2024

Exploring the impact of the Covid-19 pandemic on adolescent mental health: an integrative systematic review

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EXPLORING THE IMPACT OF THE COVID-19 PANDEMIC ON ADOLESCENT MENTAL HEALTH: AN INTEGRATIVE SYSTEMATIC REVIEW

A clinical dissertation submitted in partial satisfaction

of the requirements for the degree of

Doctor of Psychology

by

Ruth Maouda

March, 2024

Dennis Lowe, PhD – Dissertation Chairperson

This clinical dissertation, written by

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under the guidance of a Faculty Committee and approved by its members, has been submitted to and accepted by the Graduate Faculty in partial fulfillment of the requirements for the degree of

DOCTOR OF PSYCHOLOGY

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ACKNOWLEDGMENTS

This dissertation is dedicated to a number of individuals and communities including the faculty at GSEP to whom I am grateful for their tutelage and support throughout my graduate education. I also want to extend my heartfelt gratitude to my peers, class of 2024: WE DID IT!

A special thank you and acknowledgment goes out to Dr. Dennis Lowe, my dissertation chair, who helped me champion to the end of my project with patience, understanding, and expertise.

To the Los Angeles Jewish Community: thank you for raising me to be a light onto others, for never failing to remind me to cherish my Jewish roots and where I come from. Your lessons and teachings will forever guide me into adulthood as a proud Jewish woman. I hope I can continue to make you and our nation proud. AM YISRAEL CHAI!

To my friends (you know who you are), thank you for the walks, the talks, and the endless support.

Most importantly, I would like to dedicate this accomplishment to my family: my parents, Shaul & Yehudit Maouda, who immigrated from Israel to the United States with very little but from whom I have received in abundance. You raised me with such love and devotion, and I would not be who I am today if not for the both of you.

To my siblings Ori, Tali, and Yuval for their never-ending support and belief in me. Thank you for cheering me on as I neared the finish line.

To my incredible extended family in Israel and in the U.S.: you are my heart and soul; thank you for always reminding me that home is where the heart is.

To my husband, Barry Rosenblum: thank you for your unconditional love and support as I pursued my dreams and career. Without your patience and sense of humor, this journey would have felt a lot longer. Thank you for continuing to turn moments of pain and difficulty into laughter and strength.

And finally, to my daughter, Yael Rivka and nephew, Edon Moshe: I hope you both grow up healthy, content, and happy. May you encounter endless adventure and endeavor to stay curious and creative. Most importantly, know that you can always return to your family, safe in the knowledge that we will always be there for you no matter where or what happens.

All my love,

Ruth

VITA

Ruth Maouda

EDUCATION

Pepperdine University, Graduate School of Education and Psychology; Los Angeles, CA
Track Emphasis: Family Systems; Humanistic, Existential, & Experiential Psychotherapy
Doctorate of Clinical Psychology; APA-Accredited Program August 2024

Pepperdine University, Graduate School of Education and Psychology; Los Angeles, CA
Master of Arts in Clinical Psychology: Emphasis in Marriage and Family Therapy; APA-Accredited Program July 2020

Mental Health of America (MHALA) Jump Start Fellowship; Long Beach, CA
Certified Mental Health Recovery Specialist December 2017

Yeshiva University-Stern College for Women; New York, NY
Bachelor of Arts: Dual Major in Psychology and Jewish Studies, Minor in English May 2017

GRANTS, HONORS, & SCHOLARSHIPS

2013	Nomination for the Jewish Journal Super Grad
2014-2017	Dean's List- Stern College for Women
2015	Skyline Academic Honoree
2017	Jacob Bluttal Award for Excellence in Behavioral Sciences
2017	Magna Cum Lada Honor Roll- Stern College for Women
2019-2024	Psi Chi - West Los Angeles Pepperdine University Chapter Member

CLINICAL EXPERIENCE

Pacific Clinics, Santa Fe Springs, CA
Primary Rotation: Child & Family Track LYP Clinic, Secondary Rotation: Passageways
Psychology Intern, Supervisors: Laura Waters, Psy.D August 2023-December 2024

- APA-Accredited Doctoral Psychology Internship Training Program
- Provide comprehensive range of mental health, developmental and community outreach services to children, adolescents, and families in a multicultural community mental health setting, as well as group supervision and consultation to doctoral students.

Institute for Girls Development, Pasadena, CA
Doctoral Practicum Extern, Supervisors: Melissa Johnson, Ph.D., Grace Goodman, Psy.D., **Vicki Chiang Psy.D** July 2021-June 2023

- Assessment, diagnosis, and treatment of children, adolescents, adults and families from

diverse socioeconomic and ethnic/cultural backgrounds utilizing evidenced-informed techniques and interventions such as Family Systems Theory, Cognitive Behavioral Therapy, Motivational Interviewing, Mindfulness Based-Techniques, and Humanistic approaches.

- Individual psychotherapy and telehealth services for clients with various diagnoses including Generalized Anxiety Disorder, Adjustment Disorder, Obsessive Compulsive Disorder, Social Anxiety, Major Depressive Disorder, Gender Dysphoria Disorders, Attention Deficit Hyperactivity Disorder and clinical issues such as perfectionism, body image, low self-esteem, non-suicidal self-injury, interpersonal conflict, and high- conflict divorce.
- Individual neuropsychological and personality administration, scoring, interpretation, and reports for comprehensive individualized assessment batteries.
- Daily consultation with inter-program administrative staff and clinicians, as well as collaborative consultations with external providers as needed.
- Preparation, completion, and presentation of practice-wide didactic workshop for clinicians on decreasing service provider burnout in the context of the COVID-19 pandemic.
- Prepared and co-facilitated a summer Expressive Arts therapeutic youth program focused on cultivating resilience, interpersonal skill-building, and confidence in a supportive group environment.
- Co-facilitated Tweens Connection Group focused on cultivating social-emotional awareness and interpersonal skill-building in a supportive group environment.
- Completed agency wide training on Stand Up, Speak Out curriculum; a workshop geared towards helping children maintain healthy friendships, use assertiveness with compassion, and approach challenges with confidence.

South Los Angeles Trauma Recovery Center; Inglewood, CA

Psy.D Trainee, Supervisor: Dr. LaTonya Wood, Ph.D September 2020-June 2021

- Assessment, diagnosis, and treatment of children, adolescents, and families with mental health from low socioeconomic and diverse ethnic/cultural backgrounds utilizing evidenced-informed techniques and interventions from Attachment, Self-Regulation, and Competency (ARC) Framework, Motivational Interviewing, and Trauma-Focused Cognitive Behavioral Therapy.
- Individual psychotherapy and telehealth services for clients with various diagnoses including Generalized Anxiety Disorder, Adjustment Disorder, etc.
- Attendance and participation in bi-weekly School-Based Consultation Group to explore and hone strategies and effective therapeutic interventions appropriate for working with school-aged children and adolescents.
- Attendance and participation in weekly individual, peer, and group supervision.

- Daily consultation with inter-program administrative staff and clinicians.
- Participated and presented Community Outreach Project in collaboration with LAUSD on the impact of the COVID-19 pandemic on caregivers and their families.

Didi Hirsch Mental Health Services- Sepulveda Adult Program; Culver City, CA
MFT Trainee, Supervisors: Scott Rowland, L.M.F.T., Linda O'Conner L.C.S.W., & Giselle Collins Psy.D September 2019-July 2020

- Assessment, diagnosis, and treatment of transitional age youth and adults with mental health from low socioeconomic and diverse ethnic/cultural backgrounds utilizing evidenced-based informed techniques and interventions from Cognitive Behavioral Therapy, Motivational Interviewing, and Dialectical Behavioral Therapy.
- Individual psychotherapy and telehealth services for clients with various diagnoses including Post Traumatic Stress Disorder, Schizoaffective Disorder, Major Depressive Disorder, Substance Use Disorder, Generalized Anxiety Disorder and Social Phobia.
- Experience treating clients at differing levels of care including Transitional Age Youth (TAY) and Recovery, Resilience, and Reintegration (RRR) programs.
- Attendance and completion of inter-agency trainings on DMH documentation, Child and Adolescent Needs and Strengths (CANS) training, safety in the field training, Applied Suicide Intervention Skills Training (ASIST), Whole Person Care training, Outcomes Training, Seeking Safety training, Case Management training, Dialectical Behavior Therapy (DBT) overview, Crises Oriented Recovery Service (CORS), ProACT, and Self-Care trainings.
- Attendance and participation in consistent individual and group supervision.
- Participation in Community Outreach and Engagement (C,E,&P) project through which group of interns create 3 psychoeducational presentations to small groups of children and young adolescents who are members of the Boys & Girls Club of Santa Monica- Mar Vista Garden Branch.
- Daily consultation with inter-program administrative staff and clinicians.

Mental Health of America (MHALA) Jump Start Fellowship; Long Beach, CA
Certified Mental Health Recovery Specialist September-December 2017

- Participated in an intensive learning program focused on providing education and training to individuals interested in working within the field of mental health. Received certificate as a Mental Health Recovery Specialist.
- Completed trainings on the following: developing DMH standard client treatment plans and progress notes, personal service coordination, DSM-5, reflective listening, DMH documentation, field readiness, group facilitation, Wellness Recovery Action Plans, principle guided decision making, motivational interviewing, and Question Persuade Refer training.
- Volunteered at Telecare C.O.R.E.LA agency as a Personal Service Coordinator-

II Intern (PSC), working towards community reintegration with underserved parole populations, Parole Outpatient Clinics, and California Department of Corrections and Rehabilitation. Eventuated in full-time employment.

Telecare Corporation Corrections Outpatient Recovery Enhancement (C.O.R.E.)**,** Los Angeles, CA

Personal Service Coordinator-II December 2017- July 2018

- Worked as a primary support, under supervision, for individuals on parole with mental illness, by assisting them to develop independent living skills within their communities.
- Collaborated weekly with members to conduct initial enrollment screenings, create and implement Recovery Plan goals, and draft enrollment notes, Individualized Re-entry Plan's (IRP), and Partnership Assessment Forms (PAF).
- Collaborated on interdisciplinary team meetings focused on member/client progress and goals.
- Connected members to community resources such as TAP agency, Medi-Cal, GR, Chrysalis, SSI, Section 8 Housing, etc.
- Advocated for members during Phase Transfer Process by presenting case work on member's progress to resident CDCR clinician.
- Coordinated with parole officers regarding significant changes in members' behavior, physical and mental health status, living situation, legal information, and discharge planning.

VOLUNTEER EXPERIENCE

Etta Israel, Los Angeles, CA

Summer @ Etta CAP Head Counselor June-August, 2015

- Implemented programs for participants with developmental disabilities to improve daily living skills, socialization, and independence.
- Facilitated monitored confrontations between participants and was responsible for settling issues within the group pertaining to both personal and social psychological differences.

Summer Counselor, Liaison, and Training June-August, 2009-2013

SCATCH, Shenandoah Elementary School, Los Angeles, CA

Community Tutor September-June, 2011-2013

- Provided both academic and social support to elementary school children as part of a community outreach program to help keep young students off the streets.

TEACHING & LEADERSHIP EXPERIENCE

Pepperdine University GSEP, Los Angeles, CA
3rd Year Class Representative, SGA September 2022-June 2023

- Participate in organization of annual Psy.D program anti-racism learning day.
- Establish and maintain conducive environment for student learning, well-being, connection and community.

Pepperdine University GSEP, Los Angeles, CA
Peer Consultant, Supervisor: Aaron Aviera, Psy.D September 2022-June 2023

- Provide supervision and clinical support to 1st year Psy.D students at the Pepperdine University West Los Angeles Clinic and Union Rescue Mission.
- Responsibilities include consultation on client cases, auditing clinical documentation including progress notes, intake evaluations, and treatment planning, assist as needed with crisis management, as well as review and provide feedback on audio/video recordings of client sessions.
- Maintain supervision notes of weekly peer consultation meetings.

Pepperdine University GSEP, Los Angeles, CA
Graduate Assistant August 2018- April 2023

- Oversee the exchange of testing materials and assessments to students and faculty using bookkeeping system on Google sheets.
- Correspond with testing desks across multiple campuses via email and inter-campus mail to support test tracking and insure availability per student/professor requests.
- Maintain inventory of over 200 psychological assessments and testing materials at the end of each trimester.
- Ordering faculty videos, maintaining video library and sending out videos weekly to all four graduate campuses.
- Assist with electronic inventory of syllabi using electronic portal called Etrieve.
- Prepare for and assist with seasonal student orientations, provide in-class presentations to students regarding testing desk policies and procedures.

Stern College for Women, Hebrew TA, Level 1104, New York, NY
Teaching Assistant September-December, 2016

Heidi Sternberg Library, Stern College for Women, New York, NY
Library Assistant September-May, 2014-2015

RESEARCH EXPERIENCE

Doctoral Dissertation Research, Pepperdine University Los Angeles, CA

Topic: Exploring the Impact of the COVID-19 Pandemic on Adolescent Mental Health
Dissertation Committee: Dennis Lowe, Ph.D (Chairperson) & LaTonya Wood, Ph.D (Committee Member) December 2020-August 2023

- Development of research topic, research questions, and methodology for doctoral dissertation research.
- Successful completion of Preliminary Oral Defense of Dissertation Proposal
- Hiring and training research assistants in the search and screening process, to conduct data collection and extraction, as well as quality appraisals for every article under review.
- ***Topic and Focus:*** Utilizing an integrative systematic review study design to understand the differential impacts of the COVID-19 pandemic on adolescent mental health, identify risk and protective factors, as well as uncover potential coping strategies or interventions in support of mitigating or preventing mental health outcomes.

Sleep and Environmental Psychology Lab, Baruch College New York, NY
Research Assistant, Co-Team Leader January 2015-May 2017

- Participated in training with the principal investigator on ethics related to research, including responsible conduct of research and human subjects' research. Gained certification at the conclusion of training.
- Attended ongoing workshops on Statistics Program for Social Sciences (SPSS) to develop competency in data analysis.
- Co-developed the Nap study with the principal investigator, team leads and lab manager. Worked towards developing hypotheses for the study, writing the Institutional Review Board (IRB), as well as developing and executing methodology during experimental periods of the study.
- Analyzed Actigraphy data for first iteration of Nap Study and provided tutorial and ongoing support to lab members on how to utilize the actigraphy program.
- Attended weekly research meetings to discuss updates and provide feedback on all research projects under investigation by the lab, including the Nap Study, Environmental Sustainability Study, and A Self Imagination Project.

Harbor UCLA, Department of Psychiatry, Los Angeles, CA
Research Assistant June-August 2016; 2017

- Tracked numerous Dialectical Behavior Therapy Diary Card surveys indicating current status of clients on their behavioral targets for treatment.
- Input data from Diary Cards into Qualtrics system for progressive analysis of clients from week to week.
- Organized outcome data obtained from clients over years of research on Cognitive Behavioral Therapy and Dialectical Behavioral Therapy.
- Assisted psychologists on staff with preparing materials for Cognitive Behavioral

Therapy training administered to clinical professionals in the Los Angeles County, as part of county CBT roll-out initiative.

- Attended and contributed to weekly meetings with all RA's and Psychologists on staff in order to discuss new research initiatives and review research.
- Handled and protected confidential patient information and data to comply to HIPPA regulations.

POSTERS & PRESENTATIONS

- Kelley, C., Horne, K., Tang B., Maouda, R., Wilson, N., Mathew, G.M., Thomas, C. & Engle-Friedman, M. (2017) The Effects of Scheduled Naps on Self-Efficacy and Effort in Student Athletes. – Presentation for the annual Hunter College Psychology Conference, April 2017.
- Kelly, C., Maouda, R., Tang B., Gomez, I., Wilson, N., Horne, K., Mathew, G.M., Thomas, C. & Engle- Friedman, M. (2017) The Effects of a Scheduled 45-Minute Nap on Student Athletes' Self- Efficacy, Mood and Athletic Performance. – Poster accepted for the 2017 annual meeting of the Association for Psychological Science, Boston, MA, May, 2017.
- Tang, B., Maouda, R. & Engle-Friedman, M. (2017) Good Quality Sleep Impacts Perceived Social Distance and Energy. – Poster accepted for the 2017 annual Creative Inquiry Day, New York, NY, May, 2017.
- Horne, K., Tang B., Maouda, R. & Engle-Friedman, M. (2017) The Effects of a Pre-Practice Nap on Mood and Self-Efficacy in Student Athletes. – Poster accepted for the 2017 annual Creative Inquiry Day, New York, NY, May, 2017.

CERTIFICATIONS & CLINICAL TRAINING

2017	Question Persuade Response Training Certified
2017	Mental Health Recovery Specialist Certified
2019	Applied Suicide Intervention Skills Training (ASIST) Certified
2019	Child and Adolescent Needs and Strengths (CANS) Certified
2019	Seeking Safety Certified
2021	Expressive Arts Therapy for Children
2021	Effective and Compassionate Clinical Work with Transgender and Nonbinary Children, Teens, and Families (8 Weeks) Certified
2021	Working with Transgender and Gender Expansive Youth: Clinical Tools for Working with Youth Across the Gender Spectrum

2021	Gaps and Gains: Understand the Social, Emotional, and Academic Setbacks and Gifts of the Covid-19 Year
2021	Cliques, Conflicts, and Connections
2022	Collaborative Assessment and Management of Suicidality (CAMS)
2023	Stand Up, Speak Out

ABSTRACT

Objective. An integrative systematic review was conducted to understand the potential impact of the COVID-19 pandemic on adolescent mental health and to identify what contributing risk and protective factors increased or decreased the likelihood that these mental health outcomes were experienced among adolescents, including those from diverse and vulnerable communities. Furthermore, this review examined interventions and coping strategies identified within the literature that were beneficial in mitigating these harmful pandemic-related effects. **Methods.** Data was collected from five electronic databases and included peer-reviewed, English-language articles published between 2020-present in the United States, comprised of adolescent participants aged 11-19. All studies were required to address the impact of the COVID-19 pandemic on adolescent mental health, describe contributing risk and protective factors associated with this impact, and/or provide information regarding interventions and coping skills used to support adolescents during the pandemic. **Results.** Findings from 49 included studies revealed increased rates of mental health symptoms (65.30%; $n = 32$) including the following: general mental health, depression, anxiety, negative affect, PTSD/trauma, stress, diminished physical & sexual health/activity, sleep disturbances, externalizing symptoms, substance use, body-image/disordered eating, psychiatric crisis/hospitalization, suicidal ideation/self-harm, interpersonal challenges, and isolation/loneliness. Additionally, 57.14% of articles ($n = 28$) addressed differential levels of systemic support (e.g., academic/school, caregiver, community, sociocultural impact/political exposure, and peer support), as well as, associated risk and protective factors among impacted adolescents. Lastly, a total of 22 records (44.89%) identified both interventions and coping strategies (e.g., adaptive and maladaptive) used by adolescents to manage their pandemic-related experiences. **Conclusions.** COVID-19 related adolescent mental

health impact was widely recognized among the articles included in this review, indicating elevated symptom rates across multiple diagnostic categories and mental health conditions. Furthermore, levels of systemic support appear to play key roles in increasing or decreasing the likelihood of adolescent mental health impact and should be examined further when considering how to mitigate similar future experiences, especially among vulnerable adolescent communities. Lastly, while certain interventions and coping strategies identified in this review did support adolescents in managing pandemic-related stressors, more research is needed to ascertain the effectiveness of these telehealth adapted strategies and interventions. The strengths of this study include its synthesis of the current literature on the COVID-19 pandemic and specific impact on adolescent mental health, as well as its recommendations to families/caregivers, school administrators/faculty, and governmental officials/policy-makers/stakeholders who have direct exposure to and influence on impacted adolescent communities.

