Consideration of Factors Contributing to Trends in Youth Suicidality: Implications for School-based Interventions

Amy Plog Janise McNally Lauren Ross Cherry Creek School District

Workshop presented at the Colorado Safe School Summit, October 24, 2019

Agenda

- Current trends
- Review of research on contributing factors
- Implications for school-based interventions





Data Source: Suicide Deaths

Global Changes in Deaths By Suicide





Suicide Trends Around the World

The most recent data available on rates of deaths by suicide reported by seven countries



(Weir, 2019)



Colorado Youth Deaths By Suicide Over Time



COLORADO **HEALTH** INSTITUTE Informing Policy. Advancing Health.

47% **↑ in comparison to 2016

Historically, Rates of Suicide Have Been Highest for White Youth

FIGURE 1. Suicide rates* for blacks and whites aged <u>10-14 years</u>, by year United States, 1980-1995⁺







CDC, *MMWR*, 1998

Suicide rates of U.S. black and white youths



Bridge et al. (2018)

Suicide Rates Over Time for White, Black, and Hispanic Children (ages 5-11)



Bridge et al. (2015)

Teen suicide is soaring. The biggest rate increase was among black youth

Suicides per 100,000 <u>10-to-17 year-olds</u> from 2006 to 2016:



Data Source: Hospitalizations



Hospitalization for Suicidal Ideation and Suicide Attempts Over Time

Trends in encounters for SI and SA across 31 children's hospitals by age group, 2008–2015.



Plemmons et al., 2018

Trends in encounters for SI and SA across 31 children's hospitals by race and/or ethnicity, 2008–2015.



Plemmons et al., 2018

Seasonal trends in encounters for SI and SA across 31 children's hospitals, 2008–2015.



Data Source: Self-Report



Trends in Self-Report Data

THE PERCENTAGE OF HIGH SCHOOL STUDENTS WHO:	2007 Total	2009 Total	2011 Total	2013 Total	2015 Total	2017 Total	Trend
Experienced persistent feelings of sadness or hopelessness	28.5	26.1	28.5	29.9	29.9	31.5	
Seriously considered attempting suicide	14.5	13.8	15.8	17.0	17.7	17.2	
Made a suicide plan	11.3	10.9	12.8	13.6	14.6	13.6	
Attempted suicide	6.9	6.3	7.8	8.0	8.6	7.4	\diamond
Were injured in a suicide attempt	2.0	1.9	2.4	2.7	2.8	2.4	
'For the complete wording of YRBS questions, refer to Appendix. Source: National Youth Risk Behavior Surveys, 2007-2017							









Self-Report Trends by Race



PERCENTAGE OF HIGH SCHOOL STUDENTS WHO

SERIOUSLY CONSIDERED ATTEMPTING SUICIDE IN THE PAST YEAR, BY RACE/ETHNICITY, UNITED STATES, YRBS, 2007–2017



Adolescents Are Concerned

Major problem Minor problem Not a problem



Concern about mental health cuts across gender, racial and socio-economic lines, with roughly equal shares of teens across demographic groups saying it is a significant issue in their community.

% of teens saying each of the following is a ____ among people their age in the community where they live

Source: Survey of U.S. teens ages 13 to 17 conducted Sept. 17-Nov. 25, 2018.

Pew Research Center, 2019

Review of Research



Answering the 'why' = not a simple task

Not a new area of research – important to remember to build on what we know





Areas of Research

- Culture/Policy/Community
 - Global warming
 - Individualism/materialism
 - Economic factors Recession
 - Lack of access to mental health
 - Structural racism
- Organizational (Schools)
 - Perceptions around safety
 - Standardized testing
- Interpersonal/Individual
 - Epigenetics/intergenerational trauma
 - Technology
 - Coping skills

Socio-Ecological Model (SEM)



Adapted from CDC (2017), Health Equity Toolkit

Culture/Policy/Community

- It's the literal environment- climate change:

 - Weather-related events can lead to trauma
 - Air pollution & increased temperatures have been connected to increased suicidality
- Depression = disease of modernity; higher rates of depression in more modernized countries



- Less access to: Sleep, Physical Activity, and Social Connectedness and Cohesion
- Connection between health/mental health and Income Inequality



TIME SERIES: 1884 TO 2018

Data source: NASA/GISS Credit: NASA Scientific Visualization Studio

Culture/Policy/Community

- Increasing materialism & individualism
 - What constitutes a 'good life' serves the economy, not psychological needs
 - Mental health problems connected to extrinsic values such as money, image, and fame & to less emphasis on community and affiliation
 - Emphasis on self-realization and self-fulfillment more responsibility for successes and failures
 - Increased social isolation



 Access to lethal means - when countries have limited access to lethal means, they have seen rates of death by suicide decline

Economic Effects

- Over 100+ years of study of the link between SES and suicide
- "The Great Recession is still with us...."
 - Decline in teen mental health started around onset of the recession



- Long-term health related problems, psychological distress, and suicidality
- Adolescents' self-rated health and reported mental health declined significantly, especially among those in low-income families
- Lack of access to treatment options due to limited or no insurance coverage
- Not all studies have found a connection (e.g., Twenge et al., 2018a, 2018b)
- In countries with strong social support structures in place, the impact of recessions is mitigated

Racism

- Structural racism
 - Racial segregation inequalities in access to healthcare, libraries, physical activity & nutrition resources; exposure to toxins; & proximity of tobacco/alcohol/marijuana outlets
 - Disproportionate impact of mass incarceration on communities of color
 - Inequities in access to education (connected to health outcomes)



- Individual level
 - Racial 'battle fatigue'
 - Discrimination connected to increased internalizing and externalizing risk and higher levels of depressive symptoms and academic difficulties

(CSHE, 2018; Flores et al., 2019; Grapin et al., 2019; Hicken & Edwards, 2019; Thorpe et al., 2019; Trent et al., 2019; Washington & Fullilove, 2019)

"Don't be happy for me that I overcame these barriers. Be mad as hell that they exist in the first place."



