



Disparities in child and adolescent mental health and mental health services in the U.S.

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Introduction

The Institute of Medicine's 2009 Report on child mental health (O'Connell, Boat, and Warner 2009) recommends that the federal government prioritize the prevention of mental, emotional, and behavioral disorders in youth because of the enormous toll they take on the well-being of young people and their families, with an estimated cost of \$247 billion annually. Mental health care accounts for much of the spending on health care for children (up to age 12) and youth (ages 13–18), and is one of the fastest areas of spending growth in child health care. Among Medicaid patients, the 9.6 percent of children who use behavioral health services account for approximately 38 percent of child Medicaid expenditures (Pires et al. 2013). Between 2007 and 2010, use of hospital-based mental health and substance abuse treatment for children with employer sponsored insurance increased 24 percent, while use of psychiatric medications increased by almost 10 percent (Health Care Cost Institute 2012). The high individual burden and systemic costs due to child behavioral health problems underscore the need for more effective prevention efforts for children at risk of developing behavioral health problems, but also raise the critical issue of mental health equity for low-income and racial and ethnic minority children and youth.

Mental health is recognized as a central determinant of individual well-being, family relationships, and engagement in society (Wulsin and Singal 2003; Scott, Von Korff, and Angermeyer et al. 2011; Kessler, Walters, and Forthofer 1988; Breslau et al. 2011). Still, nearly 40-50 percent of the U.S. population develops a mental disorder in their lifetime (Kessler et al. 2005; Kessler, McGonagle, Zhao et al. 1994). Most psychiatric disorders have an onset in childhood or adolescence, increasing the risk for poor physical health, problems in social relationships, reduced psychological well-being, and financial difficulties (Kessler et al. 2005). The relatively early age of disorder

onset amplifies the importance of a developmental perspective in understanding trajectories of mental health and mental health service use. Results from the National Comorbidity Survey-Adolescent Supplement (NCS-A) indicate that approximately half of respondents ages 13–17 (48.3 percent of Latinos, 46.8 percent of blacks and 41.9 percent of non-Latino whites) experienced a mental health disorder before age 18, with 7 percent reporting serious emotional disturbance (i.e., disorders that significantly impaired their functioning in the past year) (Merikangas, He, and Burstein et al. 2010). In addition, psychiatric disorders in the NCS-A were associated with an increase in health risk behaviors and decreased educational achievement (Merikangas, He, and Burstein et al. 2010). For example risk for smoking increases 9-fold in non-Latino white adolescents with serious emotional disturbance (SED) and over 25-fold in Latino adolescents with (SED), indicating a possible differential impact of psychiatric conditions by race and ethnicity. Early identification and intervention can therefore reduce the morbidity of psychiatric disorders, preventing the development of comorbid psychiatric conditions and attenuating their impact on functioning (Merikangas and Ames et al. 2007).

Evidence consistently suggests that, across the life course, mental disorder prevalence varies significantly according to race and ethnicity (Breslau et al. 2006; Alegria et al. 2007; Williams and Earl 2007; Breslau et al. 2005), but a prominent scholar in this area recently noted that this literature has raised more questions than it has answered because of two pervasive limitations (Williams and Earl 2007). First, remarkably few studies have investigated the mechanisms that underlie racial and ethnic disparities in mental health. Second, decomposition shows that racial and ethnic minorities are at elevated risk of persistent mental disorders in adulthood (Breslau et al. 2005;