Chapter I: Background and Rationale

Statement of the Problem

The emergence of the COVID-19 virus has had a significant impact on the physical, emotional, and mental health of the general population (Vindegaard & Benros, 2020). Fear of personally contracting the virus or of a loved one being exposed to COVID-19 has meaningfully shaped how people interact within and outside of their community; a notion that is concerning given research that emphasizes the impact of group membership on physical and mental health (Haslam et al., 2018). State-imposed restrictions in daily activities eventuated in a decrease in social engagement and support, which are relevant to maintaining one's well-being (Haslam et al., 2018).

Previous research has demonstrated the psychological and psychiatric ramifications associated with known past pandemics such as the SARS-CoV-1 epidemic, Ebola disease outbreak, and the Middle East respiratory syndrome (MERS; Holmes et al., 2020; Tam et al. 2004; Thompson et al., 2017). The COVID-19 virus is unique from these other events in several ways including its ability to spread quickly among asymptomatic individuals, its extensive and prolonged lockdown procedures on entire communities, and its reach across the globe (Holmes et al., 2020). As stated previously, responses to this pandemic impact how individuals engage with daily tasks and interpersonal relationships, including the way people function in their roles as parents, teachers, employees, and social beings (Holmes et al., 2020).

Adolescents, in particular, may have experienced a heightened level of stressors during the COVID-19 pandemic in comparison to the general population as the shut-down of schools, community centers, extracurricular activities, and enforced social distancing protocols have had a unique impact on their ability to socially interact with family and friends. As social interaction

and identity formation are critical milestones in this developmental stage, it is important to evaluate the potential effects of the COVID-19 pandemic on healthy adolescent development (Ellis & Zarbatany, 2017). Furthermore, past research suggests that childhood mental health is associated with issues in adulthood (Kessler et al., 2007) and can impact academic performance, occupational functioning, physical health, and perceived adult life satisfaction (Layard et al., 2014). As such, it is imperative to understand the associated mental health effects of the COVID-19 pandemic within the adolescent population and to examine any potential risk and protective factors that may contribute to or minimize these harmful effects. Moreover, special attention should be given to factors that may increase the potential for resilience and adaptive coping strategies among impacted adolescents.

The implications of this type of research may hold specific appeal for individuals experiencing functional impairment associated with pandemic-related stress, specifically families, parents, and children. Additionally, governmental officials with direct influence on public policy may benefit from this research in their exploration of new ways to support healthy community reintegration and function as the world nears the end of the pandemic. More importantly, individuals working directly with the adolescent population, - such as school district representatives, administrators, and teachers, - could utilize this research to help students as they return to an on-ground academic format by preparing the necessary resources to ease their transition. It is also imperative that both the professional medical and mental health communities ready themselves for a potential influx of patients and service-need as individuals begin to re-adjust to a post-pandemic world.

Current Research

Principles of Adolescent Development and Mental Health

Adolescence is a stage of life that has been cited by many theoreticians, like Piaget or Erikson, as a core period for cognitive, social, and emotional growth (Meschke et al., 2012). According to Piaget, a child's ability to acquire hands-on experience is essential to their ability to engage in self-reflection (Piaget & Inhelder 1973), which can often be instigated through interactions with peers. An Eriksonian perspective would highlight the importance of crisis resolution and an adolescent's ability to form a successful sense of self or risk potential role confusion (Erikson, 1994). One theme is salient among these perceptions of adolescent development and that is the undeniable heightened stress that is characteristic of this period (Spear, 2000), where physical and chemical changes in the brain can heighten emotional reactions to both real and perceived stressors (Bailen et al., 2019). This heightened level of emotionality can be especially difficult for adolescents to cope with considering that certain self-regulatory processes are still underdeveloped at this stage of life (Somerville et al., 2010).

This developmental period is also marked by physical maturation, a movement towards autonomy and independence, and an emphasis on peer social interactions (Casey et al., 2010). Research has shown that peer interactions can have an incredible impact on short and long-term adolescent wellbeing (Bagwell & Schmidt, 2011) and that spending time with peers can enhance mood and the feeling of reward (Masten et al., 2012; Weinstein et al., 2006). Feeling understood and supported by one's peers also diminishes experiences of loneliness and emotional distress (Hartup & Stevens, 1999; Spithoven et al., 2017).

However, this developmental period of stress is further complicated by the likely onset of psychiatric illness (Kessler et al., 2005) like generalized anxiety, eating disorders, depression,

and social anxiety (Rapee et al., 2019). While peer relationships can be helpful, social sensitivity is extremely elevated during adolescence indicating that these relationships can also become sources of conflict, rejection, and interpersonal stress (Somerville, 2013). As such, negative peer interactions can lead to developing a poor self-concept, feeling unworthy, and an increase in anxiety and depressive symptoms (La Greca & Harrison, 2005; Verboom et al., 2014). Interestingly, engaging in positive peer relationships can inspire protective factors such as social and emotional support which can help reduce the risk of developing depression and anxiety (La Greca & Harrison, 2005).

The theories and principles above provide a more in-depth understanding of the internal experiences that adolescents undergo throughout their development, however, they do not suffice in understanding the multi-level systemic interactions that occur between adolescents and their environment or how these interactions contribute to adolescent development. One theory that may be helpful is Bronfenbrenner's revised model of bioecological theory (Morris & Bronfenbrenner, 2006). According to this theory, human development is characterized by four key components: (a) person, (b) context, (c) process, and (d) time (Morris & Bronfenbrenner, 2006). Person factors refer to specific characteristics like age, gender, or competency and all interact with one's environment to influence their development (Morris & Bronfenbrenner, 2006). Context refers to the four systems of Bronfenbrenner's commonly known ecological system: microsystem, mesosystem, exosystem, and macrosystem (Bronfenbrenner, 2005). Context factors directly refer to the reciprocal interactions and exchanges that occur between a person and their external environment, also known as *proximal processes*, which are responsible for much of development and occur on a regular basis over an extended length of time (Morris & Bronfenbrenner, 2006). Lastly, time factors are comprised of microtime (minutes to minutes) and

mesotime (days to weeks) and largely represent what is known as the chronosystem which tracks historical societal changes across generations (Morris & Bronfenbrenner, 2006).

What is clear from Bronfenbrenner's bioecological theory is the interplay between person and environment and its influence on individual development; a conceptualization that, according to some researchers, may be helpful in identifying determinants of adolescent mental health (Currie & Morgan, 2020). For example, one study examining certain person factors found that being male, of younger age, physically active, having sufficient sleep, and not engaging in substance use were all associated with better adolescent mental health (Currie & Morgan, 2020). In terms of Bronfenbrenner's *microsystem*, this same study found that positive school experiences, good relationships with classmates and teachers, positive communication and support among family members, and better socioeconomic conditions were all important determinants of good mental health as well (Currie & Morgan, 2020). These examples, which are derived from Bronfenbrenner's bioecological framework, help conceptualize the importance of multiple systemic interactions and how they serve to strengthen adolescent developmental experiences and as well as mental health.

Risk and Protective Factors Associated with Adolescent Mental Health

As adolescence is a critically vulnerable time in one's development, it is imperative to understand and identify the potential risk and protective factors associated with the emergence of mental health symptoms. Various studies of have conducted research into evaluating both individual and social factors that contribute to adolescent mental health. Such factors may include the experience of adverse life events, maladaptive coping styles, pathological internet use, and alcohol intoxication (McMahon et al., 2021). Other studies highlight the importance of parental mental health, poor family relationships, self-esteem, body image, pubertal status,

resilience, socioeconomic status, and attention regulation (Olives et al. 2013). Salient to the topic of healthy development is the importance of family cohesion, parental availability, and adolescent perception of being supported (Olives et al. 2013).

Associated Psychological and Psychosocial Features in Adolescents Impacted by the COVID-19 Pandemic

When examining the impact of the COVID-19 pandemic on adolescent mental health, several factors may be important in determining its immediate and potentially long-lasting individual and systemic effects. For instance, research on prolonged social isolation during crucial developmental stages such as adolescence shows increased psychopathological risk (Raballo et al., 2020). Emerging research shows that fear of illness, death, and stressors associated with the pandemic can result in symptoms of adjustment disorders and posttraumatic stress disorder (PTSD), both of which are diagnoses commonly made in the face of ongoing threat such as pandemics, domestic violence, and war (Horesh & Brown, 2020; Sprang & Silman, 2013). Furthermore, there is evidence to suggest that the COVID-19 pandemic is associated with the onset of stress-related disorders and an exacerbation of pre-existing disorders (Galea et al., 2020). Several studies have pointed to increases in depression, anxiety, and loneliness as a result of the effects of COVID-19 (Chen et al., 2020; Ellis et al., 2020; H. Wang et al., 2020). Moreover, living with the restrictions enforced by the pandemic has been associated with more emotional distress and decreased life satisfaction (Magson et al., 2020).

A bioecological approach may prove helpful in conceptualizing the pervasive mental health effects of the COVID-19 pandemic among the adolescent population. In the past, such approaches have been utilized to make sense of the many individual, systemic, and societal changes brought upon by mass trauma (Hoffman & Kruczek, 2011) and adolescent responses to

disaster exposure (Weems, 2015). In the case of mass trauma, much of the literature that exists has been able to clearly identify direct effects of such events in terms of mortality and injury (Hoffman & Kruczek, 2011), however, less is clear with regard to the indirect effects suffered such as factors like chronic stress, ineffective coping, loss of social networks, and feelings of injustice (Parker et al., 2006). This has been shown to cause even the strongest sources of support, like that of the individual, family and community, to be lost or compromised in some way (Hoffman & Kruczek, 2011). More importantly, stressors inspired by a mass traumatic experience like loss of employment, fear, and a lack of community resources can affect endeavors to manage a similar type of exposure in the future.

One study identified four domains of factors related to child and adolescent mental health and examined how these factors interacted during and after the COVID-19 pandemic in accordance with Bronfenbrenner's ecological framework (Lin et al., 2021). These domains included (a) educational support, (b) health care system, (c) community support, and (d) family support. Some noteworthy findings in the case of educational support are the harmful effects of pandemic-related school closures due to imposed restrictions on fundamental social and physical activities which are knowingly crucial in developing favorable mental health outcomes among children and adolescents (Lin et al., 2021). The impact of the pandemic on educational support has also disrupted a number of protective factors typically provided in a school environment such as safeguarding against potential risk through child-teacher interactions, school-provided leisure activities that are otherwise unaffordable for some families, and complementary resources like mental health counseling for those in need (Lin et al., 2021). As a result of these systemic impacts, several risk factors have emerged in congruence with the exacerbation of mental health symptoms.

Risk Factors

Due to the physical social-distancing restrictions in place, adolescents had to transition from physical forms of social communication with peers to virtual methods, naturally leading to an increase in cyber-dependency (King et al., 2020) and increased use of social media which has also been associated with increased adolescent depression and anxiety (Ellis et al., 2020). Furthermore, increased engagement with online activities, such as over-exposure to media reports about COVID-19, has shown a significant association with increases in anxiety and depression as well (H. Wang et al., 2020; Tamarit et al., 2020). The transition to online formats has also affected the way adolescents engage with educational material as reports show that many adolescents have experienced increasing difficulty adjusting to online learning and may subsequently develop depressive symptoms (Magson et al., 2020). Moreover, difficulties with online learning, coupled with COVID-19 related worries and increased family conflict, have been associated with significant psychological maladjustment (Magson et al., 2020).

Interestingly, research suggests that girls, in particular, experienced a greater decline in mental health during the pandemic in comparison to boys (Brooks et al., 2020) which may be explained by previous studies showing differences in the way either sex engages in internalizing behavior (Rose & Rudolph, 2006). Another possibility is that girls tend to rely on their social networks more than boys do for coping with difficult life stressors (Tamres et al., 2002). This information is especially important concerning female adolescents and their engagement in online learning as they are forced to search for other sources of coping that do not include their typical social networks (Magson et al., 2020).

With regard to parental involvement and support, a study examining the association between adolescent responses to life satisfaction and interpersonal conflict during the COVID-19

pandemic demonstrated larger declines in life satisfaction among adolescents when experiencing interpersonal conflict with both their mothers and fathers as opposed to adolescents with low parental conflict during the pandemic (Magson et al., 2020). This is further supported by research examining the importance of adolescent social connection during pandemic-like conditions as participants in this study who were left alone at home for a majority of the day expressed significantly higher levels of depression and anxiety than those who had the company of a relative or parent (Chen et al., 2020). Another interesting finding related to adolescent mental health and the COVID-19 pandemic addressed the impact that smaller households play in increased expression of adolescent stress (Tamarit et al., 2020) although other research contends that the number of people living in a home together has more impact on adolescent mental stability (Okabe-Miyamoto et al., 2021). Further research has also reiterated the disproportionate psychosocial impacts of the COVID-19 pandemic on adolescents and families coming from marginalized and low socioeconomic backgrounds (Bailin et al., 2021).

Protective Factors

Bronfenbrenner's research regarding the importance of how social systems help promote healthy adolescent development may have specific implications in revealing what potential protective factors help to work against the negatively associated effects of the COVID-19 pandemic on adolescent mental health. For example, research shows that those who enjoyed high levels of social connection during the pandemic also reported significantly fewer symptoms of depression or anxiety, as well as felt more satisfied with life (Magson et al., 2020). Additionally, the company of a parent or relative at home was also found to help reduce risks for depression and anxiety, especially if their presence did not incite more family conflict (Magson et al., 2020). Furthermore, exposure to more conventional media, abiding by governmental protocol (H. Wang

et al. 2020), and feeling socially aligned with others has been associated with fewer feelings of distress (Magson et al., 2020). Another study examining risk and protective factors to emotional symptomatology among Spanish adolescents found that being in a romantic relationship and having recovered from the virus were indicators of mental wellbeing during the COVID-19 pandemic (Tamarit et al., 2020). Interestingly, studies examining the effects of the pandemic on adolescents and young adults in Nepal noted protective factors such as the normalization of wearing face masks due to the continuous air pollution that citizens typically incur; as such, there appears to be less resistance to conforming to governmental COVID-19 safety restrictions (Sharma et al., 2020). This study also emphasized the importance of extended family structures which are common in Nepal and provide children and adolescents with a broader sense of support (Sharma et al., 2020). Additionally, many schools were repurposed as quarantine and food collection sites, emphasizing the importance of social responsibility, and functioned as a form of meaningful support for the community (Sharma et al., 2020). Lastly, free counseling was offered through the internet and significantly contributed to those in need during the pandemic (Sharma et al., 2020). The aforementioned literature on this topic provides prime examples of how adolescents can be protected against increases in mental health symptoms when varying degrees of social supports work together to achieve a common goal, much like those prefaced by Bronfenbrenner and other researchers (Morris & Bronfenbrenner, 2006; Currie & Morgan, 2020; Lin et al., 2021).

Coping Strategies

As risks for loneliness, depression, and anxiety climb among adolescents amid the COVID-19 pandemic, it is imperative that we consider healthy methods of coping to combat these negative effects. Considering the nature of the COVID-19 pandemic, it's obvious influence

on individual and public life, and the uncertainty it inspires, learning to cope with these effects in the future is key. To do so, it is important to understand how adaptive coping strategies can influence both adolescent mental health and behavior.

One facet of adolescent mental health that may be applied to pandemic-related stress is the importance of an internal locus of control. According to many studies, locus of control is the most consistent stress-moderating effect among children and young adults (Cauce et al., 1992; Luthar, 1991; Parkes, 1984). An internal locus of control can serve as a protective factor by affecting the way one views and copes with a stressful event (Liu et al., 2000). Essentially, having an internal locus of control means having the belief that you can exert some control over the outcome of a negative event, a perspective that can help reduce harmful effects (Liu et al., 2000). This also makes it more likely for individuals to engage in effective coping which mitigates the development of psychological symptoms (Liu et al., 2000). This approach has been used in studies examining adolescent active and passive coping styles (Ariso & Reyero, 2014) and how cognitive restructuring can strengthen the internal locus of control among adolescent victims of cyberbullying. Another study evaluating the structure of coping behavior and its relationship with adolescent depression found that those who utilized approach-style coping reported fewer depressive symptoms than those who used avoidant-style coping (Herman-Stahl et al., 1995).

An alternative way of understanding coping styles can be seen through the Responses to Stress Model, where coping is described as voluntary or involuntary (Connor-Smith et al., 2000). Voluntary coping responses refer to whether an individual engages with or disengages from a stressor and can be further understood through primary control and secondary control coping strategies. Primary control coping strategies can be used to alter the stressor or one's reactions to

it such as through problem-solving, emotional regulation, and expression. Comparatively, secondary control coping strategies strive to help the individual adapt themselves to the stressor by using forms of cognitive coping. In contrast to voluntary coping responses, involuntary coping refers to avoiding or denying the presence of the stressor (Connor-Smith et al., 2000). Previous research has found that secondary control coping can moderate the effects of family conflict on internalizing symptoms among adolescents and that disengagement coping can exacerbate these symptoms over time (DeCarlo & Wadsworth, 2009). Additionally, this same study also found primary coping to be useful in dealing with family conflict particularly among girls (DeCarlo & Wadsworth, 2009).

Adolescent social support could also prove to be useful as an adaptive style of coping with stressors. One example of this comes from a study that assessed the value children place on utilizing peer support for coping with stressful life events such as bereavement (Metel & Barnes, 2011). A more recent study related to the COVID-19 pandemic found that connecting with peers through social media was an effective coping strategy among adolescents experiencing feelings of anxiety and loneliness during quarantine (Cauberghe et al., 2020). Even so, more research is needed to fully understand what types of coping could help implement change on both an individual and systemic level.