Hazim Hardeman, 2018 Rhodes Scholar

Why the Disparity?



Model guided by Hammack et al., 2016; Reasons for disparity adapted from Saenz et al., 2016

Organizational/School Factors

- Safety and Bullying
 - *parents* perceive schools as less safe; not found in student level data (though did see a small increase from 2015 to 2017)
 - Bullying = an important risk factor
 - most youth who are involved in bullying do NOT engage in suicide-related behavior, but is definitely a risk factor to be aware of
 - Bullying no evidence that bullying (electronic or in person) has increased



Schools and colleges are seen as less safe than 20 years ago

Question: Compared to 20 years ago, do you think each of the following places have become more safe, less safe, or are they about as safe as they were?

Source: AP-NORC poll conducted March 14-18, 2019, with 1,063 adults.

Organizational/School Factors

• Worries about doing well in school and seeing school as a waste of time have increased and been found to be connected to mental health

MOST COMMONLY REPORTED SOURCES OF STRESS FOR TEENS

1. 83%

2. 69% GETTING INTO A GOOD COLLEGE/ DECIDING WHAT TO DO AFTER HIGH SCHOOL

Stress in America

MERICAN PSYCHOLOGICAL ASSOCIATION



- Sources of stress and pressure:
 - 61% of teens feel 'a lot' of pressure to get *good grades*
 - Increased frequency of and stress around *standardized testing*
 - Expectations of going to *college* paired with increasing difficulty getting in – applications increasing, acceptance rates decreasing
- Perfectionism has \uparrow young people today :
 - perceive that others are more demanding of them
 - are more demanding of others, and
 - are more demanding of themselves

(APA, 2014; Bor et al., 2014; Curran & Hill, 2019; Heissel et al., 2018; Jump, 2019; Nuffield Foundation, 2009; Pew Research Center, 2019; Sweeting et al., 2010)

Interpersonal/Individual Factors

- Epigenetics
 - Prenatal (both mother and father) and early postnatal experiences can impact genetic expression (an alteration of software versus hardware)
 - Exposure to toxic stress as well as toxic substances in utero and during infancy and childhood - can increase risk of long-term physical and mental health problems
 - Transgenerational inheritance
 - Speculation, debatable evidence in humans

EPIGENETICS EXPLAINS HOW EARLY EXPERIENCES CAN HAVE LIFELONG IMPACTS.



The genes children inherit from their biological parents provide information that guides their development. For example, how tall they could eventually become or the kind of temperament they could have.



When **EXPERIENCES** during development rearrange the epigenetic marks that govern gene expression, they can change whether and how genes release the information they carry.



Relatively new area (started in the 80s)

- Largely concerned with describing typical development of coping skills
 - Role of parents: provide warmth, structure, support for autonomy; protect from rejection, chaos, and coercion
 - What is talked more about in popular press: trophies, helicopter parents, and lack of unsupervised time/play

Interpersonal/Individual Factors

Coping Skills

- Popular media discussions of 个 in 'emotionally fragile' students (lacking in maturity & resilience) seen by college counseling centers
- Didn't find empirical research tracking coping skills over time



UNSUPERVISED

PLAY AREA

USE PLAY



Evidence for Trophies, Helicopter Parents, and Unsupervised Time

- Not much empirical research though based on ideas with some merit
 - Participation Trophies extrinsic rewards have been shown to decrease performance; speculation trophies lead to unrealistic expectations and buffering from failure (kids know the difference)
 - Over-controlling parenting has been connected to poor self-regulation and negative mental health outcomes + some evidence that parental monitoring has increased over time
 - Unsupervised time/play thought that building resilience requires some exposure to risk
- Probably more complex:
 - Important to promote cooperation, not just competition
 - Learning does not only happen through failure + interpretation of failure is important
 - Parenting is complex hard to study 'over controlling' tendencies in isolation
 - Coping can vary based on context
- Balance supportive, developmentally appropriate exposure to risk and 'failure' with up front skills teaching and messaging that it's ok to make mistakes
 - Warmth, structure, support for autonomy protection from rejection, chaos, and coercion

(Compas et al, 2001; Gardner et al., 2009; Kohn, 2014; Kvalnes, 2017; LeMoyne & Buchanan, 2011; Levy, 2010; Perry et al., 2018; Ungar, 2009)

Interpersonal/Individual Factors

Technology

STORY N

1956

The area of television's effects on children has

been one of sharp concern and controversy. There

has been much editorializing on the harmful influence of programs of crime and violence, the stultifying effect of sitting long hours passively be-

fore the set, the disruptive influence on meals, family schedules, and home study. Contrariwise,

it has been argued that the medium is a "window on the world," giving imaginations an unprece-

dented outreach; that it is reversing the centrifugal

influences of recent decades and making the home

the of family life; and that TV pro-

TELEVISION'S IMPACT ON SOCIETY

THOMAS E. COFFIN

Manager of Research, National Broadcasting Company

Effects on Children

AMERICAN

PSYCHOLOGIST

- Early studies looked for negative impact on school attendance, academics, leisure activities, family life/family cohesion, behavior at home, physical activity, and time outdoors
- \checkmark The early studies generally did not find a negative impact of technology, with one stating that technology is:

"... the focal point rather than the origin, of the psychological problems involving it;" (Coffin, p.635)

Some Observations on the Social Effects of Television 1949

JOHN W. RILEY, FRANK V. CANTWELL, KATHERINE F. RUTTIGER

DURING the summer of 1948, the Columbia Broadcasting System and Rutgers University entered into a joint continuing project to study and document the social consequences of television ownership in a middle-sized Eastern city. This paper reports some of the findings from the first phase of the project. The most recent additions to the TV audience are being contributed by the lower socio-economic level; TV in exerting an apparent over-all effect on other leisure time activities, although this result may be misleading since the impact is not uniform for various segments of the audience; to young children television is not a substitue activity but something over and above the regular activity patterns. Finally, there is evidence that television is responsible for new family interests and widened circles of friends. The authors are members of the Department of Sociology at Rutgers, Chairman and Research Associates, respectively.

