

Understanding the Psychological Impacts of Teenage Pregnancy through a Socio-ecological Framework and Life Course Approach

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Abstract

The relationship between mental health and teenage pregnancy is complex. Mental health can be both an antecedent and contributing factor to teenage pregnancy and a concurrent factor wherein pregnancy itself can contribute to depression. Expectant and parenting teens (EPT) are faced with the simultaneous challenges of pregnancy and parenting while navigating the developmental tasks of adolescence which increases their risk for mental health problems. In addition, adolescents growing up in stressful community or home situations where their parents experienced depression, further places them and their children at greater risk of repeated patterns over time. However, adverse mental health outcomes are not inevitable. The socio-ecological model combined with a life course perspective provides a framework for understanding the complexity of risk and protective factors at multiple levels that influence knowledge, attitudes, behaviors, and other health outcomes later in life and across generations. This approach has important implications for reducing adolescents' risk of an unintended/mistimed pregnancy and improving mental health and other outcomes for EPT. This paper describes the prevalence of mental health problems in EPT and using a socio-ecological framework and life course perspective explains variations in mental health outcome among EPT. Implications for interventions and innovative approaches are also discussed.

Keywords

- ▶ expectant and parenting teens
- ▶ mental health
- ▶ socio-ecological model
- ▶ life course
- ▶ resilience

The relationship between mental health issues and teenage pregnancy is complex. Mental health can be an antecedent and contributing factor to teenage pregnancy as well as a concurrent factor whereas the pregnancy itself can contribute to depression. Expectant and parenting teens (EPT) are faced with both the challenges of navigating through the developmental tasks of adolescence, as well as the demands of pregnancy and adjusting to the responsibilities of parent-

ing. Increasingly, social determinants of health, which are the conditions in which individuals live work and play, are being recognized as having a profound impact on overall adolescent health and specifically, their increased risk of pregnancy and associated mental health outcomes. Specific social determinants include: poverty, institutional/structural racism, race/ethnicity, geographic area, community violence, homelessness, living in foster care and experience with the

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juvenile justice system. A systematic review of studies analyzing the relationship between social determinants of health and teenage pregnancy documented seventeen studies that reported an empirical association between at least one social determinant of health and pregnancy among young people.¹

EPT are also more likely than their peers to have experienced adverse childhood experiences (ACEs) including disruptive home environments, such as a parent in prison, and physical and/or sexual abuse. Given these developmental and socio-economic stressors, it is not surprising that EPT are at a greater risk for depression than their nonpregnant/parenting peers and these symptoms can last long after giving birth. While limited, some research suggests that EPT have a higher risk of depression than their adult counterparts, with an estimated range between 16% and 44%.² This range is higher than rates among nonpregnant teens (5–20%) and pregnant adult women (6–17%).³ Assessing the true prevalence of depression among EPT is difficult as it is often under-reported and depends on the study, population sampled, and measures used. While EPT are at a greater risk of mental health problems, such adverse outcomes are not inevitable.

The Complex Interaction of Mental Health and Teenage Pregnancy and Parenting

The psychological impacts of teen pregnancy and the transition to motherhood reflects mixed findings. There is a complex interplay between mental health and teen pregnancy. Understanding the interplay of risk and protective factors using a socio-ecological framework and a life course approach recognizes the complex pathways of factors that contribute to and protect EPT from adverse psychological impacts. Over the past several decades, growing evidence has contributed to a more nuanced understanding of the complex factors that place adolescents at risk for teenage pregnancy with its associated outcomes. This includes a growing appreciation of protective factors that reduce risk and for those that become pregnant, factors that promote positive outcomes. In a systematic review,⁴ EPT expressed ambivalent feelings about their pregnancy. Some expressed both joy and worry about their pregnancy, the responsibilities associated with motherhood and the extent to which they are prepared for this new role. EPT have also reported feeling isolated and disconnected from their peers and experienced distress about their future educational and employment opportunities. The physical transition to motherhood can create psychological stress depending on the extent to which the pregnancy was planned or desired. Such feelings of regret have been linked with maternal depression among EPT.⁵ A prospective study found that depression prior to pregnancy predicted post-partum depression among adolescent mothers.⁶ They also found that poor social adjustment, maternal stress, less social support (including limited involvement of the baby's father), poorer attitudes toward pregnancy, and a less positive view of pregnancy were predictive of depressive symptoms. In contrast, some EPT report that being a mother

helped them to become more mature, with some showing improvements in their sense of self in becoming a “good” mother. They noted that having a baby had changed their lives for the better.⁴ A socio-ecological framework and life course perspective can help explain the pathways to these varied outcomes.