Rationale, Primary Aim(s), and Key Research Questions

The literature demonstrates a history of psychological and psychiatric consequences associated with known past pandemics. Likewise, research has also shown increases in anxiety and depressive symptoms, as well as, loneliness among adolescents in response to the social distancing restrictions and enforced isolation imposed by the current COVID-19 pandemic. Among these adolescents, girls appear to experience a higher rate of decline in mental health and

well-being, although further research is needed to confirm differences across gender. It is also vital to understand the differential impacts experienced by vulnerable adolescent communities, such as minority youth, whose intersectional identities may pose a heightened level of risk for increased mental health challenges (e.g., ethnicity, race, immigration status, socioeconomic status, sexual orientation etc.). Adolescents are also experiencing additional difficulties innate to their stage of development as a result of negative peer interactions which may lead to developing a poor self-concept, low sense of worth, and subsequent increases in symptoms of anxiety and depression. This is especially concerning given the research associating childhood mental health with further challenges in adulthood such as physical health issues, poor academic performance, low adult life satisfaction, and occupational difficulty. Further research is needed to assess the directly associated effects of the COVID-19 pandemic on adolescent mental health. Additionally, research is needed to ascertain what sort of factors mediate or exacerbate these effects on adolescent mental health to better assist policymakers, community members, and individuals in reducing potential negative effects and increasing adaptive coping strategies.

The primary aim of this systematic review is to identify the associated effects of the COVID-19 pandemic on adolescent mental health. Furthermore, this dissertation will aim to identify the risk and protective factors associated with these effects to provide some insight as to how to reduce negative effects and create opportunities for the development of adaptive coping during and after the conclusion of the pandemic. The following questions will be addressed:

1) What is the impact of the COVID-19 pandemic on adolescent mental health?
2) What contributing factors increase or decrease the likelihood that these mental health outcomes are experienced among adolescents, including those from diverse and vulnerable adolescent populations?

3) What are some recommended strategies and interventions within the current literature that can help reduce these negative effects and enhance protective factors for adolescent's impacted by the COVID-19 pandemic?

Chapter II: Methodology and Procedures

Systematic Review Approach

This systematic review was conducted using an integrative methodological approach. According to Broome (1993), an integrative review is a way of summarizing past empirical or theoretical literature that offers a more all-inclusive understanding of a particular phenomenon. It does so by considering a diverse array of methodologies, both experimental and non-experimental, in an attempt to comprehensively define complex concepts or concerns (Whittemore & Knafl, 2005). This was especially relevant to this systematic review as it aimed to (a) understand the potential impact of the COVID-19 pandemic, a new and pervasive global challenge, on adolescent mental health, (b) identify both risk and protective factors that contribute to increasing or decreasing the likelihood of these mental health outcomes and (c) examine any identified interventions or coping strategies within the literature that could be helpful in mitigating these harmful pandemic-related effects in adolescents.

Common critiques of this type of review suggest that the absence of explicit and systematic methods risks increases in error and invalidity. This creates a significant challenge in analyzing and synthesizing primary sources that are varied in nature (Whittemore & Knafl, 2005). However, using an integrative approach that incorporates both quantitative and qualitative research allows for a range of studies to be considered and provides an expanded view of common themes or experiences that arise in the literature. As much of the research on the effects of the COVID-19 pandemic is still being explored, there was additional information beneficial to adolescents uniquely addressed in qualitative studies (e.g., case studies, anecdotes, etc.) that only an integrative approach could support in addressing the specific research questions stated previously. For example, qualitative studies provided more in-depth insight into how factors such

as social isolation, level of family support, access to resources, and coping strategies impacted the unique adolescent pandemic experience, whereas reviewing quantitative studies provided a better understanding of the severity of this experience such as examining correlates of adolescent mental health symptom presentation or exacerbation.

Eligibility Criteria

Inclusion Criteria. Only articles written in the English language that were peer-reviewed and published in an academic journal were considered. Article publication dates did not precede the year 2020 and extended into the present available literature. As COVID-19 related restrictions differed across country, state, and county lines, it was important to also consider the differential impact experienced by citizens and residents geographically. For example, some areas experienced harsher restrictions (total lockdown and curfews) whereas others maintained autonomy and flexibility over execution of daily activities similar to pre-pandemic times (Dijksterhuis et al., 2022; Fisher et al., 2021). These restrictions also differed across time as different countries became the first and last to address rising infection rates in their own borders, using those with prior experiences as models for adaptation (Dijksterhuis et al., 2022; Fisher et al., 2021). As this review primarily evaluated the mental health effects within adolescents in the United States, articles published in other languages or conducted abroad were not considered.

Study Eligibility Criteria. Studies were required to have a focus on some aspect of the impact of the COVID-19 pandemic (e.g., social isolation, loneliness, increase in or development of symptoms, and substance use) on adolescent mental health or describe contributing risk and protective factors that increased the likelihood that mental health issues were or were not experienced in this population (e.g., family/caregiver support, social support, socio-cultural and political impact, depletion of resources, academic support, and vulnerable adolescent

communities). All adolescents, including male, female and gender non-conforming/nonbinary youth, between the ages of 11-19 years-old were included to provide more generalizable results and to account for any specific implications that arose in the literature for youth coming from diverse socio-cultural backgrounds or whom belonged to vulnerable populations.

All manner of studies and research were considered in this review including those of a quantitative and qualitative nature. This included studies that were descriptive, correlational, causal-comparative/quasi-experimental, case control and experimental, as well as, designs like case studies, ethnography, phenomenology, and grounded theory. Notably, literature reviews, meta-analyses, and systematic reviews were excluded in this integrated review in order to avoid capturing duplicated studies reporting experiences of adolescents during the COVID-19 pandemic. Additionally, studies having taken place in all settings within the United States such as schools, hospitals, outpatient mental health facilities, as well as private practice settings utilizing face-to-face and telehealth services were considered to allow for more generalizable results. Finally, studies were not limited by characteristics such as sample size or statistical power.

Exclusion Criteria. All articles published prior to 2020 that were not specific to the COVID-19 pandemic (i.e. other known pandemics) as well as any studies with a primary focus on college-age students, young adults age 20 and older, and older adults were excluded. Additionally, literature reviews, meta-analyses, and systematic reviews were excluded to avoid duplication of studies.

Search, Screening, and Selection

Information Sources. Specific electronic databases used for primary search resources in this systematic review included EBSCO Host, PsychInfo, SCOPUS, PubMed, PILOTS, and

PTSDpubs (Appendix A). At this time, this systematic review considered studies published in all relevant journals to increase generalizability and inclusivity of the available literature but excluded unpublished manuscripts such as dissertations or abstracts.

Search Terms. A list of search terms was compiled to use in identifying appropriate studies to be examined in this review. Synonyms for each search term were considered and named to help strengthen the search capacity for each database. The terms that were identified and their synonyms were: SARS-CoV-2, COVID-19, COVID-19 pandemic, or coronavirus; adolescents, teenager, teen, and youth; mental health, mental well-being, emotional health, mood, mental-illness, mental disorder, and psychiatric illness; risk factors, contributing factors, predisposing factors, predictor, cause, and vulnerability factors; protective factors, resilience, promotive factors, buffer, and preventative measures; cope, coping, coping strategy, coping skill and coping behavior; intervention, strategies, best practices, treatment, therapy, program, and management.

Once the list of search terms and their synonyms were identified, they were grouped by similarity and assigned a numbered code (Appendix B). Each database was searched using predetermined combinations of the key search terms and every search was clearly documented (Appendix C). The primary search terms, not including synonyms, used to identify the target population were *adolescents, teenager and teen*. The primary search terms used to identify the area of interest were *COVID-19, COVID-19 pandemic, and coronavirus.* The primary search terms used to identify the participant's symptomology or experience were *mental health, emotional health, mental-illness, and mental health symptoms*. *Risk factors* and *protective factors* were the primary search terms used to identify factors that may have increased or decreased the likelihood of adolescent mental health outcomes in the context of the COVID-19 pandemic.

Lastly, the key terms *coping* and *intervention* were identified to explore factors that may have mitigated the harmful effects of the pandemic on adolescent mental health.

Selection of Studies. Using the database searching strategy described in Appendix C and the search terms named in Appendix B, the author began by conducting broad searches such as: COVID-19 + adolescent + mental health. Multiple search terms were then used to condense results and ascertain specific information related to the research questions. For example, when attempting to identify the associated risk factors that increased the likelihood of mental health in adolescents during the COVID-19 pandemic, the author used the following primary key terms simultaneously: COVID-19 + adolescent + mental health + risk factors. When seeking to identify adolescent coping strategies for pandemic-related effects, the author used the following primary key terms: COVID-19 + adolescent + mental health + coping. All search combinations were documented in the Search and Documentation Record (Appendix D).

Search results were screened for inclusion in the study using article titles, abstracts, and key words, and the selection process was documented in the Screening and Selection Record (Appendix E). This form was assembled to catalog the selection process using the inclusion and exclusion criteria previously identified. As such, each article that appeared in a single search was reviewed by the article title and abstract using both inclusion and exclusion criteria. The author then documented whether the article was included for review based on its title or information presented in its abstract. In the event that a selection of an article could not be established by examining the abstract, the author evaluated the full article to confirm its appropriateness for this review. Depending on either the abstract or full article review, the primary author made a recommendation for selection of each study. A random set of studies from the Screening and Selection Record was reviewed and assessed to confirm the correct application of the inclusion

and exclusion criteria while offering suggestions for revision as needed. If a conflict regarding the suggestions made about a study's appropriateness for inclusion arose, the primary author and the Chair discussed the study's key variables to reach a decision on which they agreed. Study duplicates were removed only after all searches were complete. Documentation records were maintained for each of these steps, including why certain studies were not included, and a PRISMA-based flow chart (Appendix F) was used to summarize each step in the study selection process. It noted the number of records found through electronic database searches and contained areas for documenting the number of duplicate records removed from the database, the total number of records screened, the total number of studies excluded based on the screening criteria, the number of full-text documents reviewed for eligibility, and the number of excluded documents. Electronic copies of all selected studies and documents were maintained in two places: (a) the hard drive of the primary author's computer and (b) a Google drive folder managed by the primary author.

Data Collection and Extraction

Development of the Data Extraction Form. This integrative systematic review was designed to synthesize the existing literature that would help to examine the impact of the COVID-19 pandemic on adolescent mental health, identify the risk and protective factors that influenced the likelihood of these outcomes, and to explore any potential treatments or coping strategies that helped mitigate these negative effects. To facilitate the clear documentation of this information, without bias, the author developed a Data Extraction Form (Appendix G) based on a modification of the data collection document (by the doctoral program dissertation coordinator) presented by the Cochrane model for systematic reviews (Higgins et al., 2011). The extraction form was designed to represent the key data points to be gathered by this review, and a series of

variables were identified for coding, based on findings represented in preliminary literature searches and the research questions that were stated. These variables were then broken down into the following categories: (a) study/document identification, (b) general information, (c) methodological information, (d) setting information, (e) participant information, (f) mental health symptoms and problems reported, (g) level of systemic support, (h) individual coping strategies, (i) treatment interventions, (j) assessment of research variables, (k) analysis and statistical information, (l) results and outcomes, and (m) conclusions and follow-up. The author chose these categories and specific variables within each domain to facilitate seamless data capture for both qualitative and quantitative studies with the understanding that not every category or variable would apply to every included study/source document. The form was completed for each article that was approved to be screened and a secondary reviewer/coder also conducted an audit of a random sample of studies to minimize bias or mistakes made during this process.

Quality Appraisal

The quality appraisal was conducted using a form developed by Dr. Shelly Harrell at Pepperdine University (see Appendix H), in order to examine the reliability, relevance, and results of studies under review. The quality appraisal form addressed information such as the study ID, authors and year of publication, methodology, and specific design or inquiry approach. The reviewer was then tasked with assigning a number to each article using a rating scale (3 = strong, 2 = good/adequate, 1 = weak, 0 = missing, N/A = not available) to assess the strength of its literature foundation and rationale for study, the quality of research design or methodological approach, sample selection and characteristics, data collection tools, data collection processes, analysis and presentation of data, discussion of study limitations, and consideration of culture

and diversity. Finally, the form determined an overall rating based on a similar scale (exemplary = all 3's, strong = mostly 3's, good/adequate = mostly 2's, and weak = mostly 1's) to capture the quality and usefulness of each article.

Data Management, Synthesis, and Analysis Plan

Database Development. Data collected from all studies included in this review was stored on a single document as a central database. This database was comprised of an Excel spreadsheet and held information collected from the Data Extraction and Quality Appraisal Forms so that data points from all studies could be viewed by the author simultaneously. In doing so, the author was able to evaluate themes or patterns that arose between study data.

Data Analysis and Synthesis. Once all included studies were reviewed, their data extracted, and coded variables were added to the primary database, the author designated three databases based on the three research questions addressed in this systematic review: (a) understanding the potential impact of the COVID-19 pandemic, a new and pervasive global challenge, on adolescent mental health, (b) identifying both risk and protective factors that contributed to increasing or decreasing the likelihood of these mental health outcomes and (c) examining any identified interventions or coping strategies within the literature that could have been helpful in mitigating these harmful pandemic-related effects in adolescents. As the data was reviewed for each research question, the author also created descriptive overviews and identified key findings. The results were then clustered and compared according to categories such as symptom expression, risk and protective factors, coping strategy or treatment intervention and so on. This helped the author observe any patterns, themes or relationships between variables. Key data from this synthesis was eventually recorded in three separate Evidence Tables (Appendix I) according to the respective research question being addressed. The author composed data

summaries for each research question addressed within the Evidence Tables and generated a series of descriptive tables to portray the relevant findings for each research question.

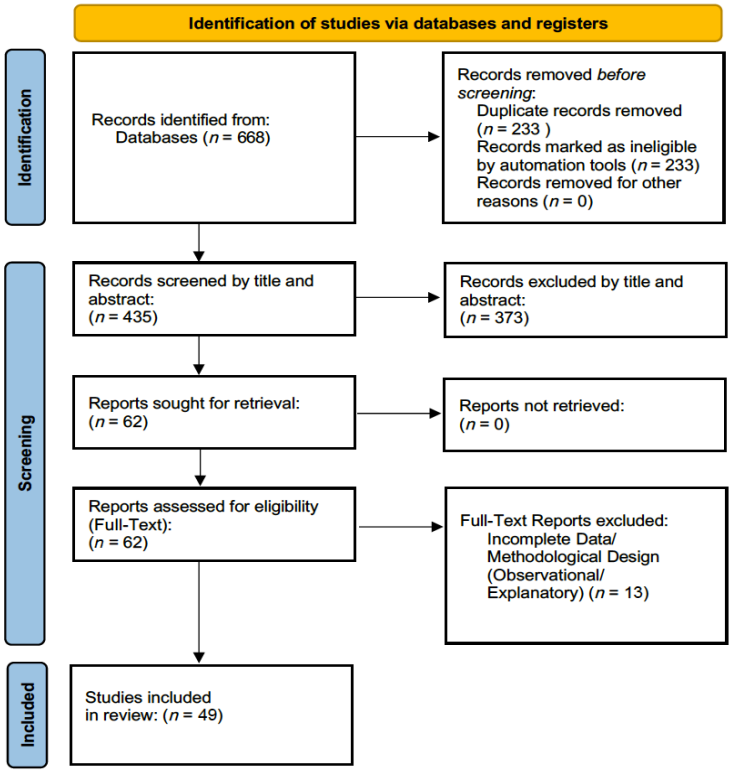
Chapter III: Results

Study Selection Results

The initial literature search from the online databases generated 668 results. From these records, 233 duplicates were removed leaving a total of 435 records. Articles were then reviewed according to title and abstracts, of which 373 records were excluded for not meeting full inclusion criteria (e.g., age, geographic location, and study relevance). A remaining 62 records were eligible for full-text review. 13 additional records were marked for exclusion due to incomplete data or nature of the study (i.e. observatory/explanatory pieces). A total of 49 studies were included in this integrative systematic review (See Figure 1).

Figure 1

PRISMA Flow Diagram



Titles, abstracts and full-text review of all studies discovered in the search were independently screened for inclusion by two research assistants. A tertiary review decision was conducted by the author (RM). Disagreements were resolved by examining the full text of the paper to determine if an article met the necessary requirements for inclusion (e.g., age limit, geographic location, and methodological design). Included studies were analyzed using qualitative synthesis and quantitative descriptive summaries.

Quality Appraisal

The results of the quality appraisal are described in the table below (Table 1). A review of the 62 original records selected for full-text examination indicated that a majority of studies were scored as "Strong" (50%) or "Good" (20.96%). Additionally, 8.06% of the studies reviewed received an "Exemplary" score. However, a remainder of 20.96% of studies (n = 13) were classified as "Weak" or low quality and subsequently removed from the data set. A low-quality score was typically given to studies that demonstrated deficits such as specific design or inquiry approach (e.g., exploratory or observational study with no data collected), did not report or did not meet criteria for sample selection and characteristics (e.g., adolescents living in the USA), did not report analysis of data, did not discuss study limitations, and did not make a concentrated effort to consider culture and diversity. Comparatively, high-quality studies were typically comprised of the following qualities: they provided detailed information regarding sample characteristics (e.g., gender, age, socioeconomic status, ethnicity/race), sufficiently described each study's methodological design, treatment outcomes, study limitations, as well as provided recommendations for future research.

Table 1

Quality Appraisal

Methodological Quality of Included Studies	n	%
Exemplary	5	8.06
Strong	31	50
Good/Adequate	13	20.96
Weak	13	20.96

General Characteristics of Included Studies

General characteristics of the included studies are reported in Appendix I: Evidence Tables. This includes authors, publication year, title, research methodology, study design characteristics, setting characteristics (geographic location, modality), study participant characteristics (sample size, gender, age, race/ethnicity, SES etc.), subject matter relevant to research questions (RQ1: mental health symptoms/impact reported; RQ2: levels of systemic support endorsed/associated risk and protective factors; RQ3: individual coping strategies or treatment interventions endorsed) and prevalent outcomes/main findings.

All included studies were conducted within the United States between the years of 2020-2022. Participant age within all studies focused primarily on adolescents, ranging between 11-19 years old, with a grade level range of 7^{th}-12^{th} grade. With regards to research study methodology, a majority were quantitative studies (n = 23, 46.93%), followed by mixed method studies (n = 17, 34.69%) and then qualitative studies (n = 9, 18.36%). Specific study designs included experimental designs, longitudinal designs, cross-sectional designs, perspective/phenomenological/exploratory designs, embedded research design, case study, grounded theory, and ecological momentary assessment (EMA) designs.

Characteristics of Study Participants

The following study participant data was collected and analyzed from the final 49 selected articles during the course of this systematic review: participant age/stage of adolescence, participant race/ethnicity, participant gender identity, and participant sexual orientation.