PUBLIC OPINION

QUARTERLY



Studies of the General Social Effects of Television

Parents, educators and students of the social sciences have been concerned with the effect television has on family life, school attendance, study habits, health, leisure-time activities and other facets of social liv-

ing.

With the growing popularity of novel reading, the age of the mass media had arrived. Novels such as Samuel Richardson's Pamela, or Virtue Rewarded (1740) and Rousseau's Julie, or the New Heloise (1761) became literary sensations that gripped the imagination of their European readers. What was described as 'Pamela-fever' indicated the powerful influence novels could exercise on the imagination of the reading public. Public deliberation on these 'fevers' focused on what was a potentially dangerous development. ch was the long...... ader and literary characters. The consense increase and literary characters. The consense increase of the point of adopting with the novel's romantic characters to the point of adopting with the novel's romantic characters to the point of adopting with the novel's romantic characters to the point of adopting with the novel's romantic characters to the point of adopting with the novel's romantic characters to the point of adopting with the novel's romantic characters to the point of adopting with the novel's romantic characters to the point of adopting with the novel's romantic characters to the point of adopting with the novel is which was the forging of an intense and intimate interaction between t

(Furedi, 2015;



Technology



- What does research look like?
 - Does not provide a definitive answer about the impact
 - Wide variability in methodology populations studied, definition of use, outcomes assessed
 - Findings can apply for one group, but not others (girls v boys), for one type of technology, but not others (TV & Social Media, but not Computer or Gaming), or appear for students with pre-existing concerns, but not those without
 - We need to get better at assessing *how technology is being used*

Risks

- Physical health obesity, sleep, less physical activity, could be an addictive behavior
- Interference with learning
- Exposure to: advertising, inaccurate information, self-harm 'how-to' information, normalization of self-harm or suicide, cyberaggression
- Changes the nature of friendships/in-person relationships – more quantity, less quality; lowered empathy or other social skills; increased family conflict
- Changes the nature of identity formation: social comparison, body image, harsh environment in which social norms are introduced
- Negatively impacts mental health: stress, anxiety, depression, suicidal thoughts

Benefits

- Exposure to: new ideas and information, awareness of current events, opportunities for community participation, knowledge of other people's (mental) health experiences and interventions
- Connections with others those who are separated geographically, support networks, groups with shared interests
- New format for self-expression and identity formation
- Has been described by some adolescents as a positive influence/something that makes them feel good

R.

S

 Could be used as a means of identifying those at risk or providing supports/therapy, particularly for hard-to-reach groups

Technology

Has been found to impact (negatively unless otherwise indicated):

- Mental health/mental health issues/psychological distress/psychological difficulties/ psychological well-being Internalizing problems
 - Depressive symptoms/depression, Suicidal thoughts, Anxiety, ADHD and conduct symptoms

- Well-being/unhappiness
- Ill-being (physical, behavior, attention, & psychological)
- Life satisfaction
- Lower self esteem
- BMI
- Physical self-concept

- Lower brain connectivity
- Parent/child interaction when reading
- Less anxiety and depression
- <u>Increased</u> cognitive and affective empathy

(Babic et al., 2017; Carli et al., 2014; Child Mind Institute, 2017; George et al., 2017; Horowitz-Kraus & Hutton, 2017; Jago et al., 2005; Jensen et al., 2019; Lin et al., 2016; Munzer et al., 2019; Ostergaard, 2017; Paige et al., 2010; Pearson et al., 2019; Riehm et al., 2019; Rosen et al., 2014; Twenge et al., 2018a, 2018b; Viner et al., 2019; Vossen & Valkenburg, 2017)

Small or inconsistent findings noted for:

- Well-being
- Loneliness
- Depression

- Life satisfaction
- Aggression
- Prosocial behavior

- Academics/grades
- Cardiovascular risk
- Sleep duration or quality

(Ferguson, 2015; Marker et al., 2018; Orben & Przybylski, 2019; Orben et al., 2019; Whitlock & Masur, 2019)

Has been found to **not** be connected to:

- Mental well-being
- Social anxiety

- Suicidal ideation
- Loneliness

- Empathy
- Academic performance

(Adelantadao-Reneau et al., 2019; Berryman et al., 2017; Przybylski & Weinstein, 2017, 2019)

Possible Mechanisms

- Impact on physical health:
 - Disruption of sleep
 - Decreased physical activity
 - Intermittent reinforcement/fires reward centers in brain/addiction
- Impact on personal development
 - The tasks of adolescence separation and individuation, identity development played out in a new venue
 - Social comparison/unrealistic expectations/body image
- Impact on social development:
 - Modified meaning of friendships (quantity over quality); poorer quality of social interactions
 - Negative impact on empathy/social skills/identity development
- Exposure to:
 - cyberaggression/cyberbullying/negativity
 - negative content (aggression, how-to information on self harm)
- Parents poor modeling, unavailability
- Variables studied in relation to media/technology for many years:
 - violence and aggression, portrayal of romantic and sexual relationships, body image and eating disorders, food marketing and obesity, substance use

(AAP, 2016; Babic et al., 2017; Barth, 2015; Boers et al., 2019; Brown & Bobkowski, 2011; Child Mind Institute, 2017; Jago et al., 2014; Kelly et al., 2018; McRae et al., 2019; Ostergaard, 2017; Psychcritic, 2017; Riehm et al., 2019; Twenge et al., 2018a; Underwood & Ehrenreich, 2017; Viner et al., 2019; Vogel et al., 2014)



Recommendations

- Encourage healthful behaviors
 - proper nutrition, physical activity, time outdoors, face-to-face interactions, sleep

Increase media/technology literacy

• How social media is reinforcing, information may not be accurate, importance of self-assessment of how it impacts you/your relationships; best practice strategies for how to deal with ethical dilemmas (complete restriction does not allow for practice)

Advocate for change in design of social media platforms

 remove # of likes, create pop-ups to tell you when you have been online too long, watermarks for photos that have been altered, develop technology to identify mental health concerns

Model appropriate technology use

 Phones out of rooms and away at mealtimes; assess: Is family screen time under control?; Does it interfere with what your family wants to do?