The Socio-ecological Model Applied to Expectant and Parenting Teens (EPT)

The socio-ecological model was originally conceptualized by Bronfenbrenner to better understand factors that shape human development.⁷ It has evolved to help inform our understanding of the influences on health outcomes and inform health promotion interventions by focusing attention on five major levels of influence⁸ (see ► Fig. 1, adapted from this prior work). The most outer or macro-level includes public policies, mass media and cultural factors that shape the extent to which there are racial, economic and health inequities. The next level includes community factors, such as neighborhood characteristics, community services, and relationships among organizations. Next are factors associated with institutions where the individual spends much of their lives (e.g., school characteristics, work settings, health care settings, etc.) Next is the interpersonal level which includes social networks/support systems including relationships with family, peers, friends, teachers, etc. At the most proximal level are individual characteristics (e.g., age, health status, gender identity, sexual orientation, knowledge, skills and attitudes). It is important to understand how each level independently influences health, but also how the levels bidirectionally influence one another including the reciprocal interactions between biology, psychology, and socio-economic factors. Many of the same factors that increase the odds of teen pregnancy are also associated with psychological adjustment to pregnancy and parenthood (e.g., social support of parents, peers, school, community support and socio-economic status), as well as overall mental health and well-being. Thus, we are using this model to inform our understanding of the factors that influence the mental health of EPT.

Macro-level

There are several macro-level factors that influence adolescent development, and in this case, teen pregnancy and psychological adjustment. As indicated above, these include economic, housing, education, infrastructure, and health policies, mass media, and culture. These policies are often related to racial, economic, and health inequities. While there are many examples of macro-level factors, just three examples - poverty, racism and health care policy - are discussed below.

Poverty/Socio-economic status: Extensive research has shown that poverty and socio-economic status has a profound effect on both risk of becoming an EPT and mental health outcomes. Socio-economic status, specifically, the level of poverty, which results in economic and resource insecurities, is also associated with increased stress, mental

Socio-ecological Model to Understand the Mental Health Impacts on EPT



Fig. 1 Socio-ecological model to understand the mental health impacts on EPT.

health issues, substance use and risk of poorer reproductive health outcomes.⁹ Poverty is inextricably linked to housing insecurity and homelessness which places adolescents at risk of both teen pregnancy and mental health issues.^{10,11} High unemployment and poor educational opportunities shape teenagers' sense of hope for the future which influences both sexual risk behaviors and mental health.¹² Poverty also creates cost-barriers to supervised out-of-school time and

fewer opportunities for structured recreational/after-school activities, creating greater opportunity for adolescents to engage in risky behaviors (i.e., sexual activity, substance use¹³), further contributing to social isolation and depression.¹⁴ Relatedly, there are several policy-level and contextual factors at the macro-level that shape the mental health of adolescents, risk of pregnancy and their subsequent adjustment to pregnancy and parenting. These are often

referred to as social determinants of health and have a profound effect on adolescent health.^{15,16} Adolescents who are homeless, living in foster care and incarcerated youth are at higher risk of teen pregnancy and mental health issues.

Race/Racism: Structural racism, discrimination, and conscious and unconscious biases have unjustly placed Black, Brown, and Native American youth at a disproportionate disadvantage compared with their peers.¹⁷⁻²⁰ Structural racism has led to unfair housing practices, educational segregation, and economic and health disparities²¹ including varying rates of teenage pregnancy.²² Thus, while racism increases the risk of teen pregnancy, it also has been shown to place adolescents at higher risk of adverse mental health outcomes.²³ One study found that adolescents with depression onset at the same age as having initiated sex had a significantly higher risk of becoming pregnant compared with those without depression, with race (non-Hispanic Black) also being a significant factor in terms of risk for both.²⁴

Health Policy: The psychological adjustment to teen pregnancy has been associated with the extent to which the pregnancy is planned and wanted.²⁵ While at first glance, this may seem like an individual decision, universal access to comprehensive, confidential, evidence-based contraceptive information and services without financial barriers is critical to ensuring all women, including adolescents, have the ability to choose if or when they want to have a baby.^{26,27} Despite increased access to contraception, far too many women and especially adolescents, lack this basic human right.²⁸ For example in the U.S., 20 states have no sexual health education requirements, with the exception of HIV/AIDS education.²⁹ Additionally, contraceptive “deserts” are a result of public policies, such as the lack of sufficient Title X family planning funds and states’ policy decisions limiting access to Medicaid expansions as part of the Affordable Care Act, further hindering women’s abilities to plan their pregnancies.³⁰ There is also research showing the detrimental impacts of immigration policies on health care access, utilization and outcomes for a growing proportion of the US population.³¹

Community and Institutional Levels

Community levels of influence include neighborhoods, social/health services, transportation, social norms, etc. Examples include worksite health and safety protocols, or the availability of health education programs and services in schools. It also includes relationships among organizations, institutions, and informal networks that are shaped by resource allocation. Institutional level factors include organizational characteristics and formal (and informal) rules and regulations that can influence the level of collaboration and sharing of a common mission to improve the lives of adolescents, regardless of the roles each organization plays in the community. Policies at the macro-level, in turn, influence community and institutional factors which further exacerbate or ameliorate disparities in mental and sexual health care access and services, so this section focuses again on the impacts of poverty, racism and health care at the local level.