Participant Age/ Stage of Adolescence

Participant age and stage of adolescence was organized into the following categories: early adolescence (10-13), middle adolescence (14-17), and late adolescence (18-19). Of the 49 studies reviewed, three articles included participants aged 10-13 (early adolescence), nine articles included participants aged 14-17 (middle adolescence), and one article included participants aged 18-19 (late adolescence). Furthermore, 21 articles included participants spanning ages 10-17 (early-middle adolescence), four articles included participants spanning ages 14-19 (middle-late adolescence) and an additional eight articles included participants spanning ages 10-19 (early-late adolescence). Finally, a total of three articles provided inconclusive information related to specific age and stage of adolescence (e.g. broadly referred to participants as "adolescents").

Table 2

Participant Age & Stage of Adolescence

Age & Stage of Adolescence	n	%
Early Adolescence (10-13)	3	6.12
Middle Adolescence (14-17)	9	18.36
Late Adolescence (18-19)	1	2.04
Early-Middle Adolescence (10-17)	21	42.85
Middle-Late Adolescence (14-19)	4	8.16
Early-Late Adolescence (10-19)	8	16.32
Not Reported/Inconclusive Information	3	6.12

Participant Race/Ethnicity

Participant race and ethnicity were considered among the selected studies and organized according the following classifications/identities: White/Caucasian, Latinex/Hispanic, Asian, Black/African American, Native American or Alaska Native, Native Hawaiian or Other Pacific Islander, and Other/Mixed Race. Of the 49 articles reviewed, 73.46% included participants of White/Caucasian descent (n = 36), 57.14% included participants of Latinex/Hispanic descent (n = 28), 46.93% of articles included participants of Asian descent (n = 23), 63.26% included participants of Black/African American descent (n = 31), 22.44% included participants of Native American or Alaska Native descent (n = 11), and 12.24% included participants of Native Hawaiian or Other Pacific Islander descent (n = 6). An additional 26.53% of articles (n = 13) included participants who identified as Other/Mixed Race, while a remaining 16.32% of articles (n = 8) did not provide sufficient information pertaining to participant race or ethnicity.

Table 3

Participant Race/Ethnicity

Race/Ethnicity	n	%
White/Caucasian	36	73.46
Latinex/Hispanic	28	57.14
Asian	23	46.93
Black/African American	31	63.26
Native American or Alaska Native	11	22.44
Native Hawaiian or Other Pacific Islander	6	12.24
Other/Mixed Race	13	26.53
Not Reported/Inconclusive Information	8	16.32

Participant Gender Identity

Participant gender identity was reported in 38 of the 49 studies included in this review (77.55%), while a remaining 22.44% of articles (*n* = 11) did not provide conclusive information pertaining to gender in their study sample. Of those that did report participant gender identity, 6.12% of articles (*n* = 3) included solely female-identifying participants, 10.20% of articles (*n* = 5) included solely male-identifying participants, and 48.97% of articles (*n* = 24) included multiple gender-identifying participants (e.g. male, female, cisgender , non-binary, gender queer/gender non-conforming/gender fluid, transgender, other/gender minority). In addition, one article reported solely non-binary participants in their sample (2.04%).

Table 4

Participant Gender Identity

Gender Identity	n	%
Female	3	6.12
Male	5	10.20
Non-Binary	1	2.04
Multiple Gender Identities	24	48.97
Not Reported/Inconclusive Information	11	22.44

Participant Sexual Orientation

Participant sexual orientation was reported in 10.20% of the articles (*n* = 5) evaluated in this review. Of those, 8.16% of articles (*n* = 4) included participants who identified with a range of diverse sexual orientations including: heterosexual, homosexual, bisexual, queer, pansexual, questioning/unsure, asexual, no label/other, or complex/multiple identities. One additional article (2.04%) reported solely sexual minority identifying participants in their sample, specifically

asexual. A remaining 89.79% of articles (n = 44) did not report sufficient or conclusive information regarding participant sexual orientation in their study sample.

Table 5

Participant Sexual Orientation

Sexual Orientation	n	%
Multiple Sexual Orientation Identities	4	8.16
Sexual Minority Identity (Asexual)	1	2.04
Not Reported/Inconclusive Information	44	89.79

Research Question 1: Impact of the COVID-19 Pandemic

Research Question 1 focused on exploring the impact of the COVID-19 pandemic on adolescent mental health by examining the frequency and rate of problems and/or symptomology reported among each study's participants. A selection of 32 articles were evaluated to better understand the level of impact in this review. The following sections detail the results according to six diagnostic/symptom clusters constructed by the main researcher and inspired by common themes detected within the literature : Cluster 1- General Mental Health Symptoms; Cluster 2- Depression, Anxiety/Worry, & Negative Affect; Cluster 3- Post-Traumatic Stress Disorder (PTSD)/Trauma & Stress; Cluster 4- Physical & Sexual Health/Activity, Sleep Disturbance, Externalizing Symptoms, Substance Use & Body-Image/Disordered Eating; Cluster 5- Psychiatric Crisis/ Hospitalization & Suicidal Ideation/ Self-Harm; and Cluster 6- Interpersonal Challenges & Isolation/Loneliness (Table 2).

Cluster 1: General Mental Health Symptoms (GMHS)

Of the 32 records reviewed in research question 1, 18.75% of articles (n = 6) reported increased rates of general mental health symptoms (GMHS) among adolescents during or as a result of the COVID-19 pandemic (Dvorsky et al., 2022; McGuine et al., 2021; Mueller et al.,

2021; Nelson et al., 2020; Penner et al., 2021; Shroff et al., 2022). Factors contributing to increased rates of GMHS experienced among adolescents included pandemic-related restrictions affecting routines and coping behaviors (Shroff et al., 2022), insufficient family functioning or financial security (Penner et al., 2021), living in counties with higher rates of poverty, decreased physical activity due to school closures and sport cancellations (McGuine et al., 2021), pet ownership (Mueller et al., 2021), lack of access to social, developmental, and sexual health needs (Nelson et al., 2020), and losing access to LGBTQ+ safe spaces and community resources as a result of physical distancing restrictions (Fish et al., 2020).

Cluster 2: Depression, Anxiety, & Negative Affect

Fifty percent of articles (n = 16) reported significant increases in symptoms of depression among adolescents during or as a result of the COVID-19 pandemic (Burke et al., 2021; Breaux et al., 2021; Choukas-Bradley et al., 2022; Fish et al., 2020; Gupta et al., 2022; McGuine et al., 2021; McGuine et al., 2022; Millner et al., 2022; Oosterhoff et al., 2020; Perkins et al., 2021; Roche et al., 2022; Rogers et al., 2021; Sadeghi et al., 2022; Silk et al., 2022; Swords et al., 2021; Trucco et al., 2022). Some contributing influences cited were lack of school connectedness (Perkins et al., 2021), family conflict (Rogers et al., 2021; Silk et al., 2022), interpersonal issues (Fish et al., 2020; Rogers et al., 2021), not playing a sport/engaging in lower physical activity (McGuine et al., 2021; McGuine et al., 2022), over-exposure to technology (Burke et al., 2021), social distancing/peer rejection or social judgment (Oosterhoff et al., 2020), pandemic-related body image issues (Choukas-Bradley et al., 2022), and other COVID-related stressors such as increased childcare responsibility for adolescents (e.g., looking after siblings) (Roche et al., 2022).

Furthermore, 46.87% of articles (n = 15) reported increased rates of anxiety symptoms among adolescents due to the COVID-19 pandemic and attributed additional causes such as adapting to online learning (Parker et al., 2021) and changes to daily routine and social interactions (Parker et al., 2021; Silk et al., 2022). Moreover, 12.50 % of articles (n = 4) reported increased rates of negative affect and/or well-being among adolescents in association with the pandemic's impact on sleep quality (Palmer et al., 2022), earlier in-person academic instruction start-times (Meltzer, 2021), maladaptive coping strategies (Terry-McElrath et al., 2022), as well as health and financial stress (M. Wang et al., 2021).

Cluster 3: PTSD/ Trauma & Stress

Results indicated increased rates of PTSD and trauma-related symptoms among adolescents in association with the COVID-19 pandemic (9.37%, n = 3) (Millner et al., 2022; Palmer et al., 2022; Parker et al., 2021). Factors identified by the literature for PTSD/Trauma symptom expression included COVID-19 stress-induced sleep impairments (Palmer et al., 2022), grief, lack of resources, loss of community/school support (Millner et al., 2022), and compounded racial and social stressors (Parker et al., 2021). In addition, 21.87% of articles (n = 7) reported increased rates of stress-related symptoms among adolescents in connection to the COVID-19 pandemic (Astle et al., 2021; Dvorsky et al., 2022; Kudinova et al., 2021; Luthar et al., 2021; Silk et al., 2022; M. Wang et al., 2021; Trucco et al., 2022). Elevated stress levels were attributed to increased COVID-19 media exposure, family conversations around the COVID-19 pandemic (Trucco et al., 2022), being unable to leave home at will, feeling cut off from others, and worry that a loved one may become ill with the virus (Kudinova et al., 2021). Other notable factors included COVID-19 related worries (Dvorsky et al., 2022), concern for family members (Luthar et al., 2021), online schooling (M. Wang et al., 2021), lack of routine (Silk et al., 2022),

relationship difficulties, financial strain, and lifestyle changes as a result of social distancing (Astle et al., 2021), as well as a lack of access to safe spaces for sexual minority youth.

Cluster 4: Physical & Sexual Health/Activity, Sleep Disturbance, Externalizing Symptoms, Substance Use, & Body-Image/Disordered Eating

Negative impacts to physical and sexual health/activity were also reported among adolescents during or following the COVID-19 pandemic (9.37%, $n = 3$; McGuine et al., 2021; McGuine et al., 2022; Nelson et al. 2020). Associated features of this impact included high school athletes who participated in team sports over individual sports, were unable to participate in school sports due to COVID-19 and socioeconomic restrictions (McGuine et al., 2021; McGuine et al., 2022), adolescents who were female and in an older grade (McGuine et al., 2021) or adolescent sexual minority males who had limited access to LGBTQ+ community members and sexual health resources (Nelson et al. 2020).

In addition to physical and sexual health challenges, 6.25% of articles ($n = 2$) reported increased rates of sleep disturbances among adolescents during or as a result of the COVID-19 pandemic (Meltzer, 2021; Palmer et al., 2022). Sleep disturbances were primarily associated with COVID-19 related negative affect, poor sleep quality due to nightmares (Palmer et al., 2022) and earlier in-person academic instruction start-times (Meltzer, 2021).

Furthermore, 6.25 % of articles ($n = 2$) reported increased rates of externalizing symptoms/behavior due to the COVID-19 pandemic (Breaux et al., 2021; Roche et al., 2022). Externalizing behaviors were identified as rule-breaking, engaging in aggressive behaviors, inattention, and oppositional defiance. These behaviors were primarily associated with increased childcare responsibility, a byproduct of having to attend to increased household stressors as a result of family member hospitalization, job and income loss (Roche et al., 2022), as well as

adolescents with pre-existing Attention Deficit Hyperactivity Disorder (ADHD) and poorer emotional-regulation skills (Breaux et al., 2021).

An additional 6.25% of articles (n = 2) reported increased rates of adolescent substance use during or in relation to the COVID-19 pandemic (Dvorsky et al., 2022; Shroff et al. 2022). Factors contributing to this outcome included losing one or more basic needs (i.e. money for food, rent/housing, and access to transportation; Shroff et al. 2022), as well as decreases in routine and engagement in maladaptive coping behaviors due to pandemic-related restrictions (Dvorsky et al., 2022).

Finally, 6.25% of articles (n = 2) reported body image concerns and disordered eating among adolescents (Choukas-Bradley et al., 2022; Shroff et al., 2022). Specified reasons behind adolescent reliance on maladaptive coping styles (e.g., disordered eating) included pandemic-related effects on financial, food, and housing insecurity (Shroff et al., 2022), as well as a lack of transportation and an inability to attend school for an extended period of time (Choukas-Bradley et al., 2022). In addition, female adolescents appeared to experience increased pandemic-related body image concerns as a result of disrupted appearance-management routines and appearance fixation over video chat (Choukas-Bradley et al., 2022).

Cluster 5: Psychiatric Crisis/ Hospitalization & Suicidal Ideation/ Self-Harm

Another important phenomenon observed in the data among adolescents was an elevation of psychiatric crisis/hospitalization, suicidal ideation, and self-harming behaviors. Specifically, 15.62% of articles (n = 5) reported increased rates and/or severity of suicidal ideation/self-harm-related symptoms (Hutchinson, 2021; Kudinova et al., 2021; Millner et al., 2022; Reece & Sams, 2022; Shroff et al., 2022) and 9.37% of articles (n = 3) reported increased rates of mental health symptoms among high risk youth associated with psychiatric crisis/hospitalization as a result of

the COVID-19 pandemic (Kudinova et al., 2021; Millner et al., 2022; Reece & Sams, 2022). COVID-19 specific factors cited by the literature that may have contributed to these increases included feeling less connected with peers and decreased anticipation of positive peer interactions (Hutchinson, 2021). These experiences were also exacerbated by additional COVID-19 stressors such as losing one or more basic needs (e.g., access to or money for rent, transportation, or food), especially among minoritized youth (gender and sexual orientation) (Shroff et al., 2022), the inability to leave home at will, worry that a loved one may contract the virus, grief, lack of resources (Kudinova et al., 2021), and a loss of community/school support and structure (Millner et al., 2022; Reece & Sams, 2022).

Cluster 6: Interpersonal Challenges & Isolation/Loneliness

The final cluster of symptoms examined signs of interpersonal challenges, isolation, and loneliness among adolescents during the pandemic. A total of 6 articles were reviewed, of which 9.37% of articles (n = 3) reported increased rates of interpersonal challenges (Fish et al., 2020; Hutchinson, 2021; Tetreault et al., 2021) and 9.37% of articles (n = 3) reported increased rates of isolation and symptoms of loneliness (Palmer et al., 2022; Mueller et al., 2021; Tetreault et al., 2021). Reasons cited by these articles for symptom presentation included poorer sleep quality and longer times spent in bed (Palmer et al., 2022), comorbid suicidal ideation and associated misperceptions regarding positive and negative peer interactions (Hutchinson, 2021), time spent with pets over family (Mueller et al., 2021) or exercise as stress-coping strategy (McGuine et al., 2022), disrupted social networks (Fish et al., 2020), and loss of safe spaces, especially for LGBTQ+ identifying youth (Fish et al., 2020). Additional factors considered were higher socioeconomic status, older age, worsened mental health and mood as a result of the COVID-19 pandemic, and feeling distanced from friends and family (Tetreault et al., 2021).

Table 6

Participant Diagnoses & Mental Health Conditions

Diagnostic Cluster/ Mental Health Symptom Categories		n	%
Cluster 1: General Mental Health & Substance Use	General Mental Health	6	18.75
Cluster 2: Depression, Anxiety, & Negative Affect	Depression	16	50
	Anxiety	15	46.87
	Negative Affect	4	12.50
Cluster 3: PTSD/Trauma & Stress	PTSD/Trauma	3	9.37
	Stress	7	21.87
Cluster 4: Physical Health/Sexual Health, Sleep Disturbances, Externalizing Symptoms, Substance Use & Body-Image Issues/Disordered Eating	Physical Health & Sexual Health	3	9.37
	Sleep Disturbances	2	6.25
	Externalizing Symptoms	2	6.25
	Substance Use	2	6.25
	Disordered Eating	2	6.25
Cluster 5: Suicidal Ideation/Self-Harm & Psychiatric Crisis/Hospitalization	Suicidal Ideation/Self-Harm	5	15.62
	Psychiatric Crisis/Hospitalization	3	9.37
Cluster 6: Interpersonal Challenges & Isolation/Loneliness	Interpersonal Challenges	3	9.37
	Isolation/Loneliness	3	9.37

Research Question 2: Levels of Systemic Support & Associated Risk and Protective Factors

Research Question 2 examined the differing levels of systemic support in place for adolescents during the pandemic, as well as, identified any potential risk and protective factors associated with increasing or decreasing the level of symptoms reported in research question 1. A total of 28 articles were reviewed for levels of systemic support present during the COVID-19 pandemic, which were established in relation to principles from Bronfenbrenner's bioecological

model (Morris & Bronfenbrenner, 2006) and organized according to the following categories: Academic/School Support, Family/Caregiver Support, Community Support, Socio-cultural Support/Political Exposure, and Peer Support (Table 3).

Academic/School Support

Out of the 28 records reviewed, 14.28 % of articles (n = 4) addressed the risks and protective factors associated with academic/school support among adolescents in reference to the COVID-19 pandemic (Hertz et al., 2022; Luthar et al. 2021; Perkins et al., 2021; Silk et al., 2022).

Risk Factors. Virtual/online learning was also reported as a risk factor associated with increased rates of adolescent mental health symptoms during the pandemic (7.14%, n = 2; Hertz et al., 2022; Silk et al., 2022). Differences were specifically observed among adolescent girls engaged in online learning, reporting increased experiences of depressive and anxiety symptoms (Hertz et al., 2022; Silk et al., 2022). Moreover, adolescents reported impacts associated with online learning such as elevated levels of stress, suicidal ideation, and depressive symptoms (Hertz et al., 2022).

Protective Factors. In comparison, 10.71% of articles (n = 3) reported Academic/School Support as a protective factor for mental health amongst adolescents during the COVID-19 pandemic (Hertz et al., 2022; Luthar et al., 2021; Perkins et al., 2021). Research indicated that school and social connectedness significantly moderated adolescent experiences of depression and anxiety (Hertz et al., 2022; Perkins et al., 2021) and that additional protective factors such as adolescent perception of faculty support (i.e. listening to student concerns and doing something about them), also served to mitigate the effects of distanced learning during the pandemic (Luthar et al., 2021).

Family/Caregiver Emotional Support

A total of 39.28% of articles (*n* = 11) addressed how family/caregiver emotional support served to either support or increase the likelihood of mental health symptoms experienced among adolescents during the COVID-19 pandemic (Astle et al., 2021; Coulombe & Yates, 2022; Hertz et al., 2022; Luthar et al., 2021; Parker et al., 2021; Parra et al., 2023; Penner et al., 2021; Recto, 2021; Roche et al., 2022; Silk et al., 2022; M. Wang et al., 2021).