Pay attention to those who are at risk

- ask about technology/social media use; mental health professionals need to be trained in social media
- Actively join with teens in their use, follow or friend them on social media
 - how parents engage with their children in use > important than # of hours of use; ask general questions about where they go and what they do online *before* problems arise
- Work Toward supportive parent/adult relationships encourage disclosure and involvement in child's activities
- One size does not fit all

Reminders

- Most young people are doing well in the digital age
 - graduation rates up, sexual activity/pregnancy, violence, alcohol and illicit drug use, car accidents are down
- Some of the current mental health concerns pre-date smartphone technology; other countries with just as much technology use are not seeing the increase in mental health concerns we are
- Danger if we focus too much on technology ignore the potential for good + fail to recognize another important factor

affreshing

- Other factors such as sleep, exercise, and substance use have demonstrated a bigger impact on mental health outcome
- Even though we don't have specific, empirically guided recommendations, we can still be cautious

Timeline



Discussion



Integrating Research & Practice: Implications for Schools



(Source: Suicide Prevention Resource Center: A Comprehensive Approach to Suicide Prevention)

- Health/Social Emotional Learning Standards
- · Sources of Strength
- Suicide Prevention Design Network
- Research Project Indiana University
- Living Works Trainings (ASIST, safeTALK)
- Safe2Tell
- Colorado Crisis Services
- Substance Abuse Interventions
- Suicide Risk Review Protocol
- Crisis Response
- SAMSHA After a Suicide Toolkit
- PREPaRE Training
- Suicide Messaging Protocols
- Small Group Follow-Up

Strategies: Life Skills & Resilience

- Social/emotional teaching in preschools
- Second Step implementation (K-8th)
- Sources of Strength all high schools
- Change in school start times
- Other systemic practices:
 - Parent education opportunities
 - Mindfulness in the classroom
 - Identifying environmental factors

CI ASSROOM

Strategies: Increase Connectedness

Connectedness

- Second Step implementation (K-8th) teaching conflict-resolution, empathy skills
- Sources of Strength all high schools; importance of youth leadership
- Restorative practices:
 - Community circles
 - Restorative discipline practices
- PBIS Safe, welcoming school environment
- Equity practices inclusive excellence
- Power of relationships; trusted adults
- Community partners

Strategies: Increase Help-Seeking

- Second Step implementation (K-8th) explicitly teach students help-seeking skills
- Sources of Strength all high schools
- Signs of Suicide
- Power of relationships; trusted adults
- Safe 2 Tell, community crisis resources

Strategies: Identify & Assist

- Gatekeeper Training:
 - Signs of Suicide (Trusted Adults training, classroom lessons ACT)
 - QPR
 - ASIST
 - Safe 2 Tell
- Family Involvement
 - Suicide prevention student video
 - Involving cultural liaisons
 - "Does Your Child Need Help" booklet

Identify

and Assist

Discussion

To access this presentation:

https://bit.ly/33SC8na

- Adelantado-Renau, M., Moliner-Urdiales, D., Cavero-Redondo, I., Beltran-Valls, M.R., Martinez-Vizcaino, V., & Alvarez-Bueno, C. (2019). Association between screen media use and academic performance among children and adolescents: A systematic review and meta-analysis. *JAMA Pediatrics*, Published online September 23, 2019,. doi:10.1001/jamapediatrics.2019.3176.
- American Academy of Pediatrics Council on Communications and Media. (2016). Policy statement: Media use in school-aged children and adolescents. *Pediatrics*, *138*, DOI: 10.1542/peds.2016-2592
- American Psychological Association. (2014). Stress in America: Are teens adopting adults' stress habits? Retrieved from https://www.apa.org/news/press/releases/stress/2013/stress-report.pdf
- Associated Press. (2019). School safety and shootings. Retrieved from http://www.apnorc.org/projects/Pages/School-Safety-and-Shootings--.aspx
- Babenkoa, O., Kovalchuk, I., & Metz, G.A.S. (2015). Stress-induced perinatal and transgenerational epigenetic programming of brain development and mental health. *Neuroscience & Biobehavioral Reviews*, 48, 70-91.
- Babic, M.J., Smith, J.J., Morgan, P.J., Eather, N., Plotnikoff, R.C., & Lubans, D.R. (2017). Longitudinal associations between changes in screen-time and mental health outcomes in adolescents. *Mental Health and Physical Activity*, *12*, 124-131.
- Barth, F.D. (2015). Social media and adolescent development: Hazards, pitfalls, and opportunities for growth. Clinical Social Work Journal, 43, 201-208.
- Bernhard, B. (2013, July 11). Teen mental health declined during recession. *St. Louis Today*.
- Berryman, C., Ferguson, C.J., & Negy, C. (2017). Social media use and mental health among young adults. Psychiatric Quarterly, 89, 1-8.
- Boers, E., Afzali, M.H., Newton, N., & Conrod, P. (2019). Association of screen time and depression in adolescence. JAMA Pediatrics, doi:10.1001/jamapediatrics.2019.1759
- Bor, W., Dean, A.J., Najman, J., & Hayatbakhsh, R. (2014). Are child and adolescent mental health problems increasing in the 21st century? A systematic review. *Australian & New Zealand Journal of Psychiatry*, 48, 606-616.
- Bridge, J.A., Asti, L., Horowitz, L.M., Greenhouse, J.B., Fontanella, C.A., Sheftall, A.H., Kelleher, K.J., & Campo, J.V. (2015). Suicide trends among elementary school– aged children in the United States From 1993 to 2012. *JAMA Pediatrics*. doi:10.1001/jamapediatrics.2015.0465
- Bridge, J.A., Horowitz, L.M., Fontanella, C.A., et al. (2018). Age-related racial disparity in suicide rates among US youths from 2001 to 2015. *JAMA Pediatrics*. doi:10.1001/jamapediatrics.2018.0399.

