults despite earlier studies finding a significant association (H_{10}) (Bravo et al., 2018; Kenney et al., 2017; Kenney et al., 2018; Schuler et al., 2015; Simons-Morton et al.,

2016; Villarosa et al., 2018). Previous studies have found that frequent drug use can increase the risk of depressive symptoms among emerging adults (Keith et al., 2015). This study only looked at whether respondents had used any kind of illegal drugs and did not focus on the frequency and intensities of drug use, which could explain why there was no significant association between these two factors.

Sociodemographic factors

This study found that males were less likely to report depressive symptoms during emerging adulthood (H_{11}). Females typically are at a higher risk of developing depressive symptoms during emerging adulthood than males (Gao et al., 2020; Gibson et al., 2016; Peltzer & Pengpid, 2015). Some possible explanations for this are that adverse life events tend to have more profound effects on females. They may be more vulnerable to experiencing sad moods, having lower self-esteem, and experiencing higher stress levels due to these events (Morris et al., 2014; St Clair et al., 2012). A possible explanation for this is biological sex differences. Females may be more prone to depressive symptoms because of hormonal changes they undergo during their menstrual cycle (Albert, 2015). For example, the hypothalamic-pituitary-adrenal axis (HPA axis), which plays an essential role in regulating an individual's response to stress, can experience fluctuations during the menstrual cycle (Altemus et al., 2014; Sergi et al., 2021). As a result, these fluctuations can increase cortisol levels when exposed to stress (Altemus et al., 2014; Sergi et al., 2021). Cortisol is the hormone that controls the body's response to stress, and thus, higher levels of it can lead to adverse outcomes due to uncontrolled stress (Altemus et al., 2014; Sergi et al., 2021). These biological differences can also result in females having more difficulties processing stressful life events than males (Altemus et al., 2014; Sergi et al., 2021). Given that emerging adulthood can be a turbulent period for some emerging adults, female

emerging adults may be more likely to experience higher stress levels. Another possible explanation for this is behavioral differences in terms of a female's upbringing during their childhood (Altemus et al., 2014). Females are typically raised to be more socially aware of how they present themselves to others (Altemus et al., 2014). They are also raised to be more focused on their relationships with others (Altemus et al., 2014). As a result, they may experience more sensitivity to rejection, criticism, and separation, all of which can increase the risk of depressive symptoms (Altemus et al., 2014). In addition, females tend to have different gender expectations and roles, compared to males. In many cultures, females tend to share a larger role in responsibilities such as childcare and home-making duties (Vafaei et al., 2016). As a result, some females who focus on these roles may have limited access to well-paying job opportunities which can increase their risk for mental health concerns (Vafaei et al., 2016). Some females may also work full-time jobs in addition to undertaking the majority of childcare and home-making duties, which can increase their stress levels and risk of developing depressive symptoms (Vafaei et al., 2016). Thus female respondents might be at a higher risk for mental health concerns due to these sex differences (Sergi et al., 2021). For this reason, it is crucial to consider these sex differences and their impact on depressive symptoms.

This study also found that obtaining a high school degree or GED decreased the likelihood of depressive symptoms among emerging adults (H_{13}). Respondents who could not accomplish this were more likely to have poorer life outcomes, lower life satisfaction, and a higher prevalence of mental health concerns, including depressive symptoms (Fergusson et al., 2015; Liem et al., 2010). Some possible explanations for this are that respondents who cannot obtain these qualifications might be at a higher risk of financial challenges due to not having the education necessary to secure stable employment (Fergusson et al., 2015; Freudenberg & Ruglis,

2007). This can also result in limited employment opportunities (Fergusson et al., 2015; Freudenberg & Ruglis, 2007). In addition, respondents unable to obtain these qualifications might be more likely to experience social rejection from their peers due to their inability to pursue tertiary education or obtain employment (Fergusson et al., 2015; Freudenberg & Ruglis, 2007). Lastly, they might also face a higher risk for risky behavior such as substance abuse and criminal engagement due to the lack of opportunities (Fergusson et al., 2015; Freudenberg & Ruglis, 2007). Therefore, future interventions should reduce the risk of depressive symptoms among emerging adults who are high school dropouts and provide them with resources to transition through this phase successfully.

This study also found that as emerging adults get older and progress through emerging adulthood, they are less likely to report depressive symptoms (H_{15}). These results align with previous research that examined the association between age and depressive symptoms (Eyre & Thapar, 2014: Parkes et al., 2016; Patton et al., 2014). Depressive symptoms typically peak during the beginning of emerging adulthood and decline as individuals reach the later part of emerging adulthood, which is their late 20s (Patton et al., 2014). As emerging adults progress through this phase and begin the transition into middle adulthood, they tend to have a more positive outlook (Arnett & Mitra, 2020). In addition, they are more secure with their social position in society and are more stable in their relationships and employment, thereby reducing the incidence of depressive symptoms (Arnett & Mitra, 2020).

Lastly, this study found that Hispanic emerging adults were more likely to report depressive symptoms (H_{16}). This is consistent with earlier studies that have found similar results (Cano et al., 2020: Cano et al., 2016; Leung et al., 2014; Menselson et al., 2008; Miranda et al., 2013; Polanco-Roman & Miranda, 2013). Among Hispanics, depressive symptoms among

emerging adults are higher than other age groups (Polanco-Roman & Miranda, 2013). This higher prevalence of depressive symptoms among Hispanic emerging adults could result from factors related to acculturation, discrimination, immigration, and socioeconomic status (Leung et al., 2014). In particular, acculturative stress that comes from their attempt to assimilate into the American culture can increase the risk of depressive symptoms among emerging adults in various ways (Polanco-Roman & Miranda, 2013). For example, immigrant Hispanic emerging adults are less likely to speak English, have friends or spouses outside of their ethnic or racial group, and think of themselves as Americans (Alarcón et al., 2016; Pew Research Center, 2013). This can increase their stress levels as they attempt to assimilate into American culture (Polanco-Roman & Miranda, 2013). They are also more likely to be subjected to some form of ethnic discrimination during their lives (Cano et al., 2016). Increased levels of ethnic discrimination among Hispanic emerging adults are associated with increased depressive symptoms (Cano et al., 2016). Socioeconomic status can also affect the risk of depressive symptoms. Hispanics currently comprise 28.1% of the population in poverty, which is higher than the national poverty rate in the U.S., which is 10.5% (Creamer, 2020). This is important as lower socioeconomic status in Hispanics has been found to increase the risk for mental health concerns such as depressive symptoms (Polanco-Roman & Miranda, 2013). Hispanics comprise 52% of the total population growth between 2010 and 2019 and 18% of the total U.S. population (Krogstad et al., 2020; Pew Research Center, 2013). This total population growth that Hispanics experienced throughout these years is projected to continue (Krogstad et al., 2020). For this reason, it is important to look at this population. However, it is important to note that the sample size of Hispanic respondents for this study was relatively small compared to the other overall respondent population. It is recommended that further studies examine emerging adulthood's

protective and risk factors among Hispanic emerging adults using a larger sample size to see how they fare compared to other groups.

LIMITATIONS

Some study limitations should also be noted. First, given that the data were collected twenty years ago, it might be interesting to look at how trends in emerging adulthood have evolved since then. With the advent of social media and new employment opportunities, further research should examine how emerging adulthood has evolved and whether there have been any significant changes in protective and risk factors faced by today's generation of emerging adults. It would also be interesting to examine if similar results found in this study are found among the current generation of emerging adults. Another limitation was that the dataset focused mainly on information related to the respondent's health (Harris et al., 2019). Therefore, additional information on other factors related to depressive symptoms, such as employment (how many job changes they underwent during emerging adulthood) and different educational opportunities (whether they pursued nontraditional education and training) were not available (Harris et al., 2019). Analyzing these factors in detail could have potentially strengthened the findings of this study. Another limitation was that this study did not consider the historical context behind the data that were used for this study. The data for emerging adults were collected during 2001-2002 and it is important to consider the impact that an event such as the 9/11 attacks might have on respondents in this study. Previous studies have found that the 9/11 attacks had a significant impact on the mental health of some emerging adults who participated in the Add Health study (Ford et al., 2003; Uecker, 2008). Some emerging adults who experienced the aftermath of the 9/11 attacks reported higher levels of psychological distress (Ford et al., 2003; Uecker, 2008). For this reason, it is important to consider the overall generalizability of the findings from this

study given the impact that this event might have had on the depressive symptoms of some respondents in this study. It would also be interesting to compare the effects of the ongoing global pandemic on the mental health of the current emerging adults with the effects of the 9/11 attacks on the mental health of respondents in this study.