Risk Factors. In terms of risk, 10.71% of articles (*n* = 3) identified decreases in family support and increased conflict as a contributing factor to exacerbated mental health symptoms among adolescents (Parra et al., 2023; Roche et al., 2022; Silk et al., 2022). Lack of family support included decreased parental involvement in childcare responsibilities as a result of household, hospitalization and job/income loss (Roche et al., 2022). These factors were shown to increase both internalizing (e.g., anxious/depressive, withdrawn/depressed, and somatic syndromes) and externalizing symptoms (e.g., rule-breaking and aggressive behavior) (Roche et al., 2022). Research suggested that increased levels of family conflict specifically contributed to increased rates of depressive symptoms among adolescent females (Silk et al., 2022). Additionally, results showed significantly heightened rates of anxiety and depressive symptoms among sexual minority adolescents (SMA) facing family rejection amidst other COVID-19 stressors such as household job loss (Parra et al., 2023).

Protective Factors. Comparatively, 32.14% of articles (*n* = 9) reported family support as a unique protective factor against increased adolescent mental health difficulties within the context of the COVID-19 pandemic (Astle et al., 2021; Coulombe & Yates, 2022; Hertz et al., 2022; Luthar et al., 2021; Parker et al., 2021; Penner et al., 2021; Recto, 2021; Silk et al., 2022; M. Wang. et al., 2021). Associated factors included adolescent perceptions of positive family and

parent functioning (i.e. caregiver health and financial status, as well as degree to which parents understood and helped manage adolescent feelings; Luthar et al., 2021), family connectedness (Hertz et al., 2022), secure parent-child relationship attachments (Coulombe & Yates, 2022), family-inspired intrapersonal and interpersonal coping strategies (Parker et al., 2021), family-centered approaches to care for adolescent fathers (Recto, 2021), and increased time spent with family (Astle et al., 2021; Silk et al., 2022). Research indicated that positive family functioning demonstrated greater improvements in externalizing symptoms (i.e. being less argumentative, disobedient at home and school, having sullen/stubborn/irritable mood, engaging in temper tantrums/hot temper, and threatening others) and decreased rates of general mental health concern (Penner et al., 2021). Furthermore, one of the articles reviewed reported that parental support predicted increases in same and next-day positive adolescent affect, as well as decreases in negative adolescent affect (M. Wang et al., 2021). In fact, some articles reported findings that the COVID-19 pandemic provided more opportunities for quality family time, strengthening of relationships, improved relationship dynamics and less stress (Astle et al., 2021).

Community Support

Of the 14.28% of articles (n = 4) addressing the impact of community support on adolescent mental health during the COVID-19 pandemic, no risk factors were found (Birkenstock et al., 2022; Fish et al., 2020; Martinez et al., 2022; Recto, 2021).

Protective Factors. All four articles reviewed identified community support as an important protective factor for adolescent mental health during the COVID-19 pandemic (Birkenstock et al., 2022; Fish et al., 2020; Martinez et al., 2022; Recto, 2021). Specifically, several records cited the beneficial contributions of having an online platform through which adolescents could seek or maintain a sense of community (Fish et al., 2020). This appeared to be

especially meaningful among adolescents in search of identity-specific online resources and whom may have been facing unique intrapersonal and interpersonal issues, such as LGBTQ+ identifying youth and adolescent parents during the pandemic (Fish et al., 2020; Recto, 2021). Research around online community support during the pandemic noted advantages such as increased access to peer support, exploration of virtual platforms (Martinez et al., 2022), social connectedness, and inclusivity (Recto, 2021). Furthermore, utilizing telehealth modes of service delivery appeared to be particularly supportive for vulnerable adolescents such as immigrant Latinx youth in need of after-school group mental health support and community resources (Birkenstock et al., 2022).

Socio-cultural/Political Exposure

Approximately 64.28% of the articles (n = 18) reviewed for research question 2 addressed themes of socio-cultural impact and political exposure in relation to increased adolescent mental health symptoms during the COVID-19 pandemic (Astle et al., 2021; Birkenstock et al., 2022; Breaux et al., 2021; Dvorsky et al., 2022; Fish et al., 2020; Marcelin et al., 2021; Martin et al., 2022; McGuine et al., 2021; McGuine et al., 2022; Nelson et al., 2020; Parra et al., 2023; Penner et al., 2021; Shroff et al., 2022; Roche et al., 2022; Roulston et al., 2022; Trucco et al., 2022; Villaume et al., 2021; M. Wang et al., 2021).

Risk Factors. Of the articles reviewed, 25% (n = 7) reported additional risk of socio-cultural impact and political exposure specific to vulnerable adolescent communities such as delinquent youth (Marcelin et al., 2021), expecting adolescent mothers and fathers (Astle et al., 2021), gender/sexual orientation (SO) minority youth (Fish et al., 2020; Parra et al., 2023; Martin et al., 2022; Nelson et al., 2020; Shroff et al., 2022), sexual minority youth of color (SMYoC) (Roulston et al., 2022), Latinx youth, immigrant youth (Birkenstock et al., 2022), and youth

belonging to marginalized race or ethnic communities (Birkenstock et al., 2022; Roulston et al., 2022).

A number of socio-cultural and political factors were associated with increases in mental health symptoms among vulnerable adolescents including a lack of access to resources like technology and privacy (Marcelin et al., 2021), living in areas with increased anti-black racism, homophobia, mental health provider shortages, income-inequality, and experiences such as household, job loss and family rejection (Parra et al., 2023). A total of 21.42% of articles (n = 6) identified loss of basic needs or access to resources (e.g., job, income, shelter, transportation, and hospitalization) as experiences associated with heightened reports of adolescent mental health during the COVID-19 pandemic (Birkenstock et al., 2022; Nelson et al., 2020; Parra et al., 2023; Penner et al., 2021; Roche et al., 2022; Shroff et al., 2022). An additional 7.14% of articles (n = 2) reported health and financial stress (M. Wang et al., 2021), as well as, family conversations about COVID-19 and related media exposure as risk factors (Trucco et al., 2022). Furthermore, 7.14% of articles (n = 2) reported family socioeconomic/education status as a potential risk factor for increased adolescent mental health experiences (Breaux et al., 2021; Villaume et al., 2021). Specifically, adolescents belonging to lower-income families indicated increased symptoms of inattention while those from higher-income families reported increased symptoms of oppositional defiance (Breaux et al., 2021).

Other adolescent socio-cultural factors such as gender and sports/athletic status were evaluated in the literature (McGuine et al., 2021; McGuine et al., 2022). For instance, 3.57% of articles (n = 1) reported increased symptoms of hyperactivity/impulsivity among male adolescents (Breaux et al., 2021) and another 3.57%% of articles (n = 1) reported increased mental health symptoms among female adolescent upperclassmen identifying as team-sport

athletes living in counties with a higher level of poverty (McGuine et al., 2021). Adolescents who did not participate in interscholastic sports activities appeared to experience worse symptoms of anxiety, depression, and lower rates on quality of life (McGuine et al., 2022). Finally, 10.71% of articles (n = 3) reported that poorer emotion regulation difficulties (Breaux et al., 2021) and pre-pandemic diagnoses, such as ADHD, anxiety, and depression, were associated with increased risk of adolescent mental health experiences during the COVID-19 pandemic (Breaux et al., 2021; Dvorsky et al., 2022).

Protective Factors. Important socio-cultural factors such as religious support were identified as protective factors among adolescents during the COVID-19 pandemic (3.57%; n = 1) (Parker et al., 2021). One article noted positive individual religious-based coping strategies such praying and reading scripture and described adolescent experiences with religious support as a way to maintain social and community connection while also helping them to feel more in control (Parker et al., 2021).

Peer Support

Of the 28 records reviewed, 14.28% of articles (n = 4) addressed the importance of peer support as a potential COVID-19 related risk and/or protective factor for adolescent mental health (Hutchinson, 2021; Mueller et al., 2021; Parker et al., 2021; Perkins et al., 2021).

Risk Factors. 3.57% of the articles (n = 1) identified peer support as a potential risk factor for adolescent mental health (Mueller et al., 2021). Specifically, the article addressed adolescent pet owner status as a means of social connection. Results indicated that adolescent pet owners experienced increased mental health symptoms, such as loneliness, in comparison to adolescent non-pet owners (Mueller et al., 2021). Associated explanations for these results showed that adolescent pet owners tended to use one form of stress-coping (i.e. spending time

with pets) instead of multiple sources of coping (e.g., spending time with family or exercising) (Mueller et al., 2021). Additionally, findings suggested that being a pet owner during the pandemic limited typical access to social networks (e.g., dog parks, going for walks) which were disrupted as a result of COVID-19 restrictions/shelter-at-home orders (Mueller et al., 2021).

Protective Factors. Comparatively, 10.71% of the literature (*n* = 3) reviewed identified peer support as a potential protective factor against depression, anxiety, and suicidal ideation, particularly within academic (Perkins et al., 2021), familial, religious (Parker et al., 2021), and social contexts (Hutchinson, 2021).

Table 7

Levels of Systemic Support and Associated Risk & Protective Factors

Level of Support	Protective Factors		Risk Factors	
	n	%	n	%
Academic/School Support	3	10.34%	2	6.89%
Family/Caregiver Emotional Support	9	31.03%	3	10.34%
Community Support	5	17.24%	0	NA
Socio-Cultural Impact/Political Exposure	1	3.44%	18	62.06%
Peer Support	3	10.34%	1	3.44%

Research Question 3: Individual Coping Strategies and Treatment Interventions

The purpose of Research Question 3 was to examine any identifiable individual coping strategies and/or treatment interventions within the existing literature in relation to the COVID-19 pandemic. A total of 22 records were selected for evaluation from the total amount of records examined in this review (*n* = 49). Results pertaining to this research question are categorized according to the following sections: adaptive and maladaptive coping skills, treatment interventions, and service delivery. The final category, service delivery, was added to denote the

important findings and use of telehealth during the COVD-19 pandemic with regards to adolescent mental health and its potential applications towards future treatment adaptations.

Adaptive & Maladaptive Coping Skills

As previously noted, a number of records were reviewed to assist in identifying notable individual coping strategies used by adolescents during the COVID-19 pandemic. Of the 22 records selected for review, 59.09 % (*n* = 13) cited specific adaptive coping skills (Astle et al., 2021; Burke et al., 2021; Breaux et al., 2021; Dvorsky et al., 2022; Fish et al., 2020; Gotkiewicz & Goldstein, 2021; Kuhlman, 2021; McGuine et al., 2021; McGuine et al., 2022; Recto, 2021; Silk et al., 2022; M. Wang et al., 2021; Zaeske, 2023) and 9.09 % (*n* = 2) mentioned specific maladaptive coping skills that were used by adolescents in response to pandemic-related stressors (Burke et al., 2021; Shroff et al., 2022).

Adaptive Coping Skills. One of the adaptive coping strategies highlighted within the 22 articles reviewed was the importance of maintaining a consistent routine and schedule (4.54%; *n* = 1) (Dvorsky et al., 2022). This appeared to be particularly effective among adolescents struggling with ADHD, with results showing decreases in symptoms of adolescent mental health once routines were established (Dvorsky et al., 2022). In addition to the benefits of establishing routines, 4.54% of articles (*n* = 1) recognized adolescent use of social media as a coping strategy to connect with others (Burke et al., 2021). This is further supported by 4.54% of sources (*n* = 1) advocating for use of identity-specific online content (i.e. LGBTQ+ online chat rooms, YouTube channels, and blogs) and digital media (music and video games) to access necessary forms of peer support (Fish et al., 2020). Another key strategy identified within 4.54% of the articles (*n* = 1) included access to crisis support services (i.e. suicide hotlines, text-line for adolescents), using

videoconferencing to support vulnerable adolescent well-being and inclusivity and connecting to telemedicine mentorship programs (Recto, 2021).

Furthermore, 18.18% of the articles reviewed (n = 4) noted the important role of having well-established adolescent internal resources and pre-pandemic emotional regulation skills (Breaux et al., 2021) such as secondary control engagement mechanisms (i.e. distraction and cognitive restructuring; M. Wang et al., 2021), self-enhancing humor and cognitive reappraisal (Kuhlman, 2021), optimism, sense of purpose in life (Kuhlman, 2021), giving and receiving social support, empathy and appreciation, and a sense of human connectedness (Zaeske, 2023). Additional adaptive skills included engaging in therapy, having spaces for open discussion about the impact of the pandemic, as well as developing adolescent resources to help reduce feelings associated with loss of control or social disengagement (Zaeske, 2023). Moreover, 4.54% of articles (n = 1) noted the benefits of creative exploration and engagement in the arts (Gotkiewicz & Goldstein, 2021), while 18.18 % (n = 4) reported the helpful effects of individual free time, self-care, and exercise (Astle et al., 2021; McGuine et al., 2021; McGuine et al., 2022; Silk et al., 2022). Specifically, increased free time spent on self-care, engaging with family members or exercising, were associated with lower rates of depression during the COVID-19 pandemic (Astle et al., 2021; McGuine et al., 2021; McGuine et al., 2022; Silk et al., 2022).

Maladaptive Coping Skills. Of the 22 records reviewed for Research Question 3, 9.09% of articles (n = 2) identified the following maladaptive coping strategies among adolescents during the COVID-19 pandemic: misuse of social media (Burke et al., 2021) and engagement in harmful behaviors such as non-suicidal self-injury (NSSI), excessive use of alcohol and cannabis, as well as disordered eating (Shroff et al., 2022). In terms of social media use, 4.54% of studies (n = 1) found that adolescents who spent increased time watching TV, video gaming,

and engaging in online social media platforms more frequently than they used to prior to the pandemic, also experienced elevations in anxiety and depressive symptoms (Burke et al., 2021). Results identifying maladaptive coping methods, such as NSSI, use of alcohol and cannabis, and more commonly, disordered eating also indicated greater reliance among minoritized youth (e.g., gender and sexual orientation) on these coping methods than non-minoritized youth (4.54%, n = 1; Shroff et al., 2022).

Treatment Interventions

An important facet examined by Research Question 3 was whether there were any identifiably supportive treatment interventions for adolescents struggling with mental health effects associated with the COVID-19 pandemic. In fact, 27.27% of the articles reviewed in this section (n = 6) were recognized as potentially beneficial treatment strategies (Birkenstock et al., 2022; Childs et al., 2020; Harper & Brewer, 2022; Marcelin et al., 2021; Martin et al., 2022; Phrathep et al., 2022). All six interventions were adapted for telehealth and remote instruction, despite that two made efforts to provide in-person services throughout the pandemic. The following sections will review the goals/objectives and effectiveness of each treatment modality examined.

Unified Protocol-Adolescent (UP-A). One of the six interventions identified by the literature was the Unified Protocols for Transdiagnostic Treatment of Emotion Disorders in Children and Adolescents, more commonly known as UP-A (Barlow et al., 2013; Ehrenreich et al., 2009). This cognitive-behavioral treatment approach was designed to support adolescents struggling with co-occurring anxiety and depressive symptoms by focusing on the underlying mechanisms associated with emotional disorders. One case study examined in this review utilized and adapted this treatment approach for telehealth use with a non-binary adolescent

presenting with mild generalized anxiety disorder (GAD) and depression during the COVID-19 pandemic (Martin et al., 2022). Treatment consisted of 21, 50-minute telehealth sessions and addressed skills such as emotion identification and education, present-moment awareness, cognitive restructuring, problem-solving, and additional behavioral techniques. Precautions were taken to ensure safety and ease of building virtual rapport. The authors of this study reported some difficulties regarding being able to flexibly assess client body language and maintain confidentiality during telehealth sessions (Martin et al., 2022). Results from this study comparing the client's pre- and post-intervention scores showed statistically significant improvements to symptoms of anxiety and depression (Martin et al., 2022).

Creating Opportunities for Personal Empowerment (COPE) program. A second intervention detected in the data was the Creating Opportunities for Personal Empowerment (COPE) program (Melnyk et al., 2014). This program involves a CBT approach towards treating anxiety and depression in adolescents. The COPE program consists of weekly 25-30 minute sessions aimed at supporting participants with controlling their responses to triggers by recognizing negative thinking patterns and replacing them with positive ones. A highlighted benefit of this treatment approach is that it can be delivered by instructors who are not mental health care providers. One study identified in the literature aimed to implement the COPE program in a school-based setting to a selection of homeschooled adolescents via video conferencing as a way of increasing access to mental health services during the COVID-19 pandemic (Harper & Brewer, 2022). A total of eight homeschooled adolescents participated in the program. Results from this study indicated no significant findings but did note a downward trend on both GAD-7 and PHQ-A scores (Harper & Brewer, 2022). Participants also self-

reported new skills gained such as their ability to handle stressful situations, negative thoughts, feelings and behaviors (Harper & Brewer, 2022).

Optimum Performance Program in Sports (TOPPS). Another useful intervention approach identified was the Optimum Performance Program in Sports (TOPPS); this is a sport-specific family-based treatment approach with the goal of optimizing client mental health, relationships, and overall performance (Donohue & Perry, 2022). One case study addressed the use of TOPPS with a 17-year-old adolescent male athlete presenting with comorbid Attention Deficit Hyperactivity Disorder, inattentive type (ADHD) and Oppositional Defiant Disorder (ODD) (Phrathep et al., 2022). A total of 12 sessions were completed via videoconferencing for approximately 60 minutes per session. The goal of TOPPS was to support the client with improving their concentration difficulties through cognitive and behavioral skill training, as well as with performance planning by engaging the client's parent and coach in reinforcement strategies for desired behaviors. Other components of the client's treatment included addressing oppositional behaviors through use of compliments, ignoring undesired behaviors, and engaging in proactive behaviors such as problem-solving, objective thinking, diaphragmatic breathing, focusing on the task at hand rather than outcomes, and shifting perspectives. The authors of this study reported that videoconferencing proved to be useful in catering to client/family schedules and permitted the therapist and client to research resources in real-time via the internet (Phrathep et al., 2022). Ways in which remote service delivery proved difficult included the client's lack of access to a printer which was needed for materials and some connectivity issues; however, the therapist was able to resolve this issue by using email, screen-share functions and phone calls as needed. Results from this case study showed significant reductions in problem behaviors and

symptoms originally reported, improvements in social skills such as positive and negative assertion, and increases in mood, academic functioning, and focus (Phrathep et al., 2022).

Sanctuary Philadelphia Independent Cultural Youth (SPICY) program. The Sanctuary Philadelphia Independent Cultural Youth (SPICY) program was a Community-based participatory research (CBPR) project designed to support immigrant youth across Philadelphia through eight monthly sessions during which teens could collaborate with professional artists and designers in creative workshops geared at facilitating relationship building, dialogue, and personal reflection (Birkenstock et al., 2022). The objective of SPICY was to assist adolescents in understanding and expressing their mental health needs, identify geographic safe spaces, access mental health supports and develop strategies for self and community care. Due to the COVID-19 pandemic, the program was forced to adapt itself to a virtual structure to accommodate the impact and isolation felt by adolescents restricted from typically accessed creative outlets. Organizers of the program also noted the importance of creating safe spaces for adolescents to process current world events such as the multiple incidents of police brutality during the Summer of 2020 (Birkenstock et al., 2022). Utilizing participant feedback regarding the difficulties of online fatigue, a decision was made to shorten virtual workshops and incorporate simpler creative exercises and discussions. Other virtual modifications included the use of digital photos, videos, memes, and music as alternative modes for self-expression. Results suggested that participants who engaged for the duration of the project and with its telehealth modifications experienced a reduction in screen fatigue and were able to cultivate spaces that were happy and safe (Birkenstock et al., 2022).