- Brokamp, C., Strawn, J.R., Beck, A.F., & Ryan, P. (2019). Pediatric psychiatry emergency department utilization and fine particulate matter: A case crossover study. *Environmental Health Perspectives*, *127*, 097006-1 097006-7
- Brown, J.D., & Bobkowski, P.S. (2011). Older and newer media: Patterns of use and effects on adolescents' health and well-being. *Journal of Research on Adolescence*, 21, 95-113.
- Carli, V., Hoven, C.W., Wasserman, C., Chiesa, F., Guffanti, G., Sarchiapone, M., et al. (2014). A newly identified group of adolescents at "invisible" risk for psychopathology and suicidal behavior: Findings from the SEYLE study. *World Psychiatry*, *13*, 78-86.
- Ceglarek, P.J.D., & Ward, M. (2016). A tool for help or harm? How associations between social networking use, social support, and mental health differ for sexual minority and heterosexual youth. *Computers in Human Behavior*, 65, 201-209.
- Centers for Disease Control. (1998). Suicide among Black youths -- United States, 1980-1995. Morb Mortal Wkly Rep, 47(10);193-106.
- Centers for Disease Control. (2017). QuickStats: Suicide Rates for Teens Aged 15–19 Years, by Sex United States, 1975–2015. MMWR Morb Mortal Wkly Rep;66:816. DOI: http://dx.doi.org/10.15585/mmwr.mm6630a6
- Centers for Disease Control. (2018). Youth Risk Behavior Survey data summary & trends report 2007-2018. Retrieved from https://www.cdc.gov/healthyyouth/data/yrbs/pdf/trendsreport.pdf
- Center for the Study of Hate and Extremism. (2018). Hate crimes rise in U.S cities and counties in time of division & foreign interference. Retrieved from https://csbs.csusb.edu/sites/csusb_csusb/files/2018%20Hate%20Report%205-141PM.pdf
- Centers for Disease Control. (2014). The relationship between bullying and suicide: What we know and what it means for schools. Retrieved from https://www.cdc.gov/violenceprevention/pdf/bullying-suicide-translation-final-a.pdf
- Centers for Disease Control. (2018). Youth Risk Behavior Survey data summary & trends report 2007-2018. Retrieved from https://www.cdc.gov/healthyyouth/data/yrbs/pdf/trendsreport.pdf
- Chandra, R. (2018). How to use social media wisely and mindfully. *Greater Good Magazine*. Retrieved from https://greatergood.berkeley.edu/article/item/how_to_use_social_media_wisely_and_mindfully
- Child Mind Institute. (2017). 2017 Children's Mental Health Report. Retrieved from childmind.org/2017report

- Colorado Health Institute. (2018). Suicides in Colorado: 2017 Trends. Retrieved from https://www.coloradohealthinstitute.org/research/suicides-colorado-reach-all-time-high
- Coffin, T.E. (1956). Televisions impact on society. *American Psychologist*, *10*, 630-641.
- Common Sense Media. (2016). Technology addiction: Concern, controversy, and finding balance. Common Sense Media Research Brief.
- Compas, B.E., Connor-Smith, J.K., Saltzman, H., Thomsen, A.H., & Wadsworth, M.E. (2001). Coping with stress during childhood and adolescence: Problems, progress, and potential in theory and research. *Psychological Bulletin*, *127*, 87-127.
- Cui W. & Zack M.M. (2013). Trends in Health-Related Quality of Life Among Adolescents in the United States, 2001–2010. Prevention of Chronic Disease, 10:120334. DOI: <u>http://dx.doi.org/10.5888/pcd10.120334</u>
- Curran, T., & Hill, A.P. (2019). Perfectionism is increasing over time: A meta-analysis of birth cohort differences from 1989 to 2016. *Psychological Bulletin*, 145, 410-429.
- Dyson, M.P., Hartling, L., Shulhan, J., Chisholm, A., Milne, A., Sundar, P. Scott, S.D., & Newton, A.S. (2016). A systematic review of social media use to discuss and view deliberate self-harm acts. *PLoS ONE*, *11*, e0155813.
- European Academies Science Advisory Council (EASC, 2019). The imperative of climate action to protect human health in Europe. *EASAC Policy Report 38*. Retrieved from https://easac.eu/publications/details/the-imperative-of-climate-action-to-protect-human-health-in-europe/
- Ferguson, C.J. (2015). Do angry birds make for angry children? A meta-analysis of video game influences on children's and adolescents' aggression, mental health, prosocial behavior, and academic performance. *Perspectives in Psychological Sci*ence, 10, 646-666. doi:10.1177/1745691615592234
- Finn, J.D. (1953). Television and education: a review of research. *Audio-Visual Communication Review*, *1*, 106-126.
- Frith, E. (2017). Social media and children's mental health: A review of the evidence. Education Policy Institute.
- Furedi, F. (2015). The media's first moral panic. History Today, 65. Retrieved from https://archive.is/YCDIL#selection-783.0-832.3

 Gardner, F., Collishaw, S., Maughan, B., & Scott, B. (2009). Has parenting changed over recent decades? Can changes in parenting explain the rise in adolescent problem behavior? Working paper submitted to the Nuffield Foundation. Retrieved from <u>https://www.nuffieldfoundation.org/sites/default/files/parenting_working_paper_web_LIVE_ON_31_JULY_2009.pdf</u>