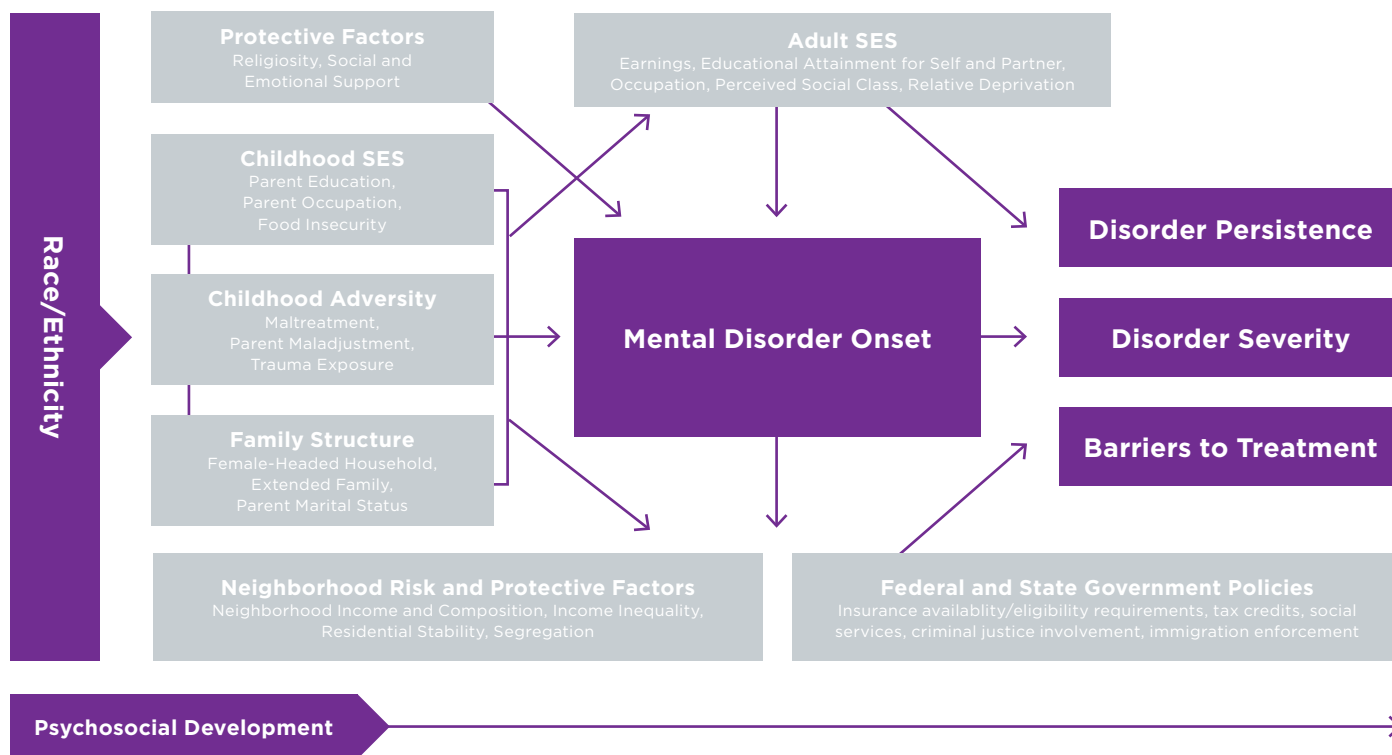
Williams, Gonzalez, and Neighbors et al. 2007), even though they demonstrate similar or lower prevalence rates in adolescence (Merikangas, He, and Burstein et al. 2010). For example, although African-American children and adolescents are less likely to develop lifetime major depression than non-Latino whites as adults, their depression is significantly more likely to develop a chronic course (Chatterji, Alegria, and Takeuchi 2009). This suggests that the effects of some risk factors might accrue incrementally over time to impede recovery from mental disorders (Gee and Payne-Sturges 2004), and also highlights the importance of research disentangling the associations of race/ethnicity with different stages of development for targeting interventions.

In this paper, we focus on four mechanisms (see Figure 1) possibly responsible for these disparities in mental health outcomes as minority children and adolescents transition into adulthood: (i) socio-economic status (e.g., low education and income); (ii) childhood adversities (e.g., maltreatment, family violence); (iii) family structure across development (e.g., single motherhood, early child-bearing, divorce, paternal involvement); and (iv) neighborhood-level factors (e.g., residential composition, stability, and segregation). Not only does exposure to these factors vary by race/ethnicity, but their effects might differ by race/ethnicity.

We also discuss the potential role of individual and neighborhood-level protective factors (e.g., social support, religiosity, neighborhood stability) as buffers against the negative effects of these risk pathways. We then examine barriers to mental health care that may lead to untreated or poorly treated mental illness for minority children and youth, and propose a research agenda focused on interventions that target the underlying mechanisms of mental health and mental health service disparities.