Online IOP and Outpatient Group Therapy. Additional treatment approaches revealed in the literature included intensive outpatient (IOP) group therapy and crisis-oriented programs.

One article examined the rapid implementation of a group-based psychotherapy service at Yale New Haven Psychiatric Hospital (Childs et al., 2020). IOP services were developed to support adolescent patients transitioning from inpatient care and requiring ongoing stabilization or those experiencing escalating symptoms within their communities and in need of intervention to avoid necessitation of higher levels of care. Adolescents were provided with at least 3 hours of structured clinical support between 3-4 days per week for approximately 6 weeks. Services included individual psychotherapy, family participation, recreation/art therapy, psychiatric medication management and consultation, as well as care management services in addition to group psychotherapy. Adaptations to regular IOP services were made via telehealth (i.e. zoom) and adjunctive electronic charting platforms. This study ultimately found that it was possible to use telehealth as a service delivery tool for group-based treatments in high risk populations with the support of pre-existing telehealth infrastructure to reduce lapses in care while maintaining necessary levels of patient privacy and security (Childs et al., 2020).

Culturally Informed and Flexible Family-Based Treatment for Adolescents (CIFFTA). The Culturally Informed and Flexible Family-Based Treatment for Adolescents (CIFFTA) was yet another treatment intervention selected and evaluated for its telehealth applications within a Miami-Dade County's Haitian sociocultural adolescent population during the COVID-19 pandemic (Santisteban et al., 2013). CIFFTA was originally developed for a Hispanic population and adapted as an intervention to address problematic adolescent behaviors such as conduct issues, depressive disorders, failure in school, family disputes, delinquency, violence, substance use, and risky sexual behavior among Haitian adolescents (Marcelin et al., 2021). The authors of the original study randomly assigned two groups of adolescent participants to the CIFFTA model or Standard of Care (SOC) intervention that was in use at Miami-Dade

County's Juvenile Service Department (JSD) (Marcelin et al., 2021). Interventions included both individual psychoeducational and family sessions and were delivered through 12 weekly sessions, over 3 months within adolescent homes.

However, due to the COVID-19 pandemic, a new remote delivery protocol was implemented and provided to families that had some form of telephone access. The authors of the current study evaluated the specific telehealth adaptations made to CIFFTA in an attempt to address barriers identified within this community (e.g., distance, transportation issues, and stigma associated with accessing mental health support), as well as detailed the clinical barriers encountered by clinicians working with 12 of the original adolescent study participants.

The authors of the study noted a number of community-based barriers including lack of access to technologies, unfamiliarity with various technological equipment and platforms, and the inability to refuse treatment based on court-required, juvenile case stipulations (Marcelin et al., 2021). Additional clinician-based technological limitations were identified and included difficulty accessing technology and ensuring client privacy (Marcelin et al., 2021). This study also made a number of helpful recommendations to mitigate these barriers: training staff to assist with troubleshooting technological issues, having educational conversations with clients to orient them to online counseling, preparing guidance for families on a number of topics including educational and employment disruption, social isolation and self-protection during the pandemic, and the impact of the public health crisis on service delivery and treatment completion. The authors also encouraged clinicians to hold specific conversations with families regarding COVID-19 related impacts on their children and current family functioning. Finally, a recommendation was also made for therapists to create space for their own mental health needs before shifting their focus and care towards adolescents and their families.

Service Delivery

Several articles addressing the unique necessities for telehealth modifications to treatment were examined in this review (n = 9; Birkenstock et al., 2022; Childs et al., 2020; Gotkiewicz & Goldstein, 2021; Harper & Brewer, 2022; Marcelin et al., 2021; Martin et al., 2022; Martinez et al., 2022; Norman et al., 2022; Phrathep et al., 2022). Of those articles evaluated for Research Question 3, 40.90% (n = 9) addressed the important role of telehealth as a service delivery method with regards to adolescent mental health. Common themes identified among each of the records reviewed included the necessity of taking steps to ensure access to technology, establish and maintain confidentiality, preserve motivation and engagement, as well as ensure that service providers were adequately trained in adapted service delivery interventions (Birkenstock et al., 2022; Childs et al., 2020; Gotkiewicz & Goldstein, 2021; Harper & Brewer, 2022; Marcelin et al., 2021; Martin et al., 2022; Martinez et al., 2022; Norman et al., 2022; Phrathep et al., 2022). Overall, there appears to be consensus among various sources that telehealth was an important and adaptive service delivery tool used to support adolescent mental health during the COVID-19 pandemic and strong encouragement for continued assessment of treatment effectiveness when modified into a telehealth format.

Chapter IV: Discussion

The primary purpose of this systematic review was to examine the potential effects of the COVID-19 pandemic on adolescent mental health. Given what is known about this crucial developmental stage, the importance of social interaction and identity development among youth (Ellis & Zarbatany, 2017), and the relationship between childhood mental health and future issues in adulthood (Kessler et al., 2007; Layard et al., 2014), this review fulfills a vital role in broadening the understanding of the potential effects this global crisis had on the U.S. adolescent population. Specifically, the goals of this review were to (a) report the impact of COVID-19 related adolescent mental health experiences described in the literature and (b) identify any associated risk and protective factors that may exacerbate or mitigate these experiences, especially among vulnerable adolescent communities. Finally, special focus was assigned to (c) investigating adaptive strategies and interventions with potential for resilience building among impacted adolescents. This chapter will discuss findings from the literature pertaining to the research questions detailed above, as well as explore possible implications for future steps and research to continue supporting adolescents as they transition out of the pandemic or those faced by similar impending stressors.

COVID-19 Impact on Adolescent Mental Health

Of the 32 articles evaluated in Research Question 1, the majority described some level of impact on adolescent mental health during the COVID-19 pandemic including experiences of increased general mental health symptoms, depression, anxiety, PTSD/trauma-related symptoms, suicidal ideation/self-harming behaviors, substance use, interpersonal challenges, isolation, and loneliness. Among these findings, a resounding 50% of articles identified elevated symptoms of depression and 46.87% identified increased rates of anxiety among U.S. adolescents during the

COVID-19 pandemic. These results indicate that many adolescents significantly struggled with mental health symptoms throughout this time and in specific response to a number of pandemic-related stressors including social-distancing restrictions, disruptions to routines and coping strategies, limited access to social, developmental, physical, sexual health, and community resources, loss of basic needs (e.g., money, food, rent/housing, and transportation), strained academic and peer connections, and other socio-cultural stressors such as discriminatory experiences related to gender, sexual orientation, race, and ethnicity. Previous research on adolescent development has already made mention of the significant implications of emerging mental health symptoms during this period (Kessler et al., 2005; Rapee et al., 2019), as well as it's associated impact in later adulthood (Kessler et al., 2007; Layard et al., 2014). According to the results found in this review, adolescents weathering the pandemic withstood increased mental health challenges and psychosocial stressors beyond what is characteristic of this developmental stage (Spear, 2000).

Risk and Protective Factors Associated with Levels of Support

Findings from Research Question 1 indicate the magnitude of mental health impact among adolescents during the pandemic and incite curiosity as to how adolescents managed to cope despite these multi-layered stressors and increased rates of mental health difficulty. As such, Research Question 2 aimed to examine risk and protective factors that may have helped or hindered adolescents in managing the impact of COVID-19 pandemic related stressors on their mental health. A review of the selected studies revealed a number of risk and protective factors that were then organized into five categories of systemic support: academic/school support, family/caregiver support, community support, socio-cultural/political support, and peer support. These categories were created with Bronfenbrenner's bioecological theory in mind to better

understand the relationship between environmental and personal factors on adolescent mental health and development in the context of the COVID-19 pandemic. Of these categories, the most notable findings were adolescent experiences of socio-cultural/political exposure (64.28%; *n* = 18) and family/caregiver support (39.28%; *n* = 11). These were followed by risk and protective factors associated with academic (14.28%; *n* = 4), community (14.28%; *n* = 4) and peer support (14.28%; *n* = 4).

Socio-cultural/political adolescent experiences detected in this review are vital to understand in order to fully capture the impact that the COVID-19 pandemic had on the adolescent population. Aspects of this level of systemic support can be further understood through Bronfenbrenner's conceptualization of person and context factors (Morris & Bronfenbrenner, 2006). For example, 25% of articles in Research Question 2 (*n* = 7) identified specific person factors related to vulnerable adolescent communities (e.g., mandated youth, expecting adolescent parents, sexual orientation minority youth, sexual minority youth of color, Latinx youth, immigrant youth, and youth with strong racial/ethnic identification) as a risk factor for increased mental health symptoms during the pandemic. Elevated risk was also observed among adolescents facing certain context factors such as limited access to resources (e.g., job, income, shelter, transportation, and hospitalization), health and financial stress, and family socio-economic status. Given the pervasive socio-cultural and political climate during the height of the pandemic, it is unsurprising that certain adolescent communities experienced additional struggle in comparison to non-minoritized youth; however, these findings indicate an increased need for post-pandemic intervention and community-wide support amongst those most affected. Furthermore, it begs the question of what our social responsibility may be to suffering adolescent communities across the country during these types of crises and within a crisis-recovering world.

Similar thoughts have been echoed in studies evaluating the use of community facilities (e.g., using schools as quarantine and food collection sites) to bridge the sociocultural-need gap created by the pandemic (Sharma et al., 2020).

Family/caregiver support had the second highest collection of risk and protective factors identified in Research Question 2 (39.28%; $n = 11$). Common elements that posed increased risk of pandemic-related adolescent mental health included increased family conflict and decreased parental involvement in childcare responsibilities due to household, hospitalization, and job/income loss. These experiences were associated with increased internalizing and externalizing symptoms, with specific elevations in depressive and anxiety symptoms among females, as well as, sexual minority youth facing rejection from family members. Conversely, 32.14% of articles in Research Question 2 ($n = 9$) suggested that increased time spent with family members, family connectedness, secure parent-child relationship attachments, parental support and overall positive family functioning predicted greater improvements in externalizing symptoms, decreased rates of general mental health concern and increases in same and next-day positive affect among adolescents. These findings are further supported by previous literature emphasizing the importance of parental mental health, poor family relationships, family cohesion, parental availability, and adolescent perceptions of support on both adolescent development and mental health (Currie & Morgan, 2020; Olives et al. 2013). In a world of limited access to support via peers, school, and community resources, it appears that family support became a central and more immediate form of coping for adolescents; to imagine that this may have served as a protective factor for some youth and a risk factor for others, especially minority youth, is a consideration that must not be taken lightly when evaluating how to improve

adolescent mental health outcomes as the world transitions out of a pandemic phase and into an endemic phase.

On this note, it is crucial to highlight evidence supporting the influential role of peer and community support among adolescents during the COVID-19 pandemic. In this review, adolescents facing disrupted social networks, decreased connection with peers, and limited access to identity-specific community/social spaces experienced elevated rates of interpersonal challenges, isolation/loneliness, psychiatric crisis/hospitalization, and negative impacts to physical and sexual health. Moreover, this review found no risk factors associated with community support. Rather, findings from this review on online community support during the pandemic noted advantages such as increased access to peer support, exploration of virtual platforms, social connectedness, and inclusivity. In the absence of organic social networks, adolescents who sought peer support within alternative community or social contexts (e.g., academic, family, religion, and online forums) appeared to fare better in managing pandemic-related mental health experiences.

Coping Strategies and Interventions

Coping Strategies

The purpose of Research Question 3 was to investigate adaptive strategies and interventions with potential for resilience building among impacted adolescents during the COVID-19 pandemic. Approximately 59.09 % of articles (n = 13) in Research Question 3 cited specific adaptive coping skills and 9.09 % (n = 2) mentioned specific maladaptive coping skills that were used by adolescents in response to pandemic-related stressors. The most commonly reported adaptive strategies included the following: having well-established internal resources/pre-pandemic emotion regulation skills (18.18%; n = 4), engaging in individual free-

time, self-care, exercise, and with family members (18.18%; *n* = 4), using social media to connect with others and online peer support networks (9.09%; *n* = 2), accessing crisis support services (4.54%; *n* = 1), maintaining consistent routines/schedule (4.54%; *n* = 1) and engaging in creative exploration/art (4.16%; *n* = 1). The above strategies were associated with decreases in mental health symptoms. These findings are also congruent with existing literature regarding the positive effects of primary control coping (e.g., problem-solving, emotional regulation, and expression) and secondary control coping (e.g., distraction and cognitive restructuring), both of which are techniques that have been shown to support adolescents in moderating the impact of certain stressors on internalizing symptoms (DeCarlo & Wadsworth, 2009).

Maladaptive coping strategies identified in Research Question 3 included the following: misuse of social media (e.g., spending increased amount of time watching TV, video gaming, or on social media platforms), engagement in harmful behaviors such as non-suicidal self-injury (NSSI), excessive use of alcohol and cannabis, as well as disordered eating. It is important to note that adolescents may have utilized maladaptive forms of coping to manage pandemic-related stressors and their mental health experiences when other resources were unavailable to them, as described earlier in the results reported for Research Question 2. For example, minority youth appeared to rely more heavily on maladaptive forms of coping than non-minority youth, perhaps because of the unique struggles they faced during the pandemic such as lack of access to certain social and community supports and elevated experiences of family rejection. These findings suggest that adaptive forms of coping may be most effective or easily-accessed when certain protective factors are in place. This is further supported by previous research showing that developing a strong internal locus of control (e.g., having a sense that one can exert some control over an outcome) can serve as a protective factor by affecting the way one copes with a

stressful event, thereby reducing harmful psychological effects and making it more possible for individuals to engage in effective coping (Liu et al., 2000). Results in this review found that adolescents benefitted immensely from being able to have open spaces to discuss their feelings about the impact of the pandemic, thereby reducing feelings associated with loss of control or social disengagement (Zaeske, 2023). However, given the lack of family support for some minority adolescents and the lack of control over their immediate social environment, the pandemic may have presented additional barriers to accessing adaptive coping strategies.

An interesting adaptive strategy worth highlighting in this review is the crucial adjunctive roles played by peer support and social media in coping more effectively with adolescent mental health experiences during the pandemic. Specifically, this review identified factors such as using social media, identity-specific online content (i.e. LGBTQ+ online chat rooms, YouTube channels, and blogs) and digital media (music and video games) to access necessary forms of peer support as adaptive coping strategies (Burke et al., 2021; Fish et al., 2020). The creative and ingenious ways in which adolescents managed to connect with each other despite COVID-19-related social distancing barriers, and the sources of strength they drew from each other, should be considered not only as effective individual coping strategies but perhaps as key methods to be replicated in community settings. This is further supported by other research examining adolescent use of social media and online peer support networks to engage in open discussions regarding mental health struggles, ask others for help, set firm boundaries, and be role models to peers experiencing similar struggles (Croton et al., 2020). These findings are all consistent with past research regarding the importance of positive peer relationships and how feeling understood and supported by one's peers can reduce experiences of loneliness, emotional distress, anxiety

and depression (Hartup & Stevens, 1999; La Greca & Harrison, 2005; Spithoven et al., 2017; Cauberghe et al., 2020).

Treatment Interventions

This review also identified six treatment interventions utilized by adolescents during the COVID-19 pandemic to assist with managing mental health experiences: Unified Protocol-Adolescent (UP-A), Creating Opportunities for Personal Empowerment (COPE) program, Optimum Performance Program in Sports (TOPPS), Sanctuary Philadelphia Independent Cultural Youth (SPICY) program, Online Intensive Outpatient (IOP) and Group Therapy, and Culturally Informed and Flexible Family-Based Treatment for Adolescents (CIFFTA). Of the six treatment interventions reviewed, four reported specific reductions in previously reported mental health symptoms (i.e. UP-A, COPE, TOPPS, and SPICY), of which three utilized a cognitive behavioral approach to adolescent skill-building (i.e. UP-A, COPE, & TOPPS). Other orientations included community-based/expressive arts strategies, crisis programs and wrap-around services, family-based or family-assisted interventions, as well as socio-culturally based methods. In terms of adolescent diversity, participants ranged from non-binary and male-identifying to immigrant and Haitian identifying youth. Mental health symptoms reported by youth included anxiety, depression, ADHD, ODD, and high acuity mental symptoms. Furthermore, two of the studies reviewed (9.09 %; $n = 2$) were case studies and the rest were conducted in community or school-based settings.

A number of potentially beneficial elements were discovered among the six treatment interventions reviewed in Research Question 3. Firstly, the existence of treatment interventions developed and utilized with diverse adolescent communities in mind is both encouraging and necessary given the heighted level of mental health impact among sexual minority, racial/ethnic,

and immigrant youth. Interventions such as UP-A, SPICY, and CIFFTA may be especially helpful to these diverse adolescent communities facing a number of sociocultural and political stressors given their adaptability to telehealth modes of service delivery. Furthermore, COPE alone provided a unique benefit in that it was constructed for use by non-mental health providers. This is especially important when considering the rising demand of mental health services among adolescents. As adolescents adjust to a post-pandemic world where demand may exceed mental health service availability, it is imperative that treatment interventions like COPE can be accessed by instructors and adolescents in school-based settings. TOPPS was yet another intervention that could prove useful given its emphasis with adolescent athletes with pre-pandemic mental health and its inclusion of family members in treatment. As previously noted in this review, adolescents without typical access to sport or exercise routines and those with less supportive family structures, saw greater elevations in mental health symptoms. Therefore, interventions such as TOPPS may hold specific allure for adolescent sport communities and those navigating mental health struggles with lower levels of family support. Other interventions that included family-components into treatment were Online IOP services and CIFFTA. It's important to mention the necessity of services such as Yale New Haven Psychiatric Hospital's IOP program, one of few that were able to continue providing a high level of care to high acuity adolescent patients over telehealth without diminishing the quality of support or security provided.

Research Implications & Recommendations

The data accumulated in this review has specific implications for adolescents, parents, families, as well as, service providers directly or indirectly impacted by the COVID-19 pandemic and the rising demand of mental health need among adolescents in the United States. This review

has provided extensive evidence as to the level of impact experienced by adolescents throughout the pandemic on their social development and general well-being, as well as identified unique risk and protective factors that may contribute to the severity and expression of these pandemic-related experiences. Furthermore, existing coping strategies and treatment interventions within the literature were examined to better understand how to support and prepare affected adolescents as they begin to pick up the pieces following such long-standing stressors and disruption in their daily lives. In light of these findings, the following sections detail specific recommendations for adolescents, families, service providers, school administrators/faculty, and governmental officials who comprise the sociocultural environment of these impacted adolescents.