Another limitation is that this study did not consider the impact that geographical location can have on an individual's mental health. Individuals who lived in rural areas might have a higher likelihood of poor mental health outcomes compared to those who lived in urban areas due to a lack of mental health resources and support (Maconick et al., 2021). Therefore, examining the impact of geographical location could have strengthened the results of this study. Lastly, a limitation of this study was that it did not consider the social context such as intersectionality might affect the findings. Researchers have found that intersectionality, which entails the way that race, gender, class, age, and other social constructs are related to each other and how this can affect an individual's overall health, can have a significant impact on an individual's mental health (Rice et al., 2019). Individuals who are from socially marginalized groups with respect to race, gender, class, age, and others may be at a higher risk for depressive symptoms (Rice et al., 2019). Given that this study examined social constructs such as race, gender, and age independently, examining the interaction effects that these constructs can have with each other and their effects on respondents' mental health could have strengthened the study findings.

CONCLUSION

This study aimed to provide an in-depth examination of the protective and risk factors prevalent during emerging adulthood and their impact on the prevalence of depressive symptoms among emerging adults. This study sought to fill a gap in the literature by examining these

protective and risk factors concurrently using a nationally representative sample of emerging adults. This study highlighted several protective and risk factors associated with depressive symptoms among emerging adults. Some protective factors such as self-esteem and life satisfaction significantly decreased depressive symptoms among this age group. Risk factors such as criminal engagement and alcohol use significantly increased the prevalence of depressive symptoms among this age group. Sociodemographic factors such as age and educational attainment were significantly associated with decreased depressive symptoms. Male emerging adults were at a decreased risk for depressive symptoms. Lastly, Hispanic origin was significantly associated with an increase in depressive symptoms. Therefore, future interventions should focus on both these protective and risk factors, such as substance use, criminal engagement, self-esteem, neighborhood environment, and life satisfaction in their intervention design, as they can significantly impact the depressive symptom of emerging adults (Chung et al., 2009; Dawson et al., 2019). This study provided an in-depth examination of emerging adults' protective and risk factors using a sample of emerging adults from previous generations. Thus, the findings of this study can provide insights for researchers interested in examining these factors in the current generation of emerging adults. The findings of this study can also be used by future researchers as a reference guide to compare differences between the protective and risk factors of different generations of emerging adults and how they impacted their risk for depressive symptoms. The current generation of emerging adults live in a period with a great focus on technology such as the internet and smartphones and thus comparing how protective and risk factors of emerging adulthood have evolved will aid researchers in better understanding how emerging adulthood has changed throughout different generations emerging adults.

The findings of this study are particularly relevant for mental health care professionals who work with college students as it highlighted several protective and risk factors that are significantly associated with depressive symptoms. Interventions focusing on strengthening protective factors such as self-esteem and life satisfaction and reducing risk factors such as regular alcohol use and criminal engagement may be more successful at reducing the risk of depressive symptoms among emerging adults. Given that many emerging adults are pursuing tertiary education during emerging adulthood, mental health care professionals working with college students should consider focusing on these factors.

Chapter 3: A Biopsychosocial Framework of Depressive Symptoms among Emerging Adults

How some emerging adults develop depressive symptoms and why they are at an increased risk for developing these symptoms compared to others is a topic that requires an in-depth understanding. To better understand mental health concerns such as depressive symptoms, researchers have examined biological, psychological, and social factors using the biopsychosocial framework (Bolton & Gillett, 2019; Borrell-Carrio, 2004; Ghaemi, 2009). George Engel developed this biopsychosocial framework in 1977 when he theorized that illnesses such as diabetes, schizophrenia, and others were caused by a variety of factors (Bolton & Gillett, 2019; Engel, 1977). Engel realized that the incidence of these illnesses requires the understanding of psychological and social factors in addition to the biological factors that had already received much focus (Bolton & Gillett, 2019; Engel, 1977). He also realized that a complete examination of health concerns requires an understanding of various factors, in addition to the biological mechanisms behind these illnesses (Bolton & Gillett, 2019; Engel, 1977). These included an individual's experiences and attitudes toward their illness, the care and support they receive from their communities, peers, families, and various other sources (Bolton & Gillett, 2019; Engel, 1977). Since Engel's inception of the biopsychosocial framework, this model has been used to examine various health concerns among many different populations (Bolton & Gillett, 2019; Borrell-Carrio, 2004; Ghaemi, 2009). Given the higher prevalence of depressive symptoms among emerging adults and the variety of factors that can affect the risk of depressive symptoms among this age group, a biopsychosocial model is used to provide a greater understanding of depressive symptoms among emerging adults in this study.

Biopsychosocial Factors of Depressive Symptoms

To better understand how depressive symptoms affect individuals and why some are more susceptible, researchers have developed biopsychosocial models to explore this topic among different populations, which include the elderly, diabetics, and immigrant mothers (Garcia-Toro & Aguirre, 2007; Davison et al., 2012; Habtewold et al., 2016; Lara-Cinisomo et al., 2016). These biopsychosocial models looked at the biological, psychological, and social factors that affected these populations' prevalence of depressive symptoms.

Biological Factors

Biological factors associated with depressive symptoms among emerging adults include nutrition and physical health. Nutrition is a crucial factor associated with the incidence of mental health concerns, and it is a vital determinant of their overall mental health (Sarris et al., 2015; Xu et al., 2016). Nutrition entails the overall diet quality, including the kinds of food individuals consume daily (Sarris et al., 2015; Xu et al., 2016). Diet quality has been previously linked to the incidence of depressive symptoms, with healthier diets being identified as a factor associated with a lower risk of depressive symptoms among emerging adults (Gibson-Smith et al., 2018). Individuals whose diets consist of fruits, vegetables, healthy grains, and other healthy options were less likely to develop depressive symptoms compared to those whose diets consist of unhealthy foods such as fast food, sugars, sugar-sweetened beverages (Molendijk et al., 2018; Gibson-Smith et al., 2018; Xu et al., 2016). The onset of depressive symptoms might also affect the diet quality of these individuals as they might lack the motivation or energy needed to prepare healthy, high-quality meals due to the depressive symptoms they are suffering from (Gibson-Smith et al., 2018). In addition, individuals suffering from depressive symptoms are more likely to engage in unhealthy eating habits such as consuming fast foods to cope with the

negative emotions associated with these depressive symptoms (Molendijk et al., 2018). Various studies have found that individuals suffering from depressive symptoms were more likely to have an unhealthy diet than those who did not have these symptoms (Lai et al., 2016; Li et al., 2016; Li et al., 2017). Given the impact and importance that diet quality can have on the incidence of depressive symptoms, various interventions have focused on the diet quality of individuals to treat or prevent depressive symptoms (Jacka et al., 2015; Parletta et al., 2019).

In addition to individuals suffering from depressive symptoms, emerging adults, in particular, are more likely to engage in these unhealthy eating behaviors for various reasons (Arnett, 2016; Gibson-Smith et al., 2018). A possible explanation for this is that many emerging adults during this period are undergoing many changes in their lives, such as pursuing tertiary education and various employment opportunities (Arnett, 2016; Gibson-Smith et al., 2018). As a result, many feel like they are very busy throughout this period (Gibson-Smith et al., 2018). Therefore, emerging adults can adopt unhealthy diet habits such as fast-food consumption due to the ease of obtaining the food (Arnett, 2016; Gibson-Smith et al., 2018). Another possible reason for this is they are also experiencing other changes, such as moving away from their parents and undergoing various residence changes (Gibson-Smith et al., 2018; Xu et al., 2016). Due to this, they might lack the income to purchase and prepare healthy meals (Gibson-Smith et al., 2018; Xu et al., 2016). For these reasons, U.S. emerging adults have the highest rate of fast-food consumption among all age groups, with 44.9% of emerging adults consuming fast-food compared to 37.7% of adults aged 40-59 and 24.1% of adults aged 60 and older (Fryar et al., 2019). Thus, it is possible that emerging adults' higher risk for unhealthy eating behaviors may be linked to an increased risk for depressive symptoms.

Another biological factor associated with depressive symptoms is physical health. Physical health typically involves the overall physical condition of an individual (Barlett et al., 2020; Reaume et al., 2021). Physical health can include any physical health ailments they might be suffering from, such as chronic health conditions (Barlett et al., 2020; Reaume et al., 2021). These chronic health conditions can include diabetes, asthma, and gastrointestinal problems (Ferro et al., 2016). Physical health is associated with the incidence of depressive symptoms, as poor physical health has been linked to an increased risk of developing depressive symptoms (Barlett et al., 2020; Ferro et al., 2015; Garcia-Toro & Aguirre, 2007). Emerging adults with chronic physical health conditions are at an increased risk of developing depressive symptoms (Reaume et al., 2021; Ferro et al., 2015; Ferro et al., 2016). Chronic health conditions can increase an individual's vulnerability to developing depressive symptoms (Ferro et al., 2015; Ferro et al., 2016). Many individuals suffering from these health conditions are more likely to have a negative mindset and an overall negative outlook on life (Ferro et al., 2015; Ferro et al., 2016). In addition, individuals suffering from chronic health conditions are more likely to have higher levels of stress and less likely to cope with adverse situations, thereby increasing their risk of depressive symptoms (Ferro et al., 2015; Ferro et al., 2016).