- Garfinkel, I., McLanahan, S., & Wimer, C. (2016). "Introduction." In Children of the Great Recession, I. Garfinkel, S. McLanahan, & C. Wimer, Eds. New York: The Russell Sage Foundation. Retrieved from <u>http://www.russellsage.org/sites/all/files/garfinkel/children-recession-chapter_1.pdf</u>
- George, M.J., Russell, M.A., Piontak, J.R., & Odgers, C.L. (2017). Concurrent and subsequent associations between daily digital technology use and high-risk adolescents' mental health symptoms. *Child Development*, *89*, 78-88.
- Gray, P. (2015). Declining student resilience: A serious problem for colleges. *Psychology Today*.
- Hammack, P.L., Pletta, D., & Schlindler, Z.A. (2016). Youth and community climate toward sexual and gender identity diversity in California. Symposium presented at the Annual Convention of the American Psychological Association, Denver, CO.
- Hayes, J.F., Maughan, D.L., & Grant-Peterkin, H. (2016). Interconnected or disconnected? Promotion of mental health and prevention of mental disorder in the digital age. *The British Journal of Psychiatry*, 208, 205-207.
- Heard, E., & Martienssen, R.A. (2014). Transgenerational epigenetic inheritance: Myths and mechanisms. *Cell*, 157, 95-109.
- Heissel, J.A., Adam, E.K., Doleac, J.L., Figlio, D.N., & Meer, J. (2018). Testing, stress, and performance: How students respond physiologically to high-stakes testing. NBER Working Papers 25305, National Bureau of Economic Research, Inc. Retrieved from http://people.tamu.edu/~jmeer/HADFM_TestingStress.pdf
- Hidaka, B.H. (2012). Depression as a disease of modernity: Explanations for increasing prevalence. Journal of Affective Disorders, 140, 205-214.
- Horowitz-Kraus, & Hutton, J.S. (2017). Brain connectivity in children is increased by the time they spend reading books and decreased by the length of exposure to screen-based media. Acta Paediatrics, 107, 685-693. doi: 10.1111/apa.14176.
- Hurwitz, M., & Kimar, A. (2015). Supply and demand in the higher education market: College admission and college choice. *College Board Research Brief*. Retrieved from https://files.eric.ed.gov/fulltext/ED562849.pdf
- Jago, R., Baranowski, T., Baranowski, J.C., Thompson, D., & Greaves, K.A. (2005). BMI from 3-6 y of age is predicted by TV viewing and physical activity, not diet. *International Journal of Obesity*, *29*, 557-564.
- Jago R., Thompson J.L., Sebire S.J., Wood, L., Pool, L., Zahra, J., & Lawlor, D.A. (2014). Cross-sectional associations between the screen-time of parents and young children: differences by parent and child gender and day of the week. *Int J Behav Nutr Phys Act.*, 11, 54–62
- Jensen, M, George, M.J., & Russell, M.R. (2019). Young Adolescents' Digital Technology Use and Mental Health Symptoms: Little Evidence of Longitudinal or Daily Linkages. *Clinical Psychological Science*, <u>https://doi.org/10.1177/2167702619859336</u>

- Jump, J. (2019). Ethical college admissions: Dealing with Disappointment. Inside Higher Ed. Retrieved from <u>https://www.insidehighered.com/admissions/views/2019/04/22/data-show-how-few-colleges-are-highly-competitive-admissions-those</u>
- Kamenetz, A. (2019). The scientific debate over teens, screens, and mental health. Retrieved from https://www.npr.org/2019/08/27/754362629/the-scientific-debate-over-teens-screens-and-mental-health
- Kelly, Y., Zilanawala, A., Booker, C., & Sacker, A. (2018). Social media use and adolescent mental health: Findings from the UK Millennium Cohort Study. *EClinicalMedicine*, *6*, 59-68.
- Kohn, A. (2014). The Myth of the Spoiled Child. Da Capo Press: Philadephia, PA.
- Kvalnes, O. (2017). Risky play. In Fallibility at Work: Rethinking Excellence and error in organization. Springer Nature: Chaim, Switzerland.
- The Lancet. (2019). Social media, screen time, and young people's mental health. The Lancet, 393, 611.
- Levy, H. (2010). Trophies, triumphs, and tears: Children's experiences with competitive activities. In H.B. Johnson (Ed.) Children and Youth Speak for Themselves. Sociological Studies of Children and Youth, Vol. 13. Emerald Group Publishing: UK.319-350.
- LeMoyne, T., & Buchanan, T. (2011). Does "hovering" matter? Helicopter parenting and its effect on well-being. Sociological Spectrum, 31,
- Lin, L.Y., Sidani, J.E., Shensa, A., Radovic, A., Miller, E., Colditz, J.B., Hoffman, B.L., Giles, L.M., & Primack, B.A. (2016). Association between social media use and depression among U.S. young adults. *Depression and Anxiety*, *33*, 323-331.
- Lowry, A. (2017). The great recession is still with us. *The Atlantic*. Retrieved from https://www.theatlantic.com/business/archive/2017/12/great-recession-still-with-us/547268/
- Luxton, D.D., June, J.D., & Fairall, J.M. (2012). Social media and suicide: A public health perspective. American Journal of Public Health, 102, S195-S200.
- Marchant, A., Hawton, K., Stewart, A., Montgomery, P., Singaravelu, V., Lloyd, K., Purdy, N., & John, A. (2017). A systematic review of the relationship between internet use, self-harm and suicidal behaviour in young people: The good, the bad and the unknown. *PLoSONE*, *12(8)*, e0181722. https://doi.org/10.1371/journal.pone.0181722
- Marker C, Gnambs T, & Appel M. (2018). Active on Facebook and failing at school? Meta-analytic findings on the relationship between online social networking activities and academic achievemen. *Educational Psychology Review*, *30*, 651-677. doi:10.1007/s10648-017-9430-6