Adolescents who attend school in low-income communities have been shown to have lower levels of overall educational attainment and less sexual health knowledge than their more economically well-off peers.³² Relatedly, under-resourced schools and as a result, low educational attainment, are detrimental for adolescents’ sexual health knowledge and are associated with negative sexual health outcomes for youth.³³ On the other hand, school-connectedness (sense of being cared for, supported, and belonging) and opportunities for meaningful participation and contribution serve as protective factors for adolescents in reducing risky sexual behaviors and in promoting mental health over time.^{34,35}

In addition, national health care policies impact who has access to reproductive and mental health services at the local level. For example, while Title X is a federal policy that provides funding for a range of reproductive health services, including contraception, resources remain limited. Implementation varies by state which in turn, impacts communities and access to care. In a comparison of two states, 27.4% of North Carolina’s population had poor access to contraception which is substantially less than Texas, where over 50% report poor access and live in regions classified as a contraception “desert.”³⁶

Race intersects these issues with racism embedded in macro-level policies as mentioned previously, permeating through many communities and institutions, effecting quality of services available. For example, Blacks/African Americans have less access to contraception due to uneven distribution of resources, regardless of access to local pharmacies.³⁰

Interpersonal Level

As noted above, the interpersonal level includes factors in the immediate environment that directly impact the adolescent, including parents, siblings, teachers and school peers. Numerous studies have shown that strong, warm parent-child relationships that are low in conflict and where there is adequate supervision and monitoring promotes healthy adolescent development. It also protects youth from mental health and substance use disorders, as well as reducing risky sexual behavior, including unprotected intercourse and adolescent pregnancy.^{37,38} In contrast, families facing a variety of economic and inter-personal difficulties create more challenging environments which have been shown to have longer term diverse health outcomes. In a large study of 48,526 adults in the U.S., individuals with a childhood ACEs score of four or greater, had significantly higher odds for binge or heavy drinking, smoking, risky HIV behavior, diabetes, myocardial infarction, coronary heart disease, stroke, depression, disability due to health, and the need to use special equipment due to disability.³⁹

Relationships with sexual partners has also been shown to have both positive and adverse effects on pregnancy risk, as well as psychological adjustments to a pregnancy or parenting. For example, partnership dynamics, power imbalances, communication styles and intimate partner violence (that involves physical, emotional, and/or sexual abuse) all

influence sexual decision-making. Relationship factors have also been shown to increase the risk of contraceptive coercion, unintended pregnancy, sexually transmitted infections (STIs) and adverse mental health outcomes (e.g., anxiety, depression and post-traumatic stress disorder).^{40,41} The lived experiences of special populations of adolescents also need consideration. For instance, LGBTQ+/sexual minority youth are at increased risk for childhood maltreatment and bullying which are associated with both increased risk of risky sexual behavior and poor mental health.⁴² Interactions, preferably positive ones, between the adolescent's caregivers, peers, siblings and teachers also influence the psychological impact of teen pregnancy.

Individual Levels

There are several individual factors, including personal predispositions, such as intelligence, affectionate disposition, being easy to sooth, responsive to others, and a positive temperament, that have been shown to influence psychological adjustment in the face of adversity (such as becoming an EPT).^{43,44} Of course, these too, are shaped by the other levels of influence. One example of an individual biological factor is the association between early pubertal timing and earlier age of sexual debut among adolescents.⁴⁵ Conversely, later onset of menarche has been associated with not becoming a teen parent.⁴⁶ However, there is a bi-directional relationship between the environment and these biological/individual factors. Thus, while individual factors play an important role, protective factors across multiple levels of influence and across time are associated with and predict resilience.^{47–50} In turn, as EPT are supported, the families that they create through their own childbearing hold promise of assuring that future generations have improved trajectories.

The Complementary Nature of the Socio-ecological Model within a Life Course Perspective

In addition to the socio-economic model, a life course perspective⁵¹ provides a framework to understand how factors, particularly risk and protective factors in early life, contribute to shaping the knowledge, attitudes and behaviors that in turn influence outcomes later in life and from one generation to the next – including risk of teen pregnancy and adjustments to the role of an EPT.^{52,53} Adopting a life course perspective requires that the stability of the teenager's own mental health environment, for example, the teen's mother's level of depression, be considered as a risk factor for the teen, influencing parenting behaviors and the environment in which the teen is raised, as well as her own child (grandchild). These factors are exacerbated by poverty, structural racism and limited opportunities.⁵⁴ Each level of environmental influence does not function independently; rather, they are interconnected and assert influence upon one another throughout the life course. Early influences, whether they be positive or negative, can shape the life course trajectory of individual's developmental and health out-

comes. In addition, intergenerational exposure and social transmission of risk also influence outcomes over time. It also considers how and why good or poor health persists in certain groups and is “transmitted” across generations.⁵⁵ For example, ACEs (which are linked with social determinants of health) have been strongly associated with poor mental health including anxiety, depression, post-traumatic stress disorder [PTSD]. ACEs and the intergenerational impact on the teenager's household also increase the risk of early unprotected sexual behavior and mistimed pregnancy and associated mental health outcomes.^{56,57}

Implications for Addressing Social Determinants in Shaping Effective Interventions for EPT and Mental Health