Given that emerging adulthood can be stressful for some due to the challenges and instability encountered during this period, this can result in some individuals developing physical health ailments depending on how they cope with this stress (Barlett et al., 2020). It is also important to note that about 20% of young adults in the U.S. are suffering from at least one chronic health condition, which can result in poor physical health (Boersma, 2020). The stress experienced during emerging adulthood combined with the challenges from an existing chronic physical health condition can increase emerging adults' vulnerability to the incidence of

depressive symptoms (Ferro et al., 2015). In addition, emerging adults with poor physical health may also struggle to complete critical developmental milestones during this period, such as finishing tertiary education, building, and maintaining various relationships, and obtaining employment (Reaume et al., 2021). Emerging adults unable to complete these critical developmental milestones are more likely to report lower levels of life satisfaction, thereby increasing their risk of depressive symptoms (Reaume et al., 2021). For this reason, it is important to look at the association between physical health and depressive symptoms among emerging adults.

PSYCHOLOGICAL FACTORS

Psychological factors associated with depressive symptoms include negative emotions and self-esteem. These negative emotions, such as rumination, tend to involve individuals repeatedly thinking and focusing on their problems and negative experiences (Spinhoven et al., 2018; Whisman et al., 2020). Individuals who focus on these negative emotions tend not to be satisfied with their lives and more likely to feel like they have been unable to accomplish their goals or desires in life (Whisman et al., 2020). Individuals who are more prone to these negative emotions are more likely to develop depressive symptoms than those not inclined to these emotions (Spinhoven et al., 2018; Whisman et al., 2020; Miranda et al., 2013). Individuals who focus on these negative emotions are at an increased risk for depressive symptoms because they can struggle to cope with problems they encounter in their lives (Miranda et al., 2013). They also tend to lack optimism about their future (Miranda et al., 2013). In addition, individuals with negative emotions are also more likely to have depressive symptoms for more extended periods and have more intense depressive symptoms than those who do not (Miranda et al., 2013). It is also important to note that individuals suffering from depressive symptoms are more likely to

report other negative emotions (Miranda et al., 2013). Emerging adults who display these negative emotions, characterized by negative thoughts and actions such as crying and brooding, are more likely to face an increased risk for depressive symptoms (Miranda et al., 2013; Mondi et al., 2017). Emerging adults who focus on these negative emotions might be less likely to successfully overcome any difficulties encountered during this developmental period (Miranda et al., 2013). Due to this, they might be more prone to a higher risk of mental health concerns (Miranda et al., 2013). In addition, emerging adults who focus on negative emotions might have more difficulty completing personal responsibilities and milestones (Miranda et al., 2013; Mondi et al., 2017). These milestones can include completing their education, maintaining their relationships, and obtaining financial independence (Miranda et al., 2013; Mondi et al., 2017). Delaying the completion of these milestones can result in these individuals struggling to transition through emerging adulthood successfully. As a result, they might be more likely to report adverse outcomes during emerging adulthood than individuals who do not focus on negative emotions (Miranda et al., 2013; Mondi et al., 2017).

Self-esteem is another psychological factor associated with depressive symptoms among emerging adults. Self-esteem refers to an individual's overall self-evaluation and how positively they view themselves (Holloway, 2016). It also relates to individuals' ability to understand their self-worth and competence (Mossakowski, 2015). Self-esteem is an important psychological factor associated with an increased risk for mental health concerns (Holloway., 2016; Mossakowski, 2015). Of particular interest is how self-esteem was previously associated with the incidence of depressive symptoms among individuals, as individuals with lower self-esteem are more susceptible to depressive symptoms (Bleidorn et al., 2016; Moore II & Shell, 2017; Mondi et al., 2017). Lower levels of self-esteem can also result in lower social support and poorer

mental health, all of which can increase the risk of developing depressive symptoms (Germani et al., 2020). A possible reason for this lower social support is that individuals with a lower level of self-esteem might be less likely to venture out and build social networks for themselves due to lacking confidence in themselves (Germani et al., 2020). This may result in them socially isolating themselves due to their low self-worth, thereby increasing their risk of mental health concerns, such as depressive symptoms (Germani et al., 2020). Levels of self-esteem during emerging adulthood can be unstable, as they can constantly change as individuals navigate throughout emerging adulthood (Arnett, 2016; Mondi et al., 2017). As a result, emerging adults could be particularly vulnerable to developing depressive symptoms as they experience lower levels of self-esteem due to the hardships they might encounter during this period (Arnett, 2016; Mondi et al., 2017). Low levels of self-esteem are significantly associated with a higher likelihood of depressive symptoms among emerging adults (Cano et al., 2016; Miranda et al., 2013; Mondi et al., 2017; Polanco-Roman et al., 2019). Emerging adults with a lower level of self-esteem are less likely to take advantage of the opportunities they encounter as they navigate through this period (Arnett, 2016; Polanco-Roman et al., 2019). As a result of their low self-worth, they might be less willing to take advantage of these opportunities that can help them accomplish important developmental milestones such as obtaining long-term employment and forming long-lasting relationships with others (Arnett, 2016; Polanco-Roman et al., 2019). This can ultimately increase their risk for depressive symptoms (Arnett, 2016; Polanco-Roman et al., 2019).

SOCIAL FACTORS

In addition to biological and psychological factors, it is also important to discuss the social factors associated with the incidence of depressive symptoms among emerging adults.

Social support is often associated with depressive symptoms among emerging adults (Scardera et al., 2020). Social support refers to the care and assistance individuals receive from their social network in the form of emotional, instrumental, and informational support (Scardera et al., 2020). Social support for emerging adults can include support from their family, friends, peers, and other adults (Finan et al., 2018). Family support during adolescence is significant for emerging adults as it can foster their ability to build and maintain relationships later in life (Mondi et al., 2017). Family support can also improve their life satisfaction, provide a buffer against stress and other adverse outcomes, and improve their overall mental health (Mondi et al., 2017). Adolescents typically spend a significant amount of time during this period with their family, and thus, having their support can be particularly important to their overall mental health (Finan et al., 2018). Having social support from non-parental adults, such as mentors, is also important as it is linked to various positive outcomes for emerging adults (Hurd & Zimmerman, 2014; Van Dam et al., 2018). These outcomes can include a decreased risk of developing mental health concerns such as depressive symptoms (Hurd & Zimmerman, 2014; Van Dam et al., 2018). As individuals transition from adolescence to emerging adulthood, many move away from their families (Hurd & Zimmerman, 2014; Van Dam et al., 2018). Thus, social support from individuals such as mentors becomes significant as they begin to spend less time with their families (Hurd & Zimmerman, 2014; Van Dam et al., 2018). Many emerging adults also look to adult mentors to help them navigate through this developmental stage (Hurd & Zimmerman, 2014; Van Dam et al., 2018). Thus, having social support from these individuals can help improve their overall mental health (Hurd & Zimmerman, 2014; Van Dam et al., 2018).

Social support for emerging adults, in particular, can be unstable as they lose existing relationships, build new ones, and go through a period of newfound independence during this

developmental phase (Cano et al., 2020). Lower levels of social support among emerging adults were significantly associated with a higher risk for depressive symptoms than those with higher levels of social support (Cano et al., 2020; Scardera et al., 2020; Steinhausen et al., 2007). Given the potential instability of relationships during emerging adulthood, it is important to see how individuals who lack these strong relationships might be affected by their mental health. Figure 6 shows the biopsychosocial framework for depressive symptoms among emerging adults in this study.

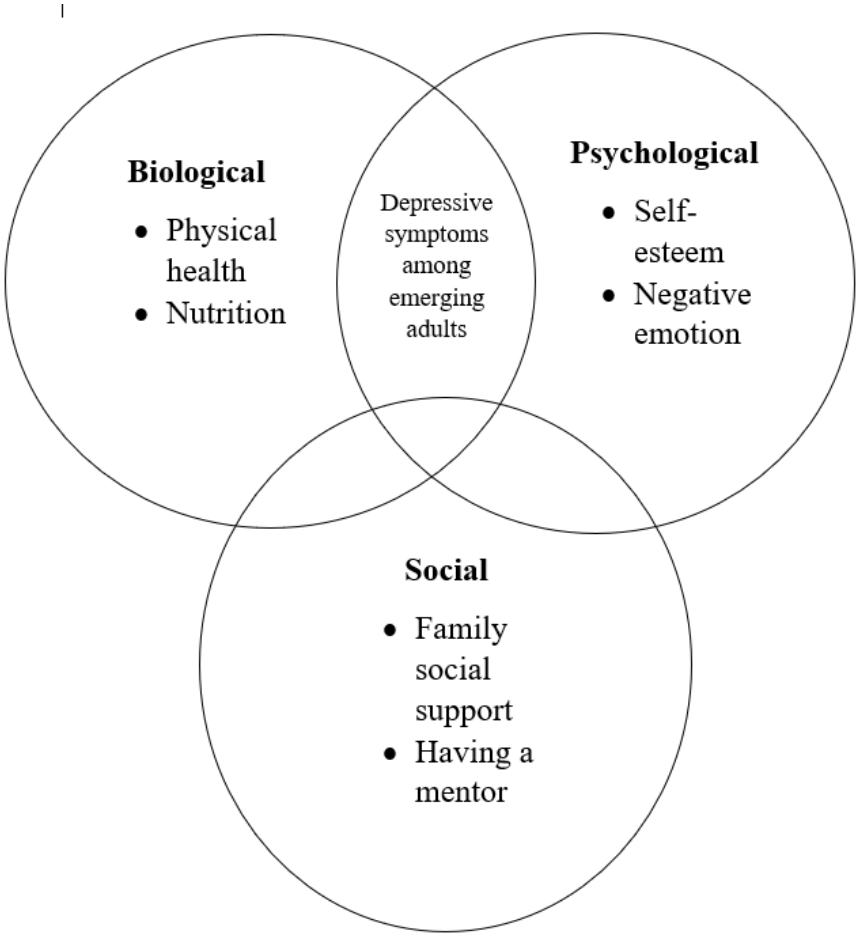

Figure 6. Biopsychosocial Framework for Depressive Symptoms among Emerging Adults