- McRae, N., Gettings, S., & Purssell, E. (2017). Social media and depressive symptoms in childhood and adolescence: A systematic review. Adolescent Research Review, 2, 315-330.
- Miron, O., Yu,K-H., Wilf-Miron, R., & Kohane, I.S., (2019). Suicide rates among adolescents and young adults in the United States, 2000-2017. JAMA, 321, 2362-2364.
- Moreno, M. A., Jelenchick, L., Koff, R., & Eickhoff, J. (2012). Depression and Internet use among older adolescents: An experience sampling approach. *Psychology*, *3*, 743-748.
- Munzer, T.G., Miller, A.L., Weeks, H.M., Kadroti, N., & Radesky, J. (2019). Parent-toddler social reciprocity during reading from electronic tablets vs print books. JAMA Pediatrics, Retrieved from oi:10.1001/jamapediatrics.2019.3480
- Musu, L., Zhang, A., Wang, K., Zhang, J., and Oudekerk, B.A. (2019). Indicators of School Crime and Safety: 2018 (NCES 2019-047/NCJ 252571). National Center for Education Statistics, U.S. Department of Education, and Bureau of Justice Statistics, Office of Justice Programs, U.S. Department of Justice. Washington, DC.
- Naslund, J.A., Aschbrenner, K.A., Marsch, L.A., & Bartels, S.J. (2016). The future of mental health care: Peer-to-peer support and social media. *Epidemiology and Psychiatric Science*, 25, 113-122.
- Naslund, J.A., Grande, S.W., Aschbrenner, K.A., Elwyn, G. (2014). Naturally occurring peer support through social media: Experience of individuals with severe mental illness using YouTube. *PLoSOne*, *9*(10), e110171. doi:10.1371/journal.pone.0110171
- National Center for Education Statistics, U.S. Department of Education. (2011). Student reports of bullying and cyber-bullying: Results from the 2007 School Crime Supplement to the National Crime Victimization Survey. Retrieved from https://nces.ed.gov/pubs2011/2011316.pdf - PDF
- National Center for Education Statistics, U.S. Department of Education. (2016). *Student reports of bullying and cyber-bullying: Results from the 2015 School Crime Supplement to the National Crime Victimization Survey*. Retrieved from https://nces.ed.gov/pubs2017/2017015.pdf PDF
- National Scientific Council on the Developing Child (2010). Early Experiences Can Alter Gene Expression and Affect Long-Term Development: Working Paper No. 10. <u>http://www.developingchild.net</u>
- Nestler, E.J., Pena, C.J., Kundakovic, M., Mitchell, A., & Akbarian, S. (2016). Epigenetic basis of mental illness. *Neuroscientist*, 22, 447-463.
- Nuffield Foundation (2009) Time trends in adolescent well-being: Update 2009 London: Nuffield Foundation; https://www.nuffieldfoundation.org/sites/default/files/Time%20trends%20in%20adolescent%20well-being%202009%20update.pdf

- Odgers, C. (2018). Smartphones are bad for some teens, not all. *Nature*, *554*, 432-434.
- O'Donnell, J. & Saker, A. (2018). Teen suicide is soaring. Do spotty mental health and addiction treatment share blame? USA Today. Retrieved from https://www.usatoday.com/story/news/politics/2018/03/19/teen-suicide-soaring-do-spotty-mental-health-and-addiction-treatment-share-blame/428148002/
- Orben, A., Dienlin, T., & Przybylski, A.K. (2019). Social media's enduring effect on adolescent life satisfaction. PNAS, 116, 10226-10228.
- Orben, A., & Przybylski, A.K. (2019). The association between adolescent well-being and digital technology. *Nature Human Behavior*, *3*, 173-182.
- O'Donnell, J. & Saker, A. (2018). Teen suicide is soaring. Do spotty mental health and addiction treatment share blame? USA Today. Retrieved from https://www.usatoday.com/story/news/politics/2018/03/19/teen-suicide-soaring-do-spotty-mental-health-and-addiction-treatment-share-blame/428148002/
- Orben, A., Dienlin, T., & Przybylski, A.K. (2019). Social media's enduring effect on adolescent life satisfaction. PNAS, 116, 10226-10228.
- Ostergarrd, S.D. (2017). Taking Facebook at face value: Why the use of social media may cause mental disorder. Acta Psychiatrica Scandinavica, 136, 439-440.
- Paige, A.S., Cooper, A.R., Griew, P., & Jago, R. (2010). Children's screen viewing is related to psychological difficulties irrespective of physical activity. *Pediatrics*, DOI: 10.1542/peds.2010-1154
- Pearson, N., Sherar, L.B., & Hamer, M. (2019). Prevalence and correlates of meeting sleep, screen-time, and activity guidelines among adolescents in the United Kingdom, JAMA Pediatrics,
- Pembrey, M., Saffery, R., & Bygren, L.O. (2014). Human transgenerational responses to early-life experience: Potential impact on development, health, and biomedical research. *Journal Medical Genetics*, *51*, 563-572.
- Perry, N. B., Dollar, J. M., Calkins, S. D., Keane, S. P., & Shanahan, L. (2018). Childhood self-regulation as a mechanism through which early overcontrolling parenting is associated with adjustment in preadolescence. *Developmental Psychology*, 54(8), 1542-1554.
- Pew Research Center. (2018). Teens, social media & technology. 2018. Retrieved from https://www.pewinternet.org/wp-content/uploads/sites/9/2018/05/PI_2018.05.31_TeensTech_FINAL.pdf.
- Pew Research Center. (2019). Most U.S. teens see anxiety and depression as a major problem among their peers. Retrieved from https://www.pewsocialtrends.org/2019/02/20/most-u-s-teens-see-anxiety-and-depression-as-a-major-problem-among-their-peers/