Throughout this review we adopt a developmental perspective. This approach is consistent with research indicating that rapidly developing biological systems of children and adolescents are shaped by life experiences, which subsequently interact to influence health and mental health trajectories (Mistry, Minkovitz, Riley et al. 2012). A framework developed by the Harvard Center for the Developing Child provides a particularly useful structure for examining these transactional relationships in the context of key social, cultural, and economic factors (Mistry, Minkovitz, Riley et al. 2012; Center on the Developing Child 2010).

Figure 1: Conceptual Model for Child Mental Health and Mental Health Service Disparities



Four Mechanisms for Disparities

The Differential Role of Socio-Economic Status (SES) in Mental Health Outcomes by Race and Ethnicity

Pervasive differences in family SES exist for children of different racial and ethnic groups in the U.S. The proportion of black (39 percent) and Latino (33 percent) children and adolescents living in poverty is more than double that of non-Latino whites (14 percent) and Asians (14 percent) (Kids Count Data Center, Children in Poverty 2014). As such, social class differences are frequently posited to be a central factor explaining racial and ethnic disparities in mental health outcomes. Indeed, in *The Declining Significance of Race*, Wilson argued that social class has become a more important predictor of opportunity and life experiences for black Americans than race (1980). However, this argument is far from universally accepted and, in fact, has spurred controversy regarding the relative importance of race and ethnicity versus SES in shaping social, economic, and health outcomes (Farmer and Ferraro 2005; Hughes and Thomas 1998).

Instead of seeing SES as the sole cause of disparities, recent theoretical models have taken an intersectional approach that views SES as interacting with a number of other social and environmental factors to cause health disparities. Myers offers an excellent example of this type of model (2009). He argues that SES is the single most important factor underlying racial and ethnic disparities in health because it leads to differences in material and psychological resources, environmental and behavioral risks, and differences in access to health care. However, Myers also emphasizes that many racial and ethnic health differences are not explained by SES and concludes that

disparities should be seen as resulting from a complex interaction of factors (2009), including poverty and minority status.

Kessler and Neighbors carried out secondary analyses of eight epidemiologic surveys and demonstrated that failure to test for race-by-SES interactions resulted in an underestimation of the effect of race and an overestimation of the effect of SES in predicting nonspecific psychological distress (1986). Studies addressing the controversy over the degree to which SES causes racial and ethnic health outcome disparities have examined the mediating role of SES in explaining disparities in various physical disorders (Farmer and Ferraro 2005; Williams 1999, Feagin 1991), as well as in mental health outcomes (Williams, Takeuchi, and Adair 1992). Findings typically show that disparities are reduced, but not eliminated, after accounting for SES, and that the effect of SES sometimes varies by race and ethnicity (Farmer and Ferraro 2005; Williams 1999). For example, Williams and colleagues examined the relationship between SES and current and lifetime rates of mental disorder among black and white adults and found that while depression was unrelated to SES among blacks, it was negatively related to SES among whites, leading to variation in the association of race with depression depending on SES (Williams, Takeuchi, and Adair 1992). Interestingly, income was unrelated to either current or lifetime depression among black males in that study, while education was a more critical element for understanding how SES relates to mental health (Williams, Takeuchi, and Adair 1992). This is striking because most theories of the importance of SES for racial and ethnic disparities in health emphasize financial resources, whereas the finding that education is a key component of SES for mental health suggests its role in building cognitive resources. Roberts et al. also examined racial and

ethnic differences in depression and reported that while low-SES was associated with depression, only Mexican-American adolescents had significantly higher rates of depression after controlling for SES and other factors (Roberts RE., Roberts CR., and Chen 1997). Intervention implications could vary dramatically depending on the relative importance of these aspects of SES, making it critical to determine what aspects are associated with mental disorders by race and ethnicity for children and adolescents of color.

Previous research has shown that perceptions of one's status in society—termed subjective social status—are associated with health independent of income or education (Goodman, Slap, and Huang 2003; Murphy and Athanasou 1999; Repetti, Matthews, and Waldron 1989). Indeed, numerous studies have documented associations between perceived social status and mental health disorders, particularly depression and anxiety (Goodman, Slap, and Huang 2003; Murphy and Athanasou 1999; Repetti, Matthews, and Waldron 1989; Felitti, Vincent, and Adna