SOCIODEMOGRAPHIC CHARACTERISTICS

In addition, this study also examined various sociodemographic factors (sex, age, educational attainment, employment status, Hispanic origin, and nativity). Various studies have found that the effects that biopsychosocial factors have on depressive symptoms can vary depending on these sociodemographic characteristics (Garcia-Toro & Aguirre, 2007; Davison et al., 2012; Habtewold et al., 2016). For example, males and females have been shown to differ in various biopsychosocial characteristics such as their nutrition, negative emotions, self-esteem, and others (Garcia-Toro & Aguirre, 2007; Davison et al., 2012; Habtewold et al., 2016; Lara-Cinisomo et al., 2016). Age can also result in differences in biopsychosocial characteristics such as negative emotions, self-esteem, nutrition, physical health, and others (Garcia-Toro & Aguirre, 2007; Davison et al., 2012; Habtewold et al., 2016; Lara-Cinisomo et al., 2016). Older individuals may be more likely to fare better in these biopsychosocial domains compared to their younger counterparts (Garcia-Toro & Aguirre, 2007; Davison et al., 2012; Habtewold et al., 2016; Lara-Cinisomo et al., 2016). In addition, educational attainment and employment status can also result in differences in various biopsychosocial characteristics such as nutrition, self-esteem, physical health, negative emotions, social support, and others (Garcia-Toro & Aguirre, 2007; Davison et al., 2012; Habtewold et al., 2016; Lara-Cinisomo et al., 2016). Individuals with lower educational attainment and lack of employment may fare worse in these various domains (Garcia-Toro & Aguirre, 2007; Davison et al., 2012; Habtewold et al., 2016; Lara-Cinisomo et al., 2016). Lastly, Hispanic origin and nativity can result in differences in biopsychosocial characteristics such as nutrition, self-esteem, physical health, negative emotions, social support, and others (Garcia-Toro & Aguirre, 2007; Lara-Cinisomo et al., 2016). Individuals who are of

Hispanic origin and non-U.S.-born may fare worse on these biopsychosocial characteristics compared to their counterparts (Garcia-Toro & Aguirre, 2007; Lara-Cinisomo et al., 2016).

HYPOTHESES

Given the importance of examining the biological, psychological, and social factors related to depressive symptoms during emerging adulthood as well as various sociodemographic factors relevant to this study, several hypotheses were proposed:

Depressive symptoms during adolescence

H_1: Emerging adults with a history of depressive symptoms during adolescence would be more likely to report a higher prevalence of depressive symptoms during emerging adulthood.

Biological variables

H_2: Emerging adults who regularly consumed fast food would be more likely to report a higher prevalence of depressive symptoms during emerging adulthood.

H_3: Emerging adults who had poor physical health would be more likely to report a higher prevalence of depressive symptoms during emerging adulthood compared to those who had good physical health.

Psychological Variables

H_4: Emerging adults who cried a lot during the past 12 months would be more likely to report a higher prevalence of depressive symptoms during emerging adulthood compared to their counterparts who didn't.

H_5: Emerging adults who felt like they liked themselves would be less likely to report a higher prevalence of depressive symptoms during emerging adulthood compared to those who didn't like themselves.

Social Variables

H_6: Emerging adults who had family social support would be less likely to report a higher prevalence of depressive symptoms during emerging adulthood.

H_7: Emerging adults who had a non-parent adult mentor would be less likely to report a higher prevalence of depressive symptoms during emerging adulthood compared to their counterparts who didn't.

Sociodemographic Variables

H_8: Male emerging adults would report a lower prevalence of depressive symptoms during emerging adulthood compared to their female counterparts.

H_9: Emerging adults who were currently employed would report a lower prevalence of depressive symptoms during emerging adulthood compared to those who were not currently employed.

H_{10}: Emerging adults who obtained a high school degree/GED would report a lower prevalence of depressive symptoms during emerging adulthood compared to their counterparts who didn't.

H_{11}: US-born emerging adults would report a lower prevalence of depressive symptoms during emerging adulthood compared to those who were not U.S.-born.

H_{12}: Older emerging adults would report a lower prevalence of depressive symptoms during emerging adulthood.

H_{13}: Hispanic emerging adults would report a higher prevalence of depressive symptoms during emerging adulthood compared to those who were not Hispanic.

METHODS

Data for this study came from over 20,000 U.S. middle, junior, and high school students from the National Longitudinal Study of Adolescent to Adult Health (Add Health) (Harris et al., 2019). This was a longitudinal study comprising of a nationally representative of adolescents

recruited during the 1994-1995 school year and subsequently followed for five waves, with the latest wave occurring in 2016-2018 (Harris et al., 2019). This dataset was obtained electronically by requesting access from the Inter-university Consortium for Political and Social Research (ICPSR), an organization that provides access to the archive of social science data for researchers (ICPSR, 2019). The researchers recruited respondents from 145 U.S. middle, junior, and high schools across the nation (Harris et al., 2019). The research protocol for this study entailed data collection through two sources: an initial in-school questionnaire and an-in home interview after the initial questionnaire (Harris et al., 2019).

Given that the respondents for the study were adolescents, parental consent was obtained before their inclusion in the study (Harris et al., 2019). Some schools allowed parents to give passive consent by allowing their children to be automatically enrolled in the study unless they objected to their participation (Harris et al., 2019). Other schools required the use of an active consent form where parents had to read and sign a consent form before their child could participate (Harris et al., 2019). In addition to parental consent, the respondents also had to give written consent before participating in the initial interview (Harris et al., 2019). This dataset is particularly well-suited for this study as it contains information on variables related to the biological, psychological, and social factors as well as the depressive symptoms among emerging adults. This study also includes variables related to sociodemographic information and variables that examined the overall mental health of emerging adults. This study focuses on information on emerging adults from Generation X and Y. Data analyses for this study used data collected from emerging adult respondents during Wave 2 and Wave 3 (n=3,831). Wave 2 data were collected in 1996 while they were in adolescence, while wave 3 data were collected in 2001-2002 while they were in emerging adulthood (ages 18-26) (Harris et al., 2019). This study was exempt from

UTEP Institutional Review Board (IRB Study Protocol No. 1670644-2). Table 4 shows a description of variables in the analyses for this study. Table 5 shows the descriptive statistics for the variables in this study.

Table 4. Description of variables in analyses:

Variables	**Sample Items**	**Response Format**	**Alpha**
Dependent variables			
Depressive symptoms, W_3	1. You were bothered by things that usually don't bother you. 2. You could not shake off the blues, even with help from your family and your friends, during the past seven days. 3.. You had trouble keeping your mind on what you were doing, during the past seven days. 4. You were too tired to do things, during the past seven days. 5. You were sad, during the past seven days. 6. You felt that people disliked you, during the past seven days.	4-point Likert response rating scale ranging from "never or rarely" to "most of the time or all of the time"	0.74
Mental health variable			
Depressive symptoms, W_2	1.You were bothered by things that usually don't bother you. 2. You could not shake off the blues, even with help from your family and your friends. 3. You had trouble keeping your mind on what you were doing. 4. You were too tired to do things. 5. You were sad. 6. You felt that people disliked you.	4-point Likert response rating scale ranging from "never or rarely" to "most of the time or all of the time"	0.76
Biological variables			
Days eating fast food, W_3	On how many of the past seven days did you eat food from a fast-food place?	8-point response scale ranging from "0 days" to "7 days"	NA