The emotional and mental health support for EPT warrants special attention. While EPT experience stress and challenges in both navigating the developmental tasks of adolescents and the simultaneous adjustments to pregnancy and parenting, the psychological impacts can be exacerbated or ameliorated by an interaction of risk and protective factors at multiple levels of environmental influence. This has important implications for interventions which should be targeted at each of these various levels. It is imperative that social determinants of health be addressed through a life course lens⁵⁸ to promote equity and healthy adolescent development.¹⁵ For instance, given the association between lower educational achievement, high unemployment and poverty and higher teen pregnancy rates,⁵⁹ it is critical to develop and evaluate policies aimed at closing educational gaps (e.g., dropout rates). Furthermore, it is important to examine whether existing policies increase access to higher education as well as alternative vocational training for EPT that, in turn, can promote economic stability and equity.⁶⁰ There are many other “upstream” levels of policy influences that are needed, such as enhancing the capacity of systems to support the comprehensive health and mental health needs of EPT,⁶¹ as well as efforts to support the teen before she becomes an EPT. This is critical as the current systems of care does not have adequate capacity to meet the mental health needs of most adolescents,⁶² let alone EPT. Developing new models of care, for example, through the increased use and reimbursement of mental telehealth services, as well as increasing system capacity, including professional training, are needed to extend and leverage the types of youth-centered reproductive and mental health services that are made available, accessible, and culturally and developmentally appropriate for diverse adolescents.⁶³ It also needs to include integrating a multi/transdisciplinary approach in service delivery to increase the capacity and range of services that can be offered to teenagers across the lifespan, including earlier family-focused interventions. Stigma is a barrier to both adolescent reproductive and mental health care services which is shaped by institutional policies and practices, as well as cultural norms.⁶⁴ EPT experience stigma associated with being a young mother which further causes stress and poor mental health outcomes.^{60,65} Thus, efforts to reduce stigma are needed at all levels.

There are several innovative approaches both within the U.S.⁶⁶ and internationally¹⁶ that have been shown to be effective in supporting EPT. Many of these tackle upstream issues in addition to interventions directed at other levels in the socio-ecological model including community-wide, multicomponent approaches.⁶⁷ The Pregnancy Assistance Fund, through the federal Office of Population Affairs, is a prime example of public policy that funds several programs across 32 states including the District of Columbia and seven tribal organizations. These programs have been shown to improve several outcomes for EPT, including high school enrollment/graduation, plans to attend college and reduced rates/spacing of repeat pregnancies.

Effective clinical interventions that identify ACEs early and respond to trauma, for example, by providing trauma-informed care, can help address these adverse mental health antecedents, while also potentially changing the trajectories of poor outcomes.⁶⁸ In addition, interventions that support resilience (through parenting skills, caring relationships, opportunities to contribute, etc.) can moderate ACE experiences and help improve several health, social, educational and mental health outcomes.⁶⁹ Such approaches can take place across multiple levels of socio-ecological influence, recognizing the influences of biological and environmental factors at the individual level, while also attending to shaping policies at the macro-level that impact resources available. For example, adequate reimbursement for telehealth services at the systems level helps assure that the pool of resources available at the local community level responds to the nuanced needs of that community's young people.

There are also numerous interventions that intersect the community, institutional, interpersonal and individual levels which have been shown to improve the mental health and/or life course trajectory of EPT. Some of these approaches include evidence-based home visiting models⁷⁰ wherein case managers/home visitors are trained to recognize, screen and provide mental health support either directly or through referrals and linkages to community-based mental health services.⁷¹⁻⁷³ Others focus on improving parenting and life skills that have the potential to improve mental health outcomes.^{74,75} Some school-based approaches^{76,77} and mentoring interventions⁷⁸⁻⁸⁰ have also improved several outcomes. More work is needed to ensure that a more comprehensive, holistic approach that integrates mental health is incorporated into intervention efforts. Confidentiality protections are especially critical to ensure that EPT access needed care.⁸¹ Further, COVID has placed many adolescents at greater risk for mental health issues,⁸² which has also highlighted the need to increase the capacity of mental health delivery systems to provide care via telehealth⁸³ and/or televisits in delivering case management and other types of supportive services.⁸⁴ There are also innovative approaches to leverage other types of technologies, beyond telehealth, to address the reproductive⁸⁵ and mental health⁸⁶ needs of adolescents, but there is a paucity of research in this area that pertains specifically to EPT.⁸⁷

Despite these efforts, there is a need for increasing the number and strength of community partnerships across the

public and private sectors. For instance, summer internship programs, such as for EPT, provide job training, offer linkages to health screenings and care, as well as parenting and life-skills training and support. While a few such programs exist, they are rare.⁶⁶ Nature-based therapeutic mentoring is an emerging area to promote mental health⁸⁸⁻⁹⁰; however, research is needed on whether these types of programs positively impact EPT and their children. In addition, at the individual-level, there is a need to employ a positive youth development approach that engage youth as partners in the intervention process, including helping to design programs that build upon youth strengths and create supports and opportunities.^{91,92} Such efforts in schools, families, and communities help cultivate a wide array of protective factors that reduce risk and lead to healthy developmental outcomes for both the EPT and her child(ren).