Adolescents

The purpose of this review was to provide understanding and support to adolescents impacted by the COVID-19 pandemic. According to the findings, adolescents who are wondering how to navigate difficult transitions out of the pandemic may do so in a number of ways: firstly, adolescents can utilize the information garnered in this review to understand which protective factors and coping strategies can improve the likelihood of reducing and managing symptoms of distress. These protective factors include leaning on their families for additional sources of support, as reiterated by research associating positive family support with positive adolescent mental health (Astle et al., 2021; Coulombe & Yates, 2022; Hertz et al., 2022; Luthar et al., 2021, Parker et al., 2021; Recto, 2021; Silk et al., 2022). Furthermore, adolescents are encouraged to creatively use their natural inclination towards social connection, whether that be online social media platforms or other digital means, to facilitate consistent and effective social support networks. This may be particularly helpful for adolescent minorities who have limited

access to specific kinds of peer support (e.g. sexual minority youth) and could benefit from safe and supportive identity-specific online resources (Burke et al., 2021; Fish et al., 2020). However, adolescents should also take caution and assess their personal limits when it comes to social media exposure (e.g. spending increased amount of time watching TV, video gaming, or on social media platforms), as research indicates both positive and risk factors associated with increased social media use (Burke et al., 2021; Croton et al., 2020; Fish et al., 2020). Finally, it is recommended that adolescents seek positive forms of coping when it comes to managing their mental health. As discussed in this review, several strategies may prove useful in increasing positive adolescent mental health outcomes such as seeking formal treatment or using creative outlets such as art and exercise (Birkenstock et al., 2022; Gotkiewicz & Goldstein, 2021; McGuine et al., 2022).

Families, Parents, & Caregivers

As evidenced in this review, factors such as increased time spent with family members, family connectedness, secure parent-child relationship attachments, parental support and overall positive family functioning have been associated with increases in positive adolescent mental health (Astle et al., 2021; Coulombe & Yates, 2022; Hertz et al., 2022; Luthar et al., 2021, Parker et al., 2021; Recto, 2021; Silk et al., 2022). Furthermore, many of the treatment approaches explored in this review, like TOPPS, CIFFTA, and Online IOP/Outpatient Group Therapy, embody some form of family intervention or participation and have shown support in improving mental health symptoms among adolescents (Childs et al., 2020; Marcelin et al., 2021; Phrathep et al., 2022). As such, families wondering how to help their aging teens, whom have been socially-distanced and estranged from natural sources of support during these three

crucial years of development, may be interested to know how their influence can have lasting and meaningful impact on their children's well-being.

One consideration may be to develop or strengthen existing parent-child co-regulation skills (e.g., helping their teens to emotionally-regulate) by improving caregiver self-regulatory practices. As adolescent perceptions of positive family and parent functioning can be crucial to their own emotional experiences (Luthar et al., 2021), learning to model appropriate and healthy affective regulation can be a helpful strategy for parents seeking more tools. Moreover, past research indicates that high levels of parent negative emotional reactivity are associated with increases in adolescent negative affect (Yap et al., 2010), adjustment difficulties (Denham et al., 2000), and emotion regulation ability (Eisenberg et al., 2003). In fact, parents who experience heightened negative emotion may model expressions of negative emotion for their children (Morris et al., 2007).

So how can parents implement more co-regulatory practices? For one, parents may choose to engage in parent coaching which can be an excellent tool to help parents recognize high conflict situations, develop stress-management skills, and strengthen self-regulatory processes. Another way parents can practice co-regulation with their children is through parent meta-emotion which generally refers to the way that parents approach their children's emotion regulation and expression needs via emotion-coaching and emotion-dismissing practices (Gottman et al., 1996). Emotion-coaching refers to when a parent accepts, values and validates their child's emotions and emotion-dismissing refers to when a parent rejects or ignores their child's emotions. Research has shown that practicing a parent emotion-coaching approach can contribute to better child socioemotional competence, self-regulation, and the ability to cope with stressful situations (Castro et al., 2015; Shewark & Blandon, 2015).

Another helpful tool for families to consider is supporting their adolescent children in beginning formal treatment. Treatment approaches explored in this review, such as UP-A, COPE, TOPPS, and SPICY, all appeared to be helpful in reducing the frequency and/or severity of adolescent mental health experiences (Birkenstock et al., 2022; Harper & Brewer, 2022; Martin et al., 2022; Phrathep et al., 2022). Other treatment approaches such as online IOP/Outpatient Group Therapy showed promise in its adaptation to telehealth services (Childs et al., 2020). Furthermore, TOPPS, CIFFTA, and Online IOP/Outpatient Group Therapy services, all included some family component (e.g., family interventions, sessions, and coaching) as part of treatment. For family's looking to support adolescents presenting with either an internalizing, externalizing or mixed symptom presentation, a Cognitive Behavioral Therapy (CBT) approach may prove useful in addressing treatment goals such as learning to handle stressful situations, negative thoughts, feelings and behaviors (Harper & Brewer, 2022), improving concentration difficulties through cognitive and behavioral skill training (Phrathep et al., 2022), and developing skills such as emotion identification and education, present-moment awareness, cognitive restructuring, and problem-solving techniques (Martin et al., 2022).

Finally, this review identified important adolescent protective factors such as exercise and/or sport involvement during the COVID-19 pandemic (McGuine et al., 2022). Given what is known about the positive impacts of physical exercise on adolescent mental health (Pascoe et al., 2020), it may be beneficial for parents to elicit active participation from their teens in some type of movement-based activity to assist them in developing healthy forms of coping and emotional regulation.

Service Providers

Service providers overwhelmed by the increasing demand of mental health support may also appreciate additional insight into the types of interventions and modes of service delivery that can help ease these adolescent mental health experiences and help teen clients return to their highest functioning selves. As mentioned previously, incorporating protective factors such as family involvement in therapy, as has been done in treatment approaches like TOPPS, CIFFTA, and Online IOP/Outpatient Group Therapy services, may be helpful in improving adolescent mental health outcomes. Other modes of service delivery include adjunctive group therapy and telehealth adapted services. Group therapy is a wonderful option when considering benefits such as cost-effectiveness and efficiency for both families and service providers as it is able to meet the immediate needs of clients while offloading the hourly burden for mental health providers who are in high demand. Furthermore, group therapy has also been known for its added benefits such as providing adolescents and children with opportunities to experience peer support, safety, and acceptance (Mishna & Muskat, 2004). In terms of telehealth, therapists are encouraged to pay special focus to client communities experiencing significant technological barriers such as gaining access to or unfamiliarity with certain technological equipment and platforms (Marcelin et al., 2021). Furthermore, service providers should consider each client's access to privacy within their given environment and work with families to create boundaries necessary for an appropriate treatment setting.

Other factors service providers should consider when providing mental health services is the type of treatment orientation. Due to the high demand of mental health need among adolescents transitioning out of the pandemic, it may be beneficial for service providers to offer short-term oriented interventions with limited sessions such as CBT as this can save time,

improve efficiency, and reduce the clinical burden on clinicians, thereby creating more space for other client referrals and modes of support. Examples of time-limited CBT-oriented approaches explored from this systematic review include TOPPS, a program that required only 12, 60-minute individual therapy sessions; intervention formats such as this could increase accessibility to client's and families with scheduling and financial concerns, without decreasing revenue costs for service providers.

Finally, service providers should pay careful attention to assessing, understanding and developing flexible solutions for adolescent families with technological limitations when attempting to deliver competent telehealth care; it is imperative that mental health professions strive to meet clients and their families where they are at, especially those who experience socioeconomic hardship. Some ways in which service providers may be able to do so is by having deliberate conversations about pandemic-related impacts on youth and family functioning, as well as disruptions to education and employment, experiences of social isolation, and methods regarding self-protection during the pandemic. Furthermore, service providers should attempt to sufficiently prepare families for telehealth service delivery before beginning treatment and co-create a plan to address barriers as they appear (e.g., providing training on technological platforms used in treatment, preparing alternative modes of contact, and maintaining flexibility regarding scheduling or mode of service etc.).

School Faculty & Administrators

School faculty and administrative figures facing a mass transition from online to on-ground formats of learning can utilize the information in this review to prepare themselves in terms of how to support their student's academic and social-emotional well-being. Some of these recommendations include adjusting the mode of student-learning and integrating social-

emotional learning within the academic environment. One way this can be done is if instructors receive formalized educational training in assessment and intervention to support adolescent social-emotional health. For example, instructors could learn to assess the early warning signs of negative mental health in adolescent students, a necessary and useful tactic when considering the level of interaction and exposure adolescents encounter in their interactions with faculty on a daily basis. This would also help offset the demand on school psychologists and counseling services. Furthermore, using techniques like those from the COPE program or facilitating after-school programming with creative and expressive arts elements as was done in the SPICY treatment approach, may help instructors feel more prepared to support struggling adolescents and provide safe spaces for adolescents to seek both faculty and peer support.

Governmental Figures, Policy-Makers, & Stakeholders

Finally, information explored in this review may provide helpful instruction to governmental figures on how to influence public policy towards supporting healthy community reintegration and functioning at the conclusion of the pandemic. Some helpful recommendations for influential policy-makers may include delegating funds towards increasing access to adolescent families who have lost vital basic needs (e.g., job, income, and shelter). Furthermore, stakeholders may consider delegating necessary funding to programs that can support adolescent mental health services such as access to group and peer support, especially for minority youth. Finally, major governing bodies within the field of psychology, such as the American Psychological Association, Board of Psychology, and California Association of Marriage and Family Therapy could support these efforts towards adolescent mental health recovery by providing guidelines and forms of early intervention, prevention and assessment

recommendations to service providers directly on the frontlines of post-pandemic adolescent support.

Strengths and Limitations

Naturally, this integrative systematic review has both strengths and limitations which will be discussed concurrently. One limitation that has been present since beginning the process of researching this topic is the novelty of the subject matter and the current available literature on the COVID-19 pandemic. Due to the ever-evolving and coinciding impact of the pandemic with the timing of this review, it is possible that a number of studies have begun or have yet to emerge in this growing body of literature. However, a comparative strength of this review, in fact, is its timeliness which helps us to understand the immediate mental health experiences of adolescents traversing the COVID-19 pandemic over the last few years. One limitation that should be noted for future research is the lack of studies evaluating the long-term impacts of the COVID-19 pandemic on adolescent mental health and development. One way research may endeavor to do so is by utilizing Bronfenbrenner's bio-ecological model (e.g., chronosystem) to understand how the pandemic has affected adolescent communities over time (Morris & Bronfenbrenner, 2006).

While this review may not hold conclusive evidence of what is yet known about the severity of the pandemic's impact, it at least begins the conversation around whether one exists and how we may begin to better prepare loved ones who are still facing the residual effects of these pandemic-related stressors. Furthermore, the information obtained in this review expands upon the existing literature regarding adolescent responses to mass trauma and the indirect effects of chronic stress, ineffective coping, loss of social networks, and feelings of injustice on adolescent mental health (Parker et al., 2006). Another limitation of this systematic review is its integrative nature; past critiques have noted the risk of error and invalidity that accompanies

research absent of explicit and systematic methods (Whittemore & Knafl, 2005), however, the nature of this review also allows for a more expansive understanding of both the collective and subjective mental health experiences among adolescents.

This review evaluated a total of 49 articles, a majority of which were quantitative studies (*n* = 23, 46.93%), followed by mixed method studies (*n* = 17, 34.69%) and qualitative studies (*n* = 9, 18.36%). It is important to note that while careful steps were taken to ascertain that each study met inclusion criteria, two articles evaluated by this review did exceed age and level of education limitations originally set by the author (e.g. included a study sample with some participants aged 10 and/or included college students; Oosterhoff et al., 2020; Penner et al., 2021). Both articles were evaluated for their contributions to this review and ultimately included in the final selection of articles. Lastly, a notable strength and limitation of this review is its attention to diversity. Only 14.28% of articles (*n* = 7) in this review addressed diversity factors pertaining to vulnerable adolescent communities. However, in its endeavor to examine these diversity factors, this review was able to shed important light on the differential impact experienced by diverse adolescents across the United States and should continue to be an important area of focus in future research.

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APPENDIX A

Information Sources and Database Search Codes

Electronic Databases Searched Individually

Information Sources and Database Search Codes

Electronic Databases Searched Individually

Individual Search (IS) Code	Database/Source
IS 1	EBSCO Host
IS 2	PsychInfo
IS 3	SCOPUS
IS 4	PubMed
IS 5	PILOTS
IS 6	PTSDpubs

APPENDIX B

List of Search Terms

List of Search Terms

Search Term ID #	Primary Term	Synonyms/Alternative Forms	Notes
01	Covid-19	SARS-CoV-2, Covid-19 pandemic, or Coronavirus	
02	Adolescents	Teenager, Teen, or Youth	
03	Mental Health	Mental Well-Being, Emotional Health, Mood, Mental-Illness, Mental Disorder, or Psychiatric Illness	
04	Risk Factors	Contributing Factors, Predisposing Factors, Predictor, Cause, or Vulnerability Factors	
05	Protective Factors	Protection, Resilience, Promotive Factors, Buffer, or Preventative Measures	
06	Coping	Cope, Coping Strategy, Coping Skill or Coping Behavior	
07	Intervention	Strategies, Best Practices, Treatment, Therapy, Program, or Management	

APPENDIX C

Comprehensive Search Plan

Comprehensive Search Plan

COMPREHENSIVE SEARCH PLAN

*Includes Electronic databases, registries, journal TOCs, Reference lists from articles/books, resource lists from organizations, etc. etc. etc.

Search Type	Databases or Sources	Search Term ID(s)	Search Syntax or Instructions	Fields to Search	Specifiers	Plan Notes
Electronic Database	EBSCO Host, PsychInfo, Scopus, PubMed, PILOTS, PTSDpubs	01, 02, 03	(Covid-19SARS-CoV-2, Covid-19 pandemic, or Coronavirus) AND (Adolescents, Teenager, Teen, OR Youth) AND (Mental Health, Mental Well-Being, Emotional Health, Mood, Mental-Illness, Mental Disorder, OR Psychiatric Illness)	Title, Keywords, Abstract	*Years: 2020-Present *Type: Peer-reviewed and published articles only	
Electronic Database	EBSCO Host, PsychInfo, Scopus, PubMed, PILOTS, PTSDpubs	01, 02, 03, 04	(Covid-19SARS-CoV-2, Covid-19 pandemic, or Coronavirus) AND (Adolescents, Teenager, Teen, OR Youth) AND (Mental Health, Mental Well-Being, Emotional Health, Mood, Mental-Illness, Mental Disorder, OR Psychiatric Illnes) AND (Risk factors OR Contributing Factors OR Predisposing Factors Or Predictor OR Cause OR Vulnerability Factors)	Title, Keywords, Abstract	*Years: 2020-Present *Type: Peer-reviewed and published articles only	
Electronic Database	EBSCO Host, PsychInfo, Scopus, PubMed, PILOTS, PTSDpubs	01, 02, 03, 05	(Covid-19SARS-CoV-2, Covid-19 pandemic, or Coronavirus) AND (Adolescents, Teenager, Teen, OR Youth) AND (Mental Health, Mental Well-Being, Emotional Health, Mood, Mental-Illness, Mental Disorder, OR Psychiatric Illnes) AND (Protective factors OR Resilience OR Promotive Factors OR Buffer OR Preventative Measures)	Title, Keywords, Abstract	*Years: 2020-Present *Type: Peer-reviewed and published articles only	
Electronic Database	EBSCO Host, PsychInfo, Scopus, PubMed, PILOTS, PTSDpubs	01, 02, 03, 06	(Covid-19SARS-CoV-2, Covid-19 pandemic, or Coronavirus) AND (Adolescents, Teenager, Teen, OR Youth) AND (Mental Health, Mental Well-Being, Emotional Health, Mood, Mental-Illness, Mental Disorder, OR Psychiatric Illnes) AND (Coping OR Coping Strategies OR Coping Skills OR Coping Behaviour OR Cope)	Title, Keywords, Abstract	*Years: 2020-Present *Type: Peer-reviewed and published articles only	
Electronic Database	EBSCO Host, PsychInfo, Scopus, PubMed, PILOTS, PTSDpubs	01, 02, 03, 07	(Covid-19SARS-CoV-2, Covid-19 pandemic, or Coronavirus) AND (Adolescents, Teenager, Teen, OR Youth) AND (Mental Health, Mental Well-Being, Emotional Health, Mood, Mental-Illness, Mental Disorder, OR Psychiatric Illnes) AND (Interventions OR Strategies OR Best Practices OR Treatment OR Therapy OR Program OR Management)	Title, Keywords, Abstract	*Years: 2020-Present *Type: Peer-reviewed and published articles only	

APPENDIX D

Search and Documentation Record

Search and Documentation Record

Search Date	Full Search ID#	Type of Search	Database/ Source	Search Term ID#s	Search Syntax or Other Guidelines for Search	Fields Searched	Search Specifier: Years	Search Specifier: Publication Type	Other Specifiers	No. of Records	Notes
12/09/22	100	Electronic Database	PSG 1	01, 02, 03	Covid-19, SARS-CoV-2, Covid-19 pandemic, or Coronavirus Adolescents, Teenager, Teen, or Youth Mental Health, Mental Well Being, Emotional Health, Mood, Mental-Illness, Mental Disorder, or Psychiatric Illness	Title, Key Words	2020-Present	Journals, Academic Journals	*Add search term "United States" for better results.	520	
12/09/22	101	Electronic Database	PSG 1	01, 02, 03, 06	Covid-19, SARS-CoV-2, Covid-19 pandemic, or Coronavirus Adolescents, Teenager, Teen, or Youth Mental Health, Mental Well Being, Emotional Health, Mood, Mental-Illness, Mental Disorder, or Psychiatric Illness Cope, Coping Strategy, Coping Skill or Coping Behavior	Title, Key Words	2020-Present	Journals, Academic Journals	*Add search term "United States" for better results.	32	

APPENDIX E

Screening and Selection Record

Screening and Selection Record

SCREENING AND SELECTION RECORD

PHASE 1: Title/Keywords/Abstract (Screening) **PHASE 2:** Full-Text Review (Eligibility) **PHASE 3:** Final Decision (Selection)