Had good health, W_3	Recoded from "In general, how is your health?"	0 = "fair" and "poor;" 1 = "good," "very good," "excellent"	NA
Psychological variables			
Had cried a lot, W_3	Recoded from "In the past 12 months, have often you cried a lot?"	0 = "never;" 1 = "just a few times," "about once a week," "almost every day" and "every day;"	NA
Liked myself the way I am, W_3	Recoded from "Do you agree or disagree that you like yourself just the way you are?"	0 = "neither agree nor disagree," "disagree" and "strongly disagree;" 1 = "agree" and "strongly agree"	NA
Social variables			
Family social support, W_2	1. How much do you feel that people in your family understand you? 2. How much do you feel that you and your family have fun together? 3. How much do you feel that your family pays attention to you?	5-point Likert response scale ranging from "not at all" to "very much"	0.79
Had a non-parent adult mentor, W_3	Other than your parents or stepparents, has an adult made an important positive difference in your life at any time since you were 14 years old?	0 = No; 1 = Yes	NA
Sociodemographic variables			
Male	Respondent's gender	1 = Male; 2 = Female	NA
High school graduate/GED	Recoded from "What is the highest grade or year of regular school you have completed?"	0 = 6th grade, 7th grade, 8th grade, 9th grade, 10th grade, 11th grade; 1 = 12th grade, 1 year of college, 2 years of college, 3 years of college, 4 years of college, 5 or more years of college, 1 year of graduate school, 2 years of graduate school, 3 years of graduate, 4 years of graduate school, 5 or	NA

		more years of graduate school	
Currently employed	Are you currently working for pay for at least 10 hours a week?	0 = No; 1 = Yes	NA
U.S. born	Were you born in the United States?	0 = No; 1 = Yes	NA
Age (in years)	Calculated age at time of the interview	Age in years	NA
Hispanic origin	Are you of Hispanic or Latino origin?	0 = No; 1 = Yes	NA

Table 5. Descriptive statistics:

Variables	**Min**	**Max**	**Mean**	**SD**	**%(n)**
Dependent variable					
Depressive symptoms, W_3	6	23	8.90	2.69	
Mental health variable					
Depressive symptoms, W_2	6	24	9.41	2.85	
Biological variables					
Days eating fast food, W_3	0	7	2.42	2.10	
Had good health, W_3	0	1	0.95	0.21	95.22(3,648)
Psychological variables					
Had cried a lot, W_3	0	1	0.77	0.42	77.43(2,964)
Liked myself the way I am, W_3	0	1	0.84	0.37	83.54(3,197)
Social variables					
Family social support, W_2	3	15	11.30	2.54	
Had a non-parent adult mentor, W_3	0	1	0.77	0.42	77.33(2,954)
Sociodemographic variables					
Male	0	1	0.46	0.50	45.91(1,759)
High school graduate/GED	0	1	0.87	0.34	86.78(3,322)
Currently employed	0	1	0.72	0.45	71.99(2,585)
U.S. born	0	1	0.95	0.22	95.09(3,643)
Age (in years)	18	25	21.41	1.60	
Hispanic origin	0	1	0.11	0.31	11.01(421)

Dependent Variable

Depressive symptoms during emerging adulthood were measured by examining the frequencies of different depressive symptoms reported by the respondent during the past seven days, using a 4-point Likert response rating scale ranging from "never or rarely" to "most of the time or all of the time." The variable was created by summing the response scores from the six survey items assessing various depressive symptoms respondents experienced in the past seven days prior to the data collection. Items were selected based on the results from the factor analysis. A reliability test for this variable indicated that the alpha Cronbach's alpha is 0.74 (range of scale values = 6-23).

Independent Variables

Depressive symptoms during adolescence

Depressive symptoms during adolescence indicated the frequencies and prevalence of depressive symptoms experienced by the respondents during the past seven days prior to the data collection, using a 4-point Likert response rating scale ranging from "never or rarely" to "most of the time or all of the time." This variable was created by summing respondents' responses scores from six survey variables that gauged any depressive symptoms they experienced during adolescence. A reliability test was conducted and indicated a Cronbach's alpha value of 0.76 (range of scale values = 6-24). This variable was used to gauge if the depressive symptoms during emerging adulthood were associated with the biopsychosocial factors related to depressive symptoms independent of their previous history of depressive symptoms.

Biological variables

The model included two variables that examined biological factors related to depressive symptoms among emerging adults. First, a variable was created to measure the number of days

respondents reported consuming fast food during the past seven days at the time the data were collected (range-0-7). Next, another variable was created to examine whether or not respondents felt like they had good health. This variable was dichotomized where those who reported that their health was “poor” or “fair” were coded as 0 and those who had “good” and “excellent” health were coded as 1. Approximately 95.22% of respondents felt like they had good overall health.

Psychological variables

Two variables measured the psychological factors of depressive symptoms among emerging adults. First, a variable was created to examine whether respondents had cried a lot during the past 12 months. This variable was dichotomized where those who reported they had cried a lot “just a few times,” “about once a week,” “almost every day,” or “every day” were coded as 1, while those who indicated “never” were coded as 0. Approximately 77.43% of respondents had cried a lot during the past 12 months.

Lastly, another variable was created to examine whether respondents felt like they liked themselves. This variable was dichotomized from a 5-point Likert response scale where those who indicated “neither agreed or disagreed,” “disagreed,” or “strongly disagreed” were coded as 0, while those “agreed” or “strongly agreed” were coded as 1. Approximately 83.54% of respondents agreed that they liked themselves just the way they were.

Social variables

Two variables were created as proxies to examine the social factors related to depressive symptoms among emerging adults. Family social support was a variable that measured the frequencies of social support respondents received during adolescence from their families, using a 5-point Likert response rating scale ranging from "not at all" to "very much.” The variable was

created by summing the response scores from three survey items selected based on the results from the factor analysis. The reliability test for this variable indicated a Cronbach's alpha of 0.79 (range of scale = 3-15). Another variable that examined whether respondents had a non-parent adult mentor was constructed where those who reported that a non-parent adult had made a positive difference on their lives were coded as 1, while those who did not were coded as 0. Approximately 77.33% of respondents indicated that they had a non-parent adult mentor who had made a positive difference in their lives.

Sociodemographic variables

Six variables were used, which examined various sociodemographic variables among emerging adults. First, males were coded as 1, while females were coded as 0. Approximately 45.91% of emerging adults were male. Next, another variable that indicated whether respondents had at least obtained a high school degree or GED was included in the study. High school graduates/GED holders were coded as 1, while those who had neither were coded as 0. Those who reported that the highest education they had completed was between "12th grade" to "5 or more years of graduate school" were coded as 1, while those whose highest education completed was between "6th grade" to "11th grade were coded as 0. Approximately 86.78% of emerging adults had graduated high school or obtained a GED. Respondents' current employment status was also examined. It was a dichotomous variable where those who reported that they were currently working for pay for at least 10 hours a week were coded as 1, and those who did not were coded as 0. Approximately 71.99% of emerging adults were currently employed. Respondents' nativity was also examined. Respondents who were U.S.-born were coded as 1, while those who were non-U.S.-born were coded as 0. Approximately 95.09% of the respondents were U.S.-born. Respondents' age was assessed by measuring their age in years (range=18-25).

Lastly, respondents indicated whether they were of Hispanic origin. This was also a dichotomous variable where respondents of Hispanic origin were coded as 1, while respondents of non-Hispanic origin were coded as 0. Approximately 11.01% of respondents were of Hispanic origin.

Analytical approach

This study used multiple regression analysis to assess the relationship between biopsychosocial factors related to emerging adulthood and the incidence of depressive symptoms among emerging adults. Multiple regression analysis was used to examine the relationship between the dependent variable and an independent variable while controlling for the effect of other independent variables in this study. Full Information Maximum Likelihood was used as the estimation procedure for this study. Data were analyzed using the most current version of Stata, version 16. The mental health variable was measured during adolescence (Wave 2). The biological and psychological variables were measured during emerging adulthood (Wave 3). A social variable that measured family emotional support was measured during adolescence (Wave 2). The other social variable (had a nonparent adult mentor) was measured during emerging adulthood (Wave 3). Depressive symptoms (dependent variable) were measured during emerging adulthood (Wave 3).

RESULTS

Table 6. Multiple regression analyses with depressive symptoms during emerging adulthood as a dependent variable (study 2)

			Depressive Symptoms, W_3				
Variables	**B**		**SE**	**ß**	**95% CI**		
Intercept	10.823	*	(0.669)	4.016	9.511	-	12.134
Mental health variable							
Depressive symptoms, W_2	0.238	*	(0.015)	0.252	0.210	-	0.267
Biological variables							
Days eating fast food, W_3	0.091	*	(0.018)	0.071	0.055	-	0.127
Had good health, W_3	-0.889	*	(0.181)	-0.070	-1.245	-	-0.534
Psychological variables							

Had cried a lot, W_3	0.665	*	(0.101)	0.103	0.468	-	0.862
Liked myself the way I am, W_3	-0.981	*	(0.113)	-0.135	-1.203	-	-0.759
Social variables							
Family social support, W_2	0.002		(0.016)	0.002	-0.030	-	0.033
Had a non-parent adult mentor, W_3	0.279	*	(0.091)	0.043	0.100	-	0.458
Sociodemographic variables							
Male	-0.126		(0.086)	-0.023	-0.294	-	0.042
High school graduate/GED	-0.236	*	(0.113)	-0.030	-0.458	-	-0.014
Currently employed	-0.002		(0.088)	-0.000	-0.176	-	0.171
U.S. born	-0.052		(0.181)	-0.004	-0.407	-	0.303
Age (in years)	-0.052	*	(0.024)	-0.031	-0.099	-	0.005
Hispanic origin	0.292	*	(0.125)	0.034	0.046	-	0.538
R-Squared	0.262						

Source: Source: National Longitudinal of Adolescent to Adult Health Study (Wave 2 and 3)
* refers to p <0.05
N = 3,831

Depressive symptoms during adolescence

Respondents who reported depressive symptoms during adolescence were more likely to report depressive symptoms during emerging adulthood (B= 0.238, p<0.05).