- Plemmons, G., Hall, M., Doupnik, S., Gay, J., Brown, C., Browning, W., Casey. R., Freundlich, K., Johnson, D.P., Lind, C., Rehm, C., Thomas, S., & Williams, D. (2018). Hospitalization for suicide ideation or attempt: 2008–2015. *Pediatrics*, 141, e20172426
- Psychcritic. (2017). About that Jean Twenge smartphone article. Retrieved from http://www.psycritic.com/2017/10/about-that-jean-twenge-smartphone-article.html
- Przybylski, A.K., & Weinstein, N. (2017). A large-scale test of the Goldilocks hypothesis: Quantifying the relations between digital-screen use and the mental wellbeing of adolescents. *Psychological Science*, 28, 204-215.
- Przybylski, A.K., & Weinstein, N. (2019). Digital screen time limits and young children's psychological well-being: Evidence from a population-based study. *Child Development*, 90, e56-e65.
- Riehm, K.E., Feder, K.A., Tormohlen, K.N., Crum, R.M., Young, A.S., Green, K.M., Pacek, L.R., La Flair, L.N., & Mojtabai, R. (2019). Associations Between Time Spent Using Social Media and Internalizing and Externalizing Problems Among US Youth. JAMA Psychiatry. doi:10.1001/jamapsychiatry.2019.2325
- Riley, J.W., Cantwell, F.V., & Ruttiger, K.F. (1949). Some observations on the social effects of television. Public Opinion Quarterly, 13, 223-234.
- Robinson, J., Cox, G., Bailey, E., Hetrick, S., Rodrigues, M., Fisher, S., & Herman, H. (2015). Social media and suicide prevention: A systematic review. *Early Intervention in Psychiatry*, 10, 103-21.
- Rosen, L.D., Lim, A.F., Felt, J., Carrier, L.M., Cheever, N.A., Lara-Ruiz, J.M., Mendoza, J.S., & Rokkum, J. (2014). Media and technology use predicts ill-being among children, pre-teens and teenagers independent of the negative health impacts of exercise and eating habits. *Computers in Human Behavior*, *35*, 364-375.
- Ross, A., Kelly, Y., Sacker, A. (2017). Time trends in mental well-being: The polarization of young people's psychological distress. *Soc Psychiatry Psychiatr Epidemiol*, DOI 10.1007/s00127-017-1419-4
- Rostain, A. & Hibbs, B.J. (2019). Is your child emotionally ready for college? *The Wall Street Journal*. Retrieved from https://www.wsj.com/articles/is-your-child-emotionally-ready-for-college-11566490377
- Royal Society for Public Health. (2017). #StatusOfMind: Social media and young people's mental health and wellbeing. Retrieved from https://www.rsph.org.uk/uploads/assets/uploaded/d125b27c-0b62-41c5-a2c0155a8887cd01.pdf
- Saenz, J.J., Rosner, C.M., Garney, W., McCord, C.E., Dornhecker, C., Dornhecker, M., & Aploinar, A. (2016). Confronting LGBTQ+ health disparities: An interdisciplinary approach for policy and practice. Poster presented at the Annual Convention of the American Psychological Association, Denver, CO.

- Science News. (2017). Children's screen-time guidelines too restrictive, according to new research. Retrieved from http://www.ox.ac.uk/news/2017-12-14-children%E2%80%99s-screen-time-guidelines-too-restrictive-according-new-research
- Skinner, M.K. (2014). Environmental stress and epigenetic transgenerational inheritance. BMC Medicine, 12, 153-158.
- Sweeting, H., West, P., Young, R., & Der, G. (2010). Can we explain increased in young people's psychological distress over time. *Social Science & Medicine*, 71, 1819-1830.
- Twenge, J.M. (2011). Generational differences in mental health: Are children and adolescents suffering more, or less? *American Journal of Orthopsychiatry*, *81*, 469–472.
- Twenge, J.M., Martin, G.N., & Campbell, W.K. (2018a). Decreases in psychological well-being among American adolescents after 2012 and links to screen time during the rise of smartphone technology. *Emotion*, Advance online publication. http://dx.doi.org/10.1037/emo0000403
- Twenge, J.M., Joiner, T.E., Rogers, M.L., & Martin, N. (2018b). Increases in depressive symptoms, suicide-related outcomes, and suicide rates among U.S. adolescents after 2010 and links to increased new media screen time. *Clinical Psychological Science*, *6*, 3-17.
- Turecki, G., & Brent, D.A. (2016). Suicide and suicidal behavior. *The Lancet, 387*, 1227-1239.
- Underwood, M.K., & Ehrenreich, S.E. (2017). The power and the pain of adolescents' digital communication: Cyber victimization and the perils of lurking. *American Psychologist*, 72, 144-158.
- United Kingdom Chief Medial Officers. (2019). Commentary on 'Screen-based activities and children and young people's mental health and psychosocial wellbeing: A systematic map of review'.
- Ungar, M. (2009). Overprotective Parenting: Helping Parents Provide Children the Right Amount of Risk and Responsibility. *The American Journal of Family Therapy*, *3*, 258-271.
- Vogel, E.A., Rose, J.P., Roberts, L.R., & Eckles, K. (2014). Social comparison, social media, and self-esteem. Psychology of Popular Media Culture, 3, 206-222.
- Vossen, H.G.M., & Valkenburg, P.M. (2017). Do social media foster or curtail adolescents' empathy? A longitudinal study. Computers in Human Behavior, 63, 118-124.
- Weir, K. (2019). Worrying trends in U.S. suicide rates. *Monitor on Psychology*, 50(2), 24.

- Whitlock, J., & Masur, P.K. (2019). Disentangling the association of screen time with developmental outcomes and well-being: Problems, challenges, and opportunities. JAMA Pediatrics https://jamanetwork.com/journals/jamapediatrics/article-abstract/2751326
- Wiederhold, B.K. (2016). Social media sites, part 1: The dark side. *Cyberpsychology, Behavior, and Social Networking, 19,* 157.
- Wiederhold, B.K. (2016). Social media sites, part 1: Children of the light. *Cyberpsychology, Behavior, and Social Networking, 19,* 231-232.
- World Health Organization. (2018). Suicide data. Retrieved from https://www.who.int/mental_health/prevention/suicide/suicideprevent/en/
- Zimmer-Gembeck, M. J., & Skinner, E. A. (2011). The development of coping across childhood and adolescence: An integrative review and critique of research. International Journal of Behavioral Development, 35, 1–17.
- Zimmer-Gembeck, M. J., & Skinner, E. A. (2016). The development of coping: Implications for psychopathology and resilience. In D. Cicchetti (Ed.), Developmental psychopathology: Risk, resilience, and intervention (pp. 485-545). Hoboken, NJ, US: John Wiley & Sons Inc.