DECISION CODES: INCLUDE/CONTINUE TO ABSTRACT/CONTINUE TO FULL TEXT/UNDECIDED/EXCLUDE (IN/CFT/CAB/UN/EX)
CRITERIA CODES: (IS THE CRITERIA MET?) YES/UNCLEAR/NO (Y/UC/NO)

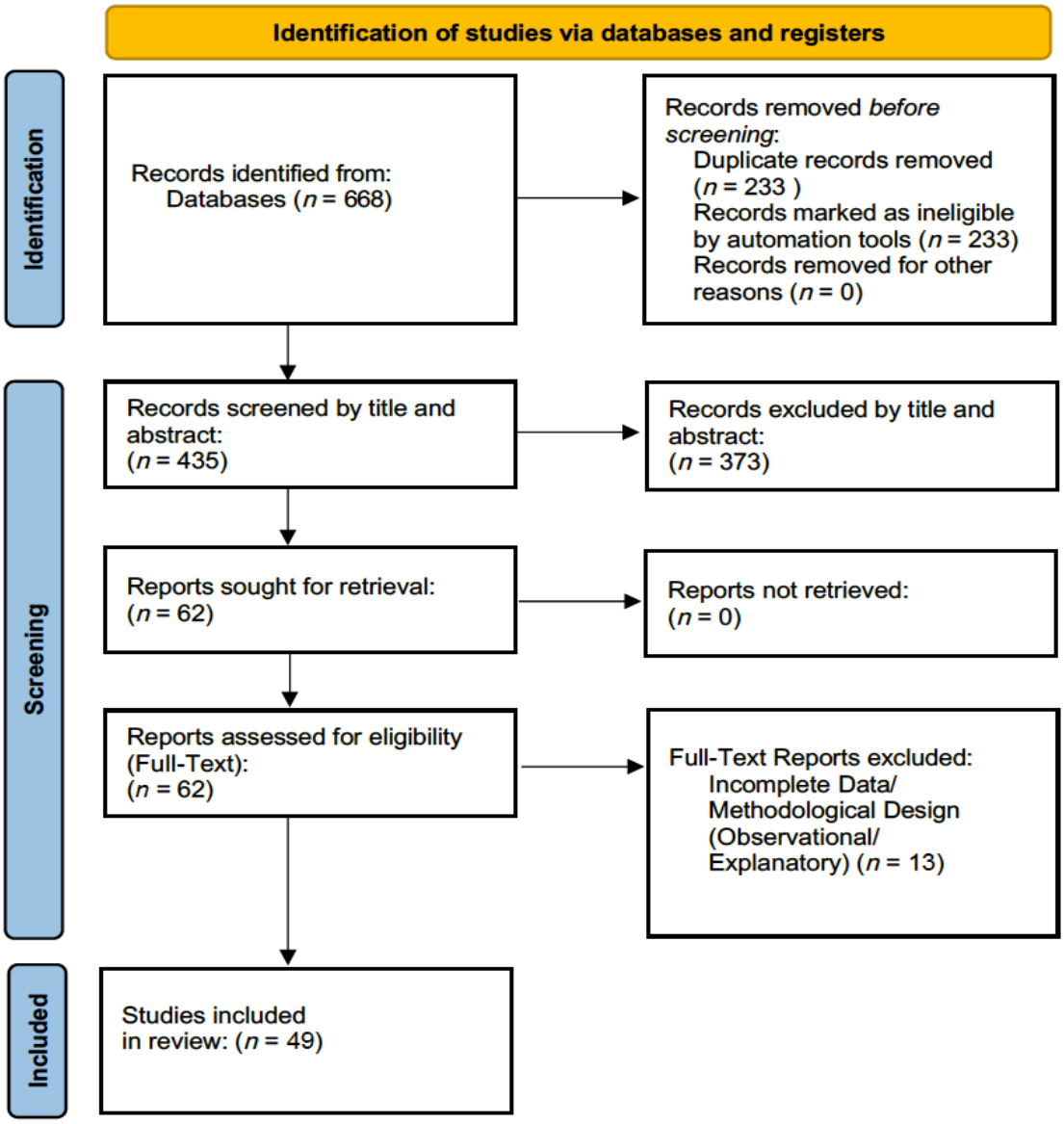
AUTHOR(S)	YEAR	ABBREVIATED TITLE	DATABASES/ SOURCES	TITLE AND/OR KEYWORD SCREEN: DECISION - DATE	ABSTRACT SCREEN: DECISION - DATE	FULL-TEXT SCREEN?	INCL (SO): *Peer Reviewed Journal*	INCL (SO): *Published Article*	INCL(RV): *Covid-19*	INCL (RV1): Adolescent Mental Health	INCL (RV2): Risk or Protective Factors	INCL (RV3): Coping Strategies or Interventions	INCL(PAR): 13-17 yearsold	INCL(PAR): United States	INCL(PAR): Participant Variable 3
Smith and Jones	2012	Correlates of Grad Student Stress	IS1	12/5/21	12/5/21	YES	Y	Y	Y	Y	NO	NO	Y	Y	Y
Anderson et al.	2015	Social Support among Med Stud	Medline	CAB - 5/9/19	EX - 5/9/19	NO									
Williams	2018	Resilience among Doctoral Students	Scopus	CAB - 5/9/19	CFT - 5/9/19	YES	Y	Y	Y	Y	Y	Y	Y	Y	Y

INCL(RV): *Covid-19*	INCL (RV1): Adolescent Mental Health	INCL (RV2): Risk or Protective Factors	INCL (RV3): Coping Strategies or Interventions	INCL(PAR): 13-17 yearsold	INCL(PAR): United States	INCL(PAR): Participant Variable 3	INCL (M): *Quantitative & Qualitative*	INCL (M): Methodology Published in English	INCL (SO): *Sample Size > 1*	INCL (SO): Study Quality Variable 2	EXCL: Exclusion Criteria 1	EXCL: Exclusion Criteria 2	REVIEWER DECISION - DATE	SECONDARY/ CONFIMATORY DECISION	FINAL DECISION	FINAL DECISION DATE	DECISION NOTES
Y	Y	NO	NO	Y	Y	Y	Y	Y	Y	NO	NO	NO	IN - 5/12/19	INCLUDE	INCLUDE	5/13/19	Met Eligibility Criteria
											Y	NO	EX - 5/9/19	EXCLUDE	EXCLUDE	5/9/19	Study conducted in Romania
Y	Y	Y	Y	Y	Y	Y	Y	Y	NO	Y	NO	NO	EX - 5/17/19	EXCLUDE	EXCLUDE	5/27/19	Didn't meet Methodology Criteria, Sample size =7

APPENDIX F

Prisma Flow Chart

Prisma Flow Chart



APPENDIX G

Data Collection and Extraction Form

APPENDIX G: Data Collection and Extraction Form

Extractor's Initials _____ **Date of Extraction** _____

Study/Document Identification

Document Name *(surname of first author and year first full report of study was published e.g. "Smith 2001")*	
Document ID *(4-digit number assigned to each document)*	
Publication Year *(dd/mm/yyyy)*	
Full Document Title	

General Information

Date Form Completed *(dd/mm/yyyy)*	
Source/Publication Type *(journal, book, conference report, dissertation, etc.)*	
Source Name *(title of journal, book, organization, etc.)*	
Publication Status	[ ] Published [ ] Unpublished
Document Language	
Document Country of Origin	
Notes:	

Methodological Information

Component	Description as Stated in Document	Location in Text *(pg & ¶/fig/table)*
Aim of Study *(e.g. efficacy, equivalence, pragmatic, etc.)*		
Methods: General Design	[ ] Quantitative [ ] Qualitative [ ] Mixed [ ] Other:	
Methods: Specific Design/Approach		
Study Start Date *(dd/mm/yyyy)*		
Study End Date *(dd/mm/yyyy)*		
Duration of Participation *(from recruitment to last follow-up)*		
Notes:		

Setting Information

Component	Description as Stated in Document	Location in Text *(pg & ¶/fig/table)*
Study Location *(geographical data)*		
Data Collection Setting		
Notes:		

Participant Information

Component	Description as Stated in Document	Location in Text *(pg & ¶/fig/table)*
Population Description *(from which study participants are drawn)*		
Inclusion Criteria		
Exclusion Criteria		
Recruitment Methods		
Sample Size		
Participant Gender		
Participant Age		
Participant Race/Ethnicity *(White/Caucasian, Latinex/Hispanic, Asian, Black/African American, Native American or Alaska Native, Native Hawaiian or Other Pacific Islander)*		
Participant Caregiver Marital Status (*married, divorced, cohabitating, single)*		
Participant Highest Level of Education		
Participant Religious/Spiritual Beliefs		
Participant Sexual Orientation		
Participant SES		
Participant Grade Level		
Family Type *(Intact, co-parenting, single- parent, foster, etc.)*		
Primary Diagnosis Pre-Pandemic		

Primary Diagnosis Post-Pandemic		
Comorbidities		
Notes:		

Mental Health Symptoms and Problems Reported

Component	Description as Stated in Document	Location in Text *(pg & ¶/fig/table)*
Symptom/Problem 1: PTSD or Trauma	**Onset:** Pre-pandemic [ ] OR Post-Pandemic [ ] **Severity:** Symptom Increase [ ] OR Symptom Decrease [ ]	
Symptom/Problem 2: Depression	**Onset:** Pre-pandemic OR Post-Pandemic **Severity:** Symptom Increase OR Symptom Decrease	
Symptom/Problem 3: Anxiety	**Onset:** Pre-pandemic OR Post-Pandemic **Severity:** Symptom Increase OR Symptom Decrease	
Symptom/Problem 4: Substance Use/Abuse	**Onset:** Pre-pandemic OR Post-Pandemic **Severity:** Symptom Increase OR Symptom Decrease	
Symptom/Problem 5: Suicidal Ideation/Self-Harm	**Onset:** Pre-pandemic OR Post-Pandemic **Severity:** Symptom Increase OR Symptom Decrease	
Symptom/Problem 6: Interpersonal Challenges	**Onset:** Pre-pandemic OR Post-Pandemic **Severity:** Symptom Increase OR Symptom Decrease	
Symptom/Problem 7: Social Isolation/Loneliness	**Onset:** Pre-pandemic OR Post-Pandemic **Severity:** Symptom Increase OR Symptom Decrease	

Symptom/Problem 8: Stress	**Onset:** Pre-pandemic OR Post-Pandemic **Severity:** Symptom Increase OR Symptom Decrease	
Symptom/Problem: Other	**Onset:** Pre-pandemic OR Post-Pandemic **Severity:** Symptom Increase OR Symptom Decrease	
Notes:		

Level of Systemic Support

Component	Description as Stated in Document	Location in Text *(pg & ¶/fig/table)*
Academic/School Support		
Family/Caregiver Support		
Social Support		
Community Support		
Access to resources		
Socio-cultural and political exposure		
Notes:		

Individual Coping Strategies

Component	Description as Stated in Document	Location in Text *(pg & ¶/fig/table)*
Coping Strategy #1:		
Coping Strategy #2:		
Coping Strategy #3:		
Coping Strategy #4:		
Coping Strategy #5:		
Coping Strategy #6:		
Notes:		

Treatment Interventions

Component	Description as Stated in Document	Location in Text *(pg & ¶/fig/table)*
Intervention/Modality #1		
Treatment Setting		
Treatment Goals		
Length of Treatment		
Treatment Results/Effectiveness		
Intervention/Modality #2		
Treatment Setting		
Treatment Goals		
Length of Treatment		
Treatment Results/Effectiveness		
Notes:		

Assessment of Research Variables

Research Variables	Assessment Method(s) *(measure, observation, interview question, archival, etc.)*	Location in Text *(pg & ¶/fig/table)*
Symptoms: PTSD or Trauma		
Symptoms: Depression		
Symptoms: Anxiety		
Symptoms: Substance Use/Abuse		
Symptoms: Suicidal Ideation/Self Harm		

Symptoms: **Interpersonal Challenges**		
Symptoms: **Social Isolation/Loneliness**		
Symptoms: **Other**		

Analysis and Statistical Information

Component	Description as Stated in Document	Location in Text *(pg & ¶/fig/table)*
Descriptive Statistics Used		
Inferential Statistics Used		
Qualitative Analysis Conducted		
Other		
Notes:		

Results and Outcomes

Component	Description as Stated in Document	Location in Text *(pg & ¶/fig/table)*
Key Result #1:		
Key Result #2:		
Key Result #3:		
Key Result #4:		
Notes:		

Conclusions and Follow-Up

Component	Description as Stated in Document	Location in Text *(pg & ¶/fig/table)*
Key Conclusions of Study Authors		
Study Author's Recommendations for Future Research		
Does this study directly address a research question? *(any issues of partial or indirect applicability)*	[ ] Yes [ ] No How/State Which Question. Why not?	
Take-Aways: General		
Take-Aways: Implications for Practice		
Salient Study Limitations *(to inform quality appraisal)*		
References to Other Relevant Studies		
Further Study Information Needed?	[ ] Yes [ ] No From Whom? What and when? Contact info?	
Correspondence Received *(from whom, what and when)*		
Notes:		

APPENDIX H

Individual Study Quality Appraisal Form

INDIVIDUAL STUDY QUALITY APPRAISAL FORM FOR SYSTEMATIC REVIEWS
Developed by Shelly P. Harrell, Ph.D., Pepperdine University

Author(s) and Year: _____ Study ID#_____

1. **Methodology:** Quantitative Qualitative Mixed Methods

2. Specific Design/Inquiry Approach: _____

RATINGSCALE: Strong=3 Good/Adequate=2 Weak=1 Missing=0 N/A

3. Strength of Literature Foundation and Rationale for Study: _____
(POSSIBLE CONSIDERATIONS: current and relevant references, background literature sufficiently comprehensive, Need/Rationale for study clearly stated, etc.)

4. Clarity and specificity of Research Aims/Objectives/Questions/Hypotheses: _____

5. Quality of research design or methodological approach: _____
GENERAL CONSIDERATIONS: provides rationale for design chosen, appropriateness for research questions, clear description of design and methodological approach, strength of design characteristics utilized

QUANTITATIVE CONSIDERATIONS: internal and external validity considered in design; potential confounds identified and addressed in some way, specific design-based "risk of bias" criteria considered such as randomization, blinding

QUALITATIVE CONSIDERATIONS: consistent with specific practices relevant to the inquiry strategy (e.g., phenomenological study, case study, grounded theory, etc.), triangulation, audit trail

6. Sample Selection and Characteristics: _____
GENERAL CONSIDERATIONS: detailed description of sample characteristics, adequacy of sample characteristics in the context of research aims, detailed description of recruitment and selection of participants; rationale provided for sample size; inclusion and exclusion criteria indicated as relevant

QUANTITATIVE CONSIDERATIONS: representativeness of sample, adequacy of sample size in context of design, extent of selection or sample bias
QUALITATIVE CONSIDERATIONS: sample size appropriate for inquiry strategy; rationale for purposeful sample characteristics

7. Data Collection Tools (Scales, Observation, Interviews, etc.): _____

GENERAL CONSIDERATIONS: rationale for selection, appropriateness for assessing variables, development of study-specific tool or process clearly described, piloting, pretesting;

QUANTITATIVE CONSIDERATIONS: psychometric properties (reliability, validity, utility) reported, adequacy of psychometric properties, normative or standardization data described

QUALITATIVE CONSIDERATIONS: appropriateness for inquiry strategy and purpose; interview or other data collection process described clearly and comprehensively

8. Data Collection Processes: _____
(POSSIBLE CONSIDERATIONS: data collection procedures clearly described in sufficient detail, intervention strategies and implementation described in detail, quality of data collected, design-specific considerations such as attrition in RCTs, saturation in grounded theory, etc.)

9. Analysis and Presentation of Data: _____
GENERAL CONSIDERATIONS: appropriateness of analysis for research questions and type of data; results presented clearly and comprehensively; usefulness and clarity of any tables, graphs, and charts

QUANTITATIVE CONSIDERATIONS: power and effect size reported; relevant statistics reported clearly; effective use of tables

QUALITATIVE CONSIDERATIONS: textual data and/or direct quotes reported and used effectively; transparent description of the development of themes from raw data

10. **Discussion of Study Limitations: _____**
GENERAL CONSIDERATIONS: identifies and discusses limitations in the context of design/strategy utilized

QUANTITATIVE CONSIDERATIONS: addresses various forms of bias, internal validity, external validity (generalizability), ecological validity

QUALITATIVE CONSIDERATIONS: transferability, credibility, transparency,

11. Consideration of culture and diversity: _____
(POSSIBLE CONSIDERATIONS: attention to diversity within sample, includes culturally appropriate methods and tools, avoids biased language, uses appropriate terminology, etc.)

12.

OVERALL RATING:	**EXEMPLARY** (e.g., all "3"s)	**STRONG** (e.g., mostly "3"s)	**GOOD/ADEQUATE** (e.g., mostly "2"s)	**WEAK** (e.g., mostly "1"s)

APPENDIX I

Evidence Table

Evidence Table

ID	Authors	Full Document Title	Publication Year	Publication Source	Source Title	Methodology	Study Characteristics/Design Study/Approach	Study Aim	Setting	Participant Characteristics PC1: Sample Size	PC: Gender	PC: Age	PC: Race/Ethnicity 1- White/Caucasian 2- Latinex/Hispanic 3- Asian 4- Black/African American 5- Native American or Alaska Native 6- Native Hawaiian or Other Pacific Islander	PC: Caregiver Marital Status 1- Married 2- Divorced/Separated 3- Cohabitating 4- Single

PC: Highest Level of Education	PC: Religious Spiritual Beliefs	PC: Sexual Orientation	PC: SES	PC: Grade Level	PC: Family Type 1- Intact 2- Co-parenting 3- Single-Parent 4- Foster 5- Other	PC: Primary Diagnosis Pre-Pandemic	PC: Primary Diagnosis Post-Pandemic	PC: Comorbidities	Research Variables (RV1): Mental Health Symptoms/ Problems Reported 0/A- None Reported, Pre-Pandemic 0/B- None Reported/ Post-Pandemic 1/A- Reported, Pre-Pandemic 1/B- Reported, Post Pandemic	Research Variables (RV2): Levels of Systemic Support 1- Academic/School Support 2- Family/Caregiver Support 3- Community Support 4- Access to Resources 5- Socio-cultural/ Political Exposure	Research Variables (RV3): Individual Coping Strategies	Research Variables (RV3): Treatment Interventions	Effectiveness of Strategies/Interventions	Assessment of Research Variables	Analysis and Statistical Info. 1- Inferential 2- Descriptive 3- Qualitative Analysis Conducted 4- Other

Results/Outcomes (Key Result 1):	Results/Outcomes (KR2):	Results/Outcomes (KR3):	Results/Outcomes (KR4):	Key Conclusions	Salient Study Limitations	Take Aways: Implications for Practice