Conclusion

The socio-ecological model in combination with a life course approach to mental health and EPT provides useful frameworks for reconsidering the types of upstream factors that shape the lives of adolescents and their families. Narrower views or slices of influential factors preclude the development of the type of multi-level and multi-pronged approaches that respond to social determinants of health and take into account a multi-generational life course perspective. Recognizing the influence of different environmental factors at the proximal and distal levels helps policy makers, communities, program managers, and others to recognize what may place an adolescent at greater risk of facing an unintended or mistimed pregnancy. In turn, supporting the EPT helps to maximize the likelihood that poor mental health and other adverse outcomes, as well as future cycles of poverty can be ameliorated. Across all levels of interventions, research and evaluation is essential to improve the evidence-base of not only what approaches are successful, but how they are successful and for whom. It is imperative that such evidence be used to inform future efforts. Furthermore, engaging youth across the spectrum, from non-pregnant through parenting adolescents, in shaping responsive, culturally respectful, and supportive programs across all the levels of influence in their lives will help assure that the next generation of programs are effective in achieving systemic change.

Conflict of Interest

None declared

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References

- Maness SB, Buhi ER. Associations Between Social Determinants of Health and Pregnancy Among Young People: A Systematic Review of Research Published During the Past 25 Years. *Public Health Rep* 2016;131(01):86–99
- Schoenbach VJ, Garrison CZ, Kaplan BH. Epidemiology of adolescent depression. *Public Health Rev* 1984;12(02):159–189
- Kessler RC. Epidemiology of women and depression. *J Affect Disord* 2003;74(01):5–13
- Erfina E, Widyawati W, McKenna L, Reisenhofer S, Ismail D. Adolescent mothers' experiences of the transition to motherhood: An integrative review. *Int J Nurs Sci* 2019;6(02):221–228
- Roose NJ, Epstude K, Fessel F, et al. Repetitive regret, depression and anxiety: Findings from a nationally representative survey. *J of Social and Clinic Psych* 2009;28:671–688
- Meltzer-Brody S, Bledsoe-Mansori SE, Johnson N, et al. A prospective study of perinatal depression and trauma history in pregnant minority adolescents. *Am J Obstet Gynecol* 2013;208(03):211.e1–211.e7
- Brofenbrenner U. *The Ecology of Human Development*. Cambridge, Massachusetts: Harvard University Press; 1979
- McLeroy KR, Bibeau D, Steckler A, Glanz K. An ecological perspective on health promotion programs. *Health Educ Q* 1988;15(04):351–377
- Roberts SCM, Berglas NF, Kimport K. Complex situations: Economic insecurity, mental health, and substance use among pregnant women who consider - but do not have - abortions. *PLoS One* 2020;15(01):e0226004
- Furstenberg F. 2008 Teen pregnancy and poverty. University of Pennsylvania https://www.researchgate.net/publication/313900307_Teen_pregnancy_and_poverty. Accessed 5/22/2021
- Hatem C, Lee CY, Zhao X, Reesor-Oyer L, Lopez T, Hernandez DC. Food insecurity and housing instability during early childhood as predictors of adolescent mental health. *J Fam Psychol* 2020;34(06):721–730
- Brindis CD, Moore K. Improving adolescent health policy: incorporating a framework for assessing state-level policies. *Annu Rev Public Health* 2014;35:343–361
- Brindis CD, Decker MJ, Gutmann-Gonzalez A, Berglas NF. Perspectives on Adolescent Pregnancy Prevention Strategies in the United States: Looking Back, Looking Forward. *Adolesc Health Med Ther* 2020;11:135–145
- Borawski EA, Ievers-Landis CE, Lovegreen LD, Trapl ES. Parental monitoring, negotiated unsupervised time, and parental trust: the role of perceived parenting practices in adolescent health risk behaviors. *J Adolesc Health* 2003;33(02):60–70
- Viner RM, Ozer EM, Denny S, et al. Adolescence and the social determinants of health. *Lancet* 2012;379(9826):1641–1652