Biological factors

Fast-food consumption was positively related to depressive symptoms during emerging adulthood (B= 0.091, p<0.05). Respondents who indicated good overall health were less likely to report depressive symptoms during emerging adulthood compared to those who indicated poor overall health (B= -0.889, p<0.05).

Psychological factors

Respondents who indicated they had cried a lot during the past 12 months were more likely to report depressive symptoms during emerging adulthood compared to those who indicated that they had not cried a lot (B= 0.665, p<0.05). Respondents who reported that they liked themselves the way they were (B= -0.981, p<0.05) were less likely to report depressive

symptoms during emerging adulthood compared to those who reported that they did not like themselves.

Social factors

Family social support was not significantly associated with depressive symptoms during emerging adulthood. However, respondents who reported that they had a non-parent adult mentor who made a difference in their lives were more likely to report depressive symptoms during emerging adulthood compared to those who reported that they didn't ($b= 0.279$, $p<0.05$).

Sociodemographic factors

Respondents who reported they had graduated high school or obtained a GED were less likely to report depressive symptoms during emerging adulthood ($B= -0.236$, $p<0.05$) compared to those who reported they didn't. Age was negatively related to depressive symptoms during emerging adulthood ($B= -0.052$, $p<0.05$). Respondents who indicated that they were of Hispanic origin were more likely to report depressive symptoms during emerging adulthood compared to non-Hispanic respondents ($B= 0.292$, $p<0.05$). Being male, currently employed, and U.S.-born were not statistically significantly associated with depressive symptoms during emerging adulthood. Collectively, the independent variables including the biological factors, psychological factors, social factors, and sociodemographic variables in the model explained 26.2% of the variance in depressive symptoms during emerging adulthood ($R^2 = 0.262$)

DISCUSSION

This study examined the prevalence of depressive symptoms among emerging adults using the biopsychosocial framework. The results supported several study hypotheses. Depressive symptoms during adolescence were significantly associated with depressive symptoms during emerging adulthood (H_1). The study found that biological factors such as

nutrition (H_2) and physical health (H_3) were significantly associated with depressive symptoms. Psychological factors such as negative emotion (H_4) and self-esteem (H_5) were significantly associated with depressive symptoms. Social factors such as having a non-parent adult mentor (H_7) were also significantly associated with depressive symptoms. Lastly, emerging adults who obtained a high school degree or GED (H_{10}) and older (H_{12}) were less likely to report depressive symptoms. Interestingly, Hispanic emerging adults (H_{13}) were more at risk for depressive symptoms. The independent variables in the model explained 26.2% of the variance in depressive symptoms during emerging adulthood.

Depressive symptoms during adolescence

This study found that depressive symptoms during adolescence were associated with recurring episodes later on in life (H_1), a finding similar to other studies conducted in the past (Angold et al., 2002; Ferro et al., 2015; Patton et al., 2014; Twenge & Nolen-Hoeksema, 2002). Depressive symptoms during adolescence can influence and predict further re-occurrence of these symptoms, especially during emerging adulthood. It was reported that more than 60% of adolescents with depressive symptoms tend to report another depressive episode later in their lives (Patton et al., 2014). Thus, emerging adults with depressive symptoms are likely to have a previous history of these symptoms during adolescence (Patton et al., 2014). Given how earlier episodes of depressive symptoms can result in ongoing mental health concerns for adolescents as they age and enter emerging adulthood, addressing these symptoms when they occur during their earlier years may prevent further reoccurrence of these symptoms. Addressing these symptoms at an earlier period may reduce respondents' susceptibility to various biopsychosocial risk factors. For example, unhealthy fast-food consumption has been previously shown to increase among individuals with depressive symptoms (Lai et al., 2016; Li et al., 2016; Li et al., 2017).

Therefore, treating depressive symptoms at an earlier period may reduce the risk of respondents engaging in unhealthy fast-food consumption as they transition through this period. In addition, poor physical health has been shown to increase among people with depressive symptoms (Ferro et al., 2015; Ferro et al., 2016). Thus, treating these depressive symptoms at an earlier age may reduce their risk of developing chronic health conditions during emerging adulthood. Lastly, lower levels of self-esteem and lack of social support have also been linked to depressive symptoms (Whisman et al., 2020; Van Dam et al., 2018**)**. As a result, treating depressive symptoms during adolescence may prevent a decrease in a respondent's self-esteem as they navigate through emerging adulthood, preventing further reoccurrence of these symptoms. Treating these symptoms might also help respondents develop and maintain their social support network, reducing the reoccurrence of depressive symptoms during emerging adulthood. Given the impact that depressive symptoms can exert during emerging adulthood, treating the onset of depressive symptoms early in their life may improve their risk for adverse outcomes during this critical transition such as emerging adulthood.

Biological factors

This study highlighted two biological factors associated with depressive symptoms in emerging adulthood. First, emerging adults who consumed fast food on at least one or more days were more likely to report depressive symptoms (H_2). These results supported those found in earlier studies (e.g., Debbia et al., 2020; Lazarevich, 2018; Lee & Allen, 2021). Respondents suffering from depressive symptoms might turn to unhealthy food consumption to cope with these symptoms (Lazarevich, 2018). Individuals with depressive symptoms may have a higher craving for carbohydrate-rich foods as a way to improve their depressive mood (Corsica & Spring, 2008; Kris-Etherton et al., 2020; Lazarevich, 2018). Fast food typically is high in

carbohydrates, and thus individuals with depressive symptoms may consume these kinds of food at a higher rate to find some comfort from their depressive symptoms (Corsica & Spring, 2008; Kris-Etherton et al., 2020; Lazarevich, 2018). The consumption of carbohydrates has previously been shown to increase the release of serotonin in the body, a chemical involved in mood control (Corsica & Spring, 2008; Kris-Etherton et al., 2020). Thus, respondents might use fast food to gain some psychological comfort from the depressive symptoms they are suffering from (Lazarevich, 2018). In addition, respondents with depressive symptoms might have lower levels of self-control due to these symptoms, which can result in them being more impulsive in their food choices (Lazarevich, 2018). This impulsivity, combined with the desire for psychological comfort from their negative mood, might result in them consuming fast food at a higher rate than respondents without any depressive symptoms (Lazarevich, 2018). For these reasons, respondents with depressive symptoms might have a higher likelihood of unhealthy fast-food consumption.

Depressive symptoms have also been associated with a change in appetite, including increased appetite among some individuals and decreased appetite among others (Coccurello, 2019). Therefore, this increase in appetite that can occur among some respondents with depressive symptoms can make them more likely to consume unhealthy foods due to poor self-control and higher consumption of comfort food (Coccurello, 2019; Privitera et al., 2013). Emerging adults are one of the groups most likely to consume fast food for various reasons (Fryar et al., 2019). A possible explanation is that many emerging adults may be more likely to consume fast food as they feel like they may not have the time to make healthier choices during this period due to other commitments (Fryar et al., 2019). Many are preoccupied with other obligations such as tertiary education, different employment opportunities, and new relationships

(Fryar et al., 2019). Some emerging adults may also lack the skills necessary to prepare healthier meals (Munt et al., 2017). A possible explanation for this is that many emerging adults come from homes where meals were purchased or have already been prepared, and thus, they were not taught the skills necessary to prepare their meals (Munt et al., 2017). Another reason is that emerging adulthood is the period when fast food consumption is the most common as emerging adults are finally able to make their own food choices independently of their parent's opinions (Fryar et al., 2019). As a result, many respondents might prefer the convenience of purchasing available fast-food options when deciding on their meals for the day (Fryar et al., 2019; Smith et al., 2014). The findings from this study thus build further support for the importance of nutrition as a biological factor related to depressive symptoms.

Consistent with previous studies, this study also found that emerging adults with good physical health were less likely to report depressive symptoms (H_3) (Barlett et al., 2020; Ferro et al., 2015; Ferro, 2016; Reaume et al., 2021). Individuals suffering from chronic health conditions or other physical ailments experience issues such as learned helplessness (when an individual stops trying to change their circumstances despite having the ability to do so due to adverse events they have experienced), loss of sense of control over their lives, and an overall negative outlook on life (Bussfeld et al., 2002; Ferro et al., 2015; Ferro, 2016). As a result, respondents with chronic health conditions might be at an increased risk for developing depressive symptoms (Bussfeld et al., 2002; Ferro et al., 2015; Ferro, 2016). Respondents with these chronic health conditions are more likely to feel negative and helpless about their current situation (Bussfeld et al., 2002; Ferro, 2016). They are also more likely to feel like they have no control over the direction of their lives due to their chronic condition (Bussfeld et al., 2002; Ferro, 2016). They might also be less hopeful of their future and might be less likely to pursue opportunities

available during emerging adulthood, such as educational opportunities, new relationships, and employment opportunities (Bussfeld et al., 2002; Ferro, 2016). These feelings of helplessness, loss of control over their lives, and pessimism regarding their future can negatively impact respondents' ability to cope with stressful situations they can encounter throughout this period (Ferro et al., 2015). Respondents might also be more likely to isolate themselves from others due to their chronic conditions, thereby significantly affecting their mental health (Ferro et al., 2015). Recent evidence supports the idea that emerging adults currently suffering from depressive symptoms are more likely to suffer from physical health issues and report having physical health issues (Barlett et al., 2020). A meta-analysis of interventions for treating depressive symptoms among individuals with chronic health conditions found that self-management interventions have been successful (Ould Brahim et al., 2021). These self-management interventions focused on behavioral change by helping individuals develop the skills and confidence necessary to self-manage their chronic conditions (Ould Brahim et al., 2021). This typically involved educating individuals on how to manage their chronic conditions best and providing them with coping strategies to deal with the emotional impacts of their disease (Ould Brahim et al., 2021). Given the findings of this study regarding the association between physical health and depressive symptoms, the use of intervention strategies such as self-management interventions may help reduce the prevalence of these symptoms among emerging adults with chronic health conditions.

Psychological factors

This study found that negative emotions were positively associated with depressive symptoms during emerging adulthood, which was consistent with earlier studies that have been conducted (H_4) (Bravo et al., 2018; Michl et al., 2013; Polanco-Roman et al., 2018).

Respondents who report these negative thoughts and emotions are more susceptible to experiencing higher levels of stress and depressive symptoms when faced with challenges in daily life (Michl et al., 2013). Respondents prone to negative emotions and thoughts are also more likely to use maladaptive coping methods to deal with these emotions and thoughts (Bravo et al., 2018). These maladaptive coping methods include substance abuse, social withdrawal, and unhealthy food consumption, all of which increase the risk of depressive symptoms (Bravo et al., 2018). It is also important to note that depressive symptoms might also increase the likelihood of negative thoughts and emotions among individuals (Schubert et al., 2017). Several studies have found that individuals prone to negative thoughts and emotions tend to experience an increase in the severity of their depressive symptoms (Mahoney et al., 2012; McEvoy et al., 2019; Spinhoven et al., 2018). Therefore, these negative thoughts and emotions might worsen the impact these depressive symptoms can have on a respondent's life (Spinhoven et al., 2018). As a result, respondents suffering from depressive symptoms and engaging in negative thinking might be more likely to have adverse outcomes throughout this period (Spinhoven et al., 2018). Emerging adults who are prone to negative thoughts and emotions thus may be more susceptible to experiencing stress when faced with the hardships during emerging adulthood. Therefore, this may result in them struggling to successfully transition through this period, thereby increasing the severity of their negative thoughts and emotions and further increasing their risk for depressive symptoms. Several interventions have focused on reducing negative thinking and emotions among individuals (Edge et al., 2021; Muñoz et al., 2016). These interventions used online-based interventions, such as mobile phone apps, which included self-monitoring of their mood, educational information, and self-help exercises, to help individuals reduce their likelihood of engaging in negative thoughts and emotions (Edge et al., 2021; Muñoz et al., 2016).

Thus, the use of these interventions among emerging adults should be examined, given the findings of this study.

Self-esteem was also negatively associated with depressive symptoms among emerging adults, consistent with findings from previous studies (H_5) (Germani et al., 2020; Mossakowski, 2015; Steinhausen et al., 2007). Self-esteem is a significant predictor of healthy development among emerging adults as it can influence various outcomes, including physical and mental health (Germani et al., 2020). Emerging adults with lower levels of self-esteem are more prone to have a negative outlook on life, isolate themselves from other social networks, and be more sensitive to rejection from their family and peers (Germani et al., 2020). For this reason, respondents with low self-esteem were at an increased likelihood of mental health concerns (Germani et al., 2020). Therefore, self-esteem is considered one of the most crucial protective factors against depressive symptoms among emerging adults (Germani et al., 2020). Self-esteem is thus a significant psychological factor in this study, as respondents with higher levels of self-esteem were less likely to report depressive symptoms. Emerging adults with higher levels of self-esteem were also more likely to report positive outcomes during this emerging adulthood and, as a result, were more likely to report a successful transition into middle adulthood (Arnett, 2016; Germani et al., 2020; Steinhausen et al., 2007).

Social factors

This study found that family social support is not significantly associated with depressive symptoms among emerging adults (H_6). These findings were in contrast to previous studies that found a significant association between family social support and depressive symptoms (Cano et al., 2020; Ioannou et al., 2019; Martínez-Hernáez et al., 2016; Pössel et al., 2018). A possible explanation for this is that some respondents receiving higher levels of social support might have

higher levels of distress when faced with challenging situations as they navigate this period (Gleason et al., 2008; Ioannou et al., 2019). Some studies found that some emerging adults who receive these higher levels of support may feel more self-doubt and low self-worth for various reasons (Pourmand et al., 2021; Gleason et al., 2008; Hooker et al., 2020). For example, they may perceive themselves as unable to care for themselves without others' support (Pourmand et al., 2021; Gleason et al., 2008; Hooker et al., 2020). As a result, higher levels of support for these individuals may increase their psychological distress and their risk for mental health concerns (Ioannou et al., 2019). Therefore, future studies should examine whether some emerging adults are negatively impacted by a higher level of family social support and the possible reasons this support might negatively affect them.

Interestingly, having a mentor was positively associated with depressive symptoms among emerging adults (H_7). This result is contrary to other studies that have found a decrease in depressive symptoms among emerging adults who had a mentor in their life (Hurd et al., 2014; Hurd & Zimmerman, 2010; Kogan et al., 2011). A possible explanation for this finding is the quality of the relationship respondents had with their mentors. Earlier studies have found that an individual's perception of the quality of their relationship with their mentor can affect whether this relationship has any positive outcomes on their well-being (Haft et al., 2019; Whitney et al., 2011). For example, individuals who reported poor quality relationships with their mentors were less likely to report better mental health outcomes and overall well-being (Haft et al., 2019; Whitney et al., 2011). Thus, it is possible that the respondents who reported depressive symptoms despite having a mentor might have had a poor quality relationship with them. Therefore, it would be interesting to examine the quality of relationships respondents had with their mentors to see how this affected their risk for depressive symptoms. Another possible

explanation is that respondents suffering from mental health concerns, such as depressive symptoms, might be more likely to seek out a nonparental adult mentor than others (Hurd et al., 2014). Emerging adults with depressive symptoms might be more inclined to seek the help of a mentor to help them cope with these symptoms and the added stress and hardships that can occur during this developmental transition (Hurd et al., 2014). This study found that respondents with depressive symptoms were more likely to have a mentor, so it may be beneficial to include mentors in interventions focusing on reducing these symptoms. Interventions focusing on treating depressive symptoms that included both mentors and mental health professionals have been successful (Joo et al., 2016; Joo et al., 2018). These interventions established a working alliance between mental health professionals and mentors to deliver treatment to individuals with depressive symptoms (Joo et al., 2016; Joo et al., 2018). The mentors would help individuals with any concerns they might have regarding treatment for their depressive symptoms and provide support to them throughout this process, which increased the success of the treatment (Joo et al., 2016; Joo et al., 2018). While these interventions were implemented on different populations, such as older adults, it might be interesting to examine if they are beneficial to emerging adults who have mentors.

Sociodemographic characteristics

Graduating high school or obtaining a GED decreased the likelihood of depressive symptoms among emerging adults (H_{10}) (Fergusson et al., 2015; Liem et al., 2010). Respondents who receive a high school degree or GED might fare better on various biopsychosocial factors related to depressive symptoms. For example, better-educated respondents might be more likely to have healthier dietary habits (Janssen et al., 2018). In addition, they might be more likely to make informed choices regarding the food they consumed and its effect on their health (Janssen

et al., 2018). In addition, they were more likely to have higher levels of self-esteem and lower levels of negative thoughts (Fergusson et al., 2015). Higher levels of education can increase respondents' likelihood of positive outcomes (i.e., finishing their education, obtaining employment, building their social network) during their lives (Fergusson et al., 2015). A possible explanation for this is that individuals with a high school degree or GED might have more employment and education opportunities available, thereby increasing their likelihood of success (Fergusson et al., 2015). Therefore, researchers examining biopsychosocial factors related to depressive symptoms among emerging adults should consider the effect that educational attainment can have on these factors.

This study also found that as emerging adults got older and progressed through this transitional period, they were less likely to report depressive symptoms (H_{12}). These results align with previous research conducted on this topic (Eyre & Thapar, 2014: Parkes et al., 2016; Patton et al., 2014). Older respondents were in their late 20s and were reaching the end of emerging adulthood. Due to this, they typically tend to fare better on various biopsychosocial factors related to depressive symptoms. For example, fast-food consumption typically decreases as individuals age and begin transitioning into middle adulthood (Fryar et al., 2019). In addition, their levels of self-esteem also increase as they progress through this phase (Arnett, 2016). A possible explanation is that many become confident in their social position in society as they reach the later stages of emerging adulthood (Arnett, 2016). Older respondents also begin to pursue traditional adult roles such as long-term employment, marriage, and parenthood, which can further increase their self-esteem (Arnett, 2016). Lastly, older respondents are more likely to have higher levels of social support as many have established their social networks throughout

this period. Given these findings, it would be interesting to compare how older respondents fare on these biopsychosocial factors compared to their younger counterparts.

Lastly, this study found that Hispanic emerging adults are more likely to report depressive symptoms. This is consistent with earlier studies that have found similar results (Cano et al., 2020: Cano et al., 2016; Leung et al., 2014; Menselson et al., 2008; Miranda et al., 2013; Polanco-Roman & Miranda, 2013). Hispanic respondents might be more likely to fare poorly on mental health. For example, Hispanic respondents might be more likely to engage in negative thoughts and emotions for multiple reasons. A possible explanation for this is that Hispanic emerging adults can experience stressful events related to acculturation (Schlaudt et al., 2021). These stressful events, such as experiencing discrimination due to being Hispanic or having difficulties speaking the native language, can increase an individual's likelihood of developing this negative mindset (Schlaudt et al., 2021). Hispanic respondents might also be more likely to report unhealthy dietary habits for various reasons. A possible explanation for this is that Hispanic emerging adults may lack the income necessary to purchase and prepare healthier food options and may be more likely to consume fast food (Overcash & Reicks, 2021; Siega-Riz et al., 2019). They may also be more likely to lack the nutritional education necessary to make healthier food choices and thus may resort to fast food consumption (Overcash & Reicks, 2021; Siega-Riz et al., 2019). This is important as Hispanics comprise 52% of the total population growth between 2010 and 2019 and make up 18% of the total U.S. population (Krogstad et al., 2020; Pew Research Center, 2013). Given the ongoing growth of this population, further studies should examine these biopsychosocial factors of depressive symptoms among Hispanic emerging adults to see how they compare to other groups.

LIMITATIONS

Some limitations should be noted for this study. First, the data for this study were collected twenty years ago, and thus, it is important to consider new biopsychosocial factors that have emerged since then. Future studies should look at how emerging adulthood has evolved and what new biopsychosocial factors can affect this group's mental health. In addition, this study also looked at a limited number of biopsychosocial variables given what was available from the dataset. Future research should look at a more significant number of biopsychosocial variables to see how they affect depressive symptoms among this group. Previous studies have found that biological factors such as genetic and hereditary factors can have a significant impact on an individual's risk for depressive symptoms (Kwong et al., 2019; Mullins et al., 2016; Shadrina et al., 2018). Individuals who have a family history of depressive symptoms or mental health concerns may be at a higher risk for developing depressive symptoms when faced with adverse events (Kwong et al., 2019; Mullins et al., 2016). Certain genetic factors such as a decrease of mitochondria production in the body may also make certain individuals more susceptible to developing depressive symptoms (Shadrina et al., 2018). Thus, including variables that examined a respondents' family history of mental health concerns as well as genetic factors related to mental health concerns in the biopsychosocial model may have strengthened the findings of this study. In addition, including social determinants of health in the biopsychosocial model such as food security and income may have further strengthened the results of this study (Fang et al., 2021; M et al., 2021; Schlax et al., 2019). Previous research has found that individuals who have a lower income and experience food insecurity are more likely to be at risk for depressive symptoms (Fang et al., 2021; M et al., 2021; Schlax et al., 2019). For these reasons, including

variables that examined food security and income would have improved the findings of this study.

Another limitation of this study is that it did not take into consideration the historical context of the data that were used for this study. The impact that an event such as the 9/11 attacks may have had on various biopsychosocial variables that were used in this study (Ford et al., 2003; Uecker, 2008). Since the emerging adulthood data were collected in 2001-2002 which was when the 9/11 attacks occurred, it is possible that respondents who experienced the aftermath of this event might have had a higher risk for various biopsychosocial risk factors and therefore a higher risk for depressive symptoms (Ford et al., 2003; Uecker, 2008). For this reason, it is important to consider the generalizability of the findings of this study given the historical context when the data were collected. Lastly, another limitation of this study was that it did not take into consideration the social context of the data that were collected for this study. Given that the data came from respondents all across the U.S., it is important to consider how the effect of intersectionality of various variables might have shaped their mental health outcome. Respondents who were from various marginalized groups with respect to their race, gender, class, and age might face a higher risk for various biopsychosocial risk factors related to depression (Rice et al., 2019). Therefore, examining the relationships between these various sociodemographic factors and the impact they might have had on the findings could have strengthened the findings of this study.

CONCLUSION

The aim of this study was to examine depressive symptoms among emerging adults through a biopsychosocial framework. This study sought to fill a gap in the literature by using a biopsychosocial model to examine depressive symptoms among emerging adults as previous

biopsychosocial models have mainly focused on other populations, such as diabetics and the elderly. This study highlighted several biopsychosocial factors related to depressive symptoms among emerging adults. Overall, the study found several biopsychosocial factors significantly associated with depressive symptoms among emerging adults. These factors included nutrition, physical health, self-esteem, negative emotion, and having a mentor. As a result, public health policies and interventions should consider focusing on these biopsychosocial factors as they may significantly impact the prevalence of depressive symptoms among emerging adults. The biopsychosocial factors identified in this study were examined using data from respondents who navigated through emerging adulthood twenty ago. While the biopsychosocial factors examined in this study were analyzed using data from previous generations of emerging adults, they are still relevant to the current generation. Therefore, the findings of this study can be used to guide researchers interested in examining the biopsychosocial factors related to depressive symptoms among the current generation of emerging adults. Future studies should also examine how biopsychosocial factors related to depressive symptoms among emerging adults have changed from the previous generations to the current one.

Chapter 4: Conclusion

The changes that societies have undergone due to the shift to a more industrial focus have resulted in many changes in adulthood. Emerging adulthood (ages 18-25 years) is a phase during an adult's life where they undergo a period of change and transition in various areas of their life, such as relationships, education, and employment. Given the volatility that can occur during this period, some emerging adults may be more susceptible to experiencing adverse outcomes such as mental health concerns. Of particular concern is the risk of depressive symptoms among this age group, as it has been found that the prevalence of depressive symptoms is highest during emerging adulthood. Given the negative impact that depressive symptoms can have on an individual's life, such as suicidality, healthcare-related costs, and loss of productivity in various areas of their life, it is crucial to examine this topic in further detail. This dissertation expanded on the current knowledge on depressive symptoms among emerging adults and the protective factors and risk factors associated with depression To accomplish this, two studies were conducted to examine depressive symptoms among emerging adults through different theoretical perspectives. The first study conducted an in-depth examination of the protective and risk factors prevalent during emerging adulthood and their effect on depressive symptoms among emerging adults. The first study found several protective and risk factors prevalent during emerging adulthood that were associated with depressive symptoms among this age group. These factors included self-esteem, life satisfaction, neighborhood environment, criminal engagement, and alcohol use. Therefore, public health intervention and policies should focus on these protective and risk factors prevalent during emerging adulthood as they have been shown to significantly affect the risk of depressive symptoms in various studies. The second study examined biopsychosocial variables among depressive symptoms in emerging adults and found several

variables of interest that were associated with depressive symptoms among this age group. These biopsychosocial variables included nutrition, physical health, self-esteem, negative emotions, and having a mentor. Thus, public health interventions and policies should also focus on these biopsychosocial factors related to depressive symptoms among emerging adults. The findings from both of these studies can be used to guide mental health care professionals in various fields that work with emerging adults. For example, mental health counselors and therapists who work in higher education should consider looking at these protective and risk factors of emerging adulthood such as self-esteem, life satisfaction, as well as these biopsychosocial factors when treating depressive symptoms among emerging adults. In addition, interventions aimed at preventing or treating depressive symptoms among emerging adults should also examine these factors given their association with the risk of depressive symptoms among this age group.

Future research should examine protective and risk factors among emerging adults using recent data as the data for this study were collected twenty years ago. Nevertheless, the protective and risk factors as well biopsychosocial factors that were examined in these two studies are still relevant to the current generation of emerging adults. Thus, exploring how protective and risk factors of emerging adulthood have changed since Generation X and Y is crucial. Future research should also examine biopsychosocial factors of depressive symptoms among emerging adults using recent data to investigate any changes associated with these factors. Finally, future studies should examine emerging adulthood's protective and risk factors and biopsychosocial variables of depressive symptoms among Hispanic emerging adults, given the population growth of Hispanics. This will allow future researchers to investigate any differences between this ethnic group and other groups of emerging adults.

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Salvador has extensive experience working as a graduate assistant for the Graduate School Professional Development & Outreach (PDO) team. He previously worked as a graduate assistant for the Graduate school PDO team from 2017 to 2021. Currently, Salvador plans to pursue employment in either academic or non-academic-related positions.

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