- Currie C, et al, Eds. Social determinants of health and well-being among young people. *Health Behaviour in School-aged Children (HBSC) study: international report from the 2009/2010 survey*. Copenhagen: WHO Regional Office for Europe; 2012 (Health Policy for Children and Adolescents, No. 6).
- Williams DR, Lawrence JA, Davis BA. Racism and Health: Evidence and Needed Research. *Annu Rev Public Health* 2019;40:105–125
- Trent M, Dooley DG, Dougé J. SECTION ON ADOLESCENT HEALTH COUNCIL ON COMMUNITY PEDIATRICS COMMITTEE ON ADOLESCENCE. The Impact of Racism on Child and Adolescent Health. *Pediatrics* 2019;144(02):e20191765
- Hall WJ, Chapman MV, Lee KM, et al. Implicit Racial/Ethnic Bias Among Health Care Professionals and Its Influence on Health Care Outcomes: A Systematic Review. *Am J Public Health* 2015;105(12):e60–e76
- Gee GC, Ford CL. STRUCTURAL RACISM AND HEALTH INEQUITIES: Old Issues, New Directions. *Du Bois Rev* 2011;8(01):115–132
- Lynch EE, Malcoe LH, Laurent SE, Richardson J, Mitchell BC, Meier HCS. The legacy of structural racism: Associations between historic redlining, current mortgage lending, and health. *SSM Popul Health* 2021;14:100793
- Upadhyia KK, Ellen JM. Social disadvantage as a risk for first pregnancy among adolescent females in the United States. *J Adolesc Health* 2011;49(05):538–541
- Williams DR, Williams-Morris R. Racism and mental health: the African American experience. *Ethn Health* 2000;5(3–4):243–268
- Vafai Y, Thoma ME, Steinberg JR. Association Between First Depressive Episode in the Same Year as Sexual Debut and Teenage Pregnancy. *J Adolesc Health* 2020;67(02):239–244
- Gipson JD, Koenig MA, Hindin MJ. The effects of unintended pregnancy on infant, child, and parental health: a review of the literature. *Stud Fam Plann* 2008;39(01):18–38
- Burke PJ, Coles MS, Di Meglio G, et al; Society for Adolescent Health and Medicine. Sexual and reproductive health care: a position paper of the Society for Adolescent Health and Medicine. *J Adolesc Health* 2014;54(04):491–496
- Committee on the Rights of the Child. United Nations Convention of the Rights of the Child. General comment No 15 (2013) on the right of the child to the enjoyment of the highest attainable standard of health (art. 24).
- FP2020. Catalyzing Collaboration has been produced by Family Planning. 2020 (FP2020). Accessed 5/13/2021. http://progress.familyplanning2020.org/sites/default/files/FP2020_ProgressReport2020_WEB.pdf
- Guttman Institute. Sex and HIV Education. May 1, 2021. Accessed 5/22/2021 <https://www.guttman.org/print/state-policy/explore/sex-and-hiv-education>
- Barber JS, Ela E, Gatny H, et al. Contraceptive Desert? Black-White Differences in Characteristics of Nearby Pharmacies. *J Racial Ethn Health Disparities* 2019;6(04):719–732
- Raymond-Flesch M. The negative health consequences of anti-immigration policies. *J Adolesc Health* 2018;62(05):505–506
- Decker MJ, Isquick S, Tilley L, et al. Neighborhoods matter. A systematic review of neighborhood characteristics and adolescent reproductive health outcomes. *Health Place* 2018;54:178–190
- Atkins R, Sulik MJ, Hart D, Ayres C, Read N. The effects of school poverty on adolescents' sexual health knowledge. *Res Nurs Health* 2012;35(03):231–241
- Wasonga T, Christman D, Kilmer L. Ethnicity, Gender and Age: Predicting Resilience and Academic Achievement among Urban High School Students. *Am Secondary Educ* 2003;32(01):62–74
- Steiner RJ, Sheremenko G, Lesesne C, Dittus PJ, Sieving RE, Ethier KA. Adolescent Connectedness and Adult Health Outcomes. *Pediatrics* 2019;144(01):e20183766
- Saunders T, Kreitzer RJ. Variation in Title X Leads to Contraception Deserts. August 14, 2018. Accessed 5/22/2019 <https://genderpolicyreport.umn.edu/variation-in-title-x-leads-to-contraception-deserts/>
- Miller BC. Family influences on adolescent sexual and contraceptive behavior. *J Sex Res* 2002;39(01):22–26
- Wight D, Fullerton D. A review of interventions with parents to promote the sexual health of their children. *J Adolesc Health* 2013;52(01):4–27

- 39 Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study. *Am J Prev Med* 1998;14(04):245–258
- 40 Volpe EM, Hardie TL, Cerulli C, Sommers MS, Morrison-Beedy D. What's age got to do with it? Partner age difference, power, intimate partner violence, and sexual risk in urban adolescents. *J Interpers Violence* 2013;28(10):2068–2087
- 41 Rome E, Miller E. Intimate Partner Violence in the Adolescent. *Pediatrics in Review* 2020 <http://pedsinreview.aappublications.org/> Accessed 5/13/2021.
- 42 Charlton BM, Gordon AR, Reisner SL, Sarda V, Samnaliev M, Austin SB. Sexual orientation-related disparities in employment, health insurance, healthcare access and health-related quality of life: a cohort study of US male and female adolescents and young adults. *BMJ Open* 2018;8(06):e020418
- 43 Werner EE. High-risk children in young adulthood: a longitudinal study from birth to 32 years. *Am J Orthopsychiatry* 1989;59(01):72–81
- 44 Cederblad M, Dahlin L, Hagnell O, Hansson K. Intelligence and temperament as protective factors for mental health. A cross-sectional and prospective epidemiological study. *Eur Arch Psychiatry Clin Neurosci* 1995;245(01):11–19
- 45 Miller BC, Norton MC, Fan X, Christopherson CR. Pubertal development, parental communication, and sexual values in relation to adolescent sexual behaviors. *J Early Adolesc* 1998;18:27–52
- 46 Baumeister LM, Flores E, Marin B. Sex information given to Latina adolescents by parents. *Health Educ Res* 1995;10:233–239
- 47 Hess CR, Papas MA, Black MM. Resilience among African American adolescent mothers: predictors of positive parenting in early infancy. *J Pediatr Psychol* 2002;27(07):619–629
- 48 Brown JD, Harris SK, Woods ER, Buman MP, Cox JE. Longitudinal study of depressive symptoms and social support in adolescent mothers. *Matern Child Health J* 2012;16(04):894–901
- 49 Easterbrooks MA, Chaudhuri JH, Bartlett JD, Abby Copeman A. Resilience in parenting among young mothers: Family and ecological risks and opportunities. *Child Youth Serv Rev* 2011;33(01):42–50
- 50 Werner EE. 2013 What Can We Learn about Resilience from Large-Scale Longitudinal Studies? In: Goldstein S, Brooks R, (eds) *Handbook of Resilience in Children*. SpringerBoston, MA https://doi.org/10.1007/978-1-4614-3661-4_6
- 51 Elder GH Jr, Johnson MK, Crosnoe R. 2003 The emergence and development of life course theory. In: Mortimer JT, Shanahan MJ, (eds.) *Handbook of the life course*. Kluwer Academic New York 3–22
- 52 Kelly M, Millar M. Exploring Adolescence and Parenthood: A Transitional Life Stage and Abrupt Life Change. *J Comm Pub Health Nurs* 2017;3:162
- 53 United Nations Committee on the Rights of the Child. 2003 Committee on the Rights of the Child. General Comment No. 5: Implementation. *UN/CRC/GC/2003/1*.
- 54 NRC and IOM, Committee on the Prevention of Mental Disorders and Substance Abuse Among Children, Youth, and Young Adults: Research Advances and Promising Interventions, Board on Children, Youth, and Families. Preventing mental, emotional, and behavioral disorders among young people: Progress and possibilities. O'Connell ME, Boat T, Warner KE, editors. Washington, DC: The National Academics Press; 2009
- 55 Lomanowska AM, Boivin M, Hertzman C, Fleming AS. Parenting begets parenting: A neurobiological perspective on early adversity and the transmission of parenting styles across generations. *Neuroscience* 2017;342:120–139
- 56 Meade CS, Kershaw TS, Ickovics JR. The intergenerational cycle of teenage motherhood: an ecological approach. *Health Psychol* 2008;27(04):419–429
- 57 Hillis SD, Anda RF, Dube SR, Felitti VJ, Marchbanks PA, Marks JS. The association between adverse childhood experiences and adolescent pregnancy, long-term psychosocial consequences, and fetal death. *Pediatrics* 2004;113(02):320–327
- 58 Lu MC, Kotelchuck M, Hogan V, Jones L, Wright K, Halfon N. Closing the Black-White gap in birth outcomes: a life-course approach. *Ethn Dis* 2010;20(01, Suppl 2):S2–S62, 76
- 59 Reduced disparities in birth rates among teens aged 15–19 years—United States, 2006–2007 and 2013–2014. April 29, 2016;65((16):409–414
- 60 SmithBattle LI. Reducing the stigmatization of teen mothers. *MCN Am J Matern Child Nurs* 2013;38(04):235–241, quiz 242–243
- 61 Knitzer J, Thebarg S, Johnson K. 2008 Reducing maternal depression and its impact on young children: Toward a responsive early childhood policy framework (Project Thrive Issue Brief No. 2). New York: National Center for Children in Poverty, Columbia University, Mailman School of Public Health
- 62 Health Policy Institute. Child & Adolescent Mental Health Services: Whose responsibility is it to ensure care? <https://hpi.georgetown.edu/mentalhealth/>. Accessed 5/13/2021
- 63 Colizzi M, Lasalvia A, Ruggeri M. Prevention and early intervention in youth mental health: is it time for a multidisciplinary and trans-diagnostic model for care? *Int J Ment Health Syst* 2020;14:23
- 64 Chandra A, Minkovitz CS. Factors that Influence Mental Health Stigma Among 8th Grade Adolescents. *J Youth Adolescence* 2007;36:763–7574
- 65 Afrose T, Chattopadhyay AB, Habib N, et al. Adolescent pregnancy, a social stigma. *MOJ Anat Physiol*. 2015;1(05):116–120
- 66 Tebb KP, Pica G, Twietmeyer L, Diaz A, Brindis CD. Innovative Approaches to Address Social Determinants of Health Among Adolescents and Young Adults. *Health Equity* 2018;2(01):321–328
- 67 Mueller T, Tevendale HD, Fuller TR, et al. Teen Pregnancy Prevention: Implementation of a Multicomponent, Community-Wide Approach. *J Adolesc Health* 2017;60(3S):S9–S17
- 68 Lorenc T, Lester S, Sutcliffe K, Stansfield C, Thomas J. Interventions to support people exposed to adverse childhood experiences: systematic review of systematic reviews. *BMC Public Health* 2020;20(01):657
- 69 Di Lemma L, Davies AR, Ford K, et al. Responding to Adverse Childhood Experiences: An evidence review of interventions to prevent and address adversity across the life course. 2019. Public Health Wales; Bangor University. Accessed 5/19/2021. https://www.researchgate.net/publication/333045994_Responding_to_Adverse_Childhood_Experiences_An_evidence_review_of_interventions_to_prevent_and_address_adversity_across_the_life_course
- 70 Manpower Demonstration Research Corporation (MDRC) Evidence-based home visiting program models. <https://www.mdrc.org/evidence-based-home-visiting-models>. Accessed 5/19/2021
- 71 Infant Mental Health and Home Visiting Needs. Approaches, Opportunities, and Cautions Paula Doyle Zeanah Jon Korfmacher. In Zeanah, Charles H.; *Handbook of Infant Mental Health*, Fourth Edition. 2019 Guilford Press
- 72 Zief S, Deke J, Burkander P, Langan A, Asheer S. Impacts of a Home Visiting Program Enhanced with Content on Healthy Birth Spacing. *Matern Child Health J* 2020;24(Suppl 2):105–118
- 73 Asheer S, Keating B, Crowley J, Zief S. Implementing Case Management with Positive Youth Development to Empower Young Mothers in California. *Matern Child Health J* 2020;24(Suppl 2):141–151
- 74 Cox JE, Harris SK, Conroy K, et al. A Parenting and Life Skills Intervention for Teen Mothers: A Randomized Controlled Trial. *Pediatrics* 2019;143(03):e20182303
- 75 Woods ER, Obeidallah-Davis D, Sherry MK, et al. The parenting project for teen mothers: the impact of a nurturing curriculum on adolescent parenting skills and life hassles. *Ambul Pediatr* 2003;3(05):240–245

- 76 Key JD, Gebregziabher MG, Marsh LD, O'Rourke KM. Effectiveness of an intensive, school-based intervention for teen mothers. *J Adolesc Health* 2008;42(04):394–400
- 77 Asheer S, Zief S, Neild R. Roadmap for Effective School-Based Practices to Support Expectant and Parenting Youth: Lessons from the New Heights Program in Washington, DC. *Matern Child Health J* 2020;24(Suppl 2):125–131
- 78 Barnett B, Liu J, DeVoe M, Duggan AK, Gold MA, Pecukonis E. Motivational intervention to reduce rapid subsequent births to adolescent mothers: a community-based randomized trial. *Ann Fam Med* 2009;7(05):436–445
- 79 Tebb KP. The Effectiveness of Mentoring for Adolescent Mothers and their Infants: A Comparative Study between Sister Friend and Cal Learn. Greensboro, NC: ERIC, CASS #CG029470;1999
- 80 Black MM, Bentley ME, Papas MA, et al. Delaying second births among adolescent mothers: a randomized, controlled trial of a home-based mentoring program. *Pediatrics* 2006;118(04):e1087–e1099
- 81 Chen A, Hayes E. Health Care Coverage for Pregnant and Parenting Teens in California. National Health Law Program 2018 <https://healthlaw.org/resource/health-care-coverage-for-pregnant-and-parenting-teens-in-california/>. Accessed 5/21/2021
- 82 Black MM, Bentley ME, Papas MA, et al. Longitudinal change in adolescent depression and anxiety symptoms from before to during the COVID-19 pandemic: A collaborative of 12 samples from 3 countries. *PsyArXiv* 2021 <https://doi.org/10.31234/osf-io/hn7us>. Accessed 5/19/2021.
- 83 Gloff NE, LeNoue SR, Novins DK, Myers K. Telemental health for children and adolescents. *Int Rev Psychiatry* 2015;27(06):513–524
- 84 Toofan Y, Cassanego L, Rutman S, Tebb KP. Promoting resilience among expectant and parenting youth in California During the COVID-19 Pandemic. *Arch Nurs Pract Care* 2020;6(01):050–054
- 85 Tebb KP, Rodriguez F, Pollack L, et al. Improving contraceptive use among Latina adolescents: A cluster-randomized control trial evaluating an mHealth application, Health-E You/Salud iTu. *Contraception* 2021. Doi: 10/1016/j.contraception.2021.03.004
- 86 Grist R, Porter J, Stallard P. Mental Health Mobile Apps for Preadolescents and Adolescents: A Systematic Review. *J Med Internet Res* 2017;19(05):e176
- 87 Manlove J, Whitfield B, Finocharo J, Cook E. Lessons Learned from Replicating a Randomized Control Trial Evaluation of an App-Based Sexual Health Program. *Int J Environ Res Public Health* 2021;18(06):3305
- 88 Swank JM, Shin SM. Nature-based child-centered play therapy: An innovative counseling approach. *Int J Play Ther* 2015;24(03):151–161
- 89 Bang K-S, Kim S, Song MK, Kang KI, Jeong Y. The Effects of a Health Promotion Program Using Urban Forests and Nursing Student Mentors on the Perceived and Psychological Health of Elementary School Children in Vulnerable Populations. *Int J Environ Res Public Health* 2018;15(09):1977
- 90 Razani N, Morshed S, Kohn MA, et al. Effect of park prescriptions with and without group visits to parks on stress reduction in low-income parents: SHINE randomized trial. *PLoS One* 2018;13(02):e0192921
- 91 Lerner JV, Phelps E, Forman Y, Bowers EP. Positive youth development. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology: Individual bases of adolescent development*. John Wiley & Sons Inc; 2009:524–558
- 92 Pressfield L, Campa M, Ramstrom K, Kabadi S, Lopez C. Translating Theory into Practice: Lessons Learned from Developing a Program Model to Foster Resiliency in Expectant and Parenting Youth. *Matern Child Health J* 2020;24(Suppl 2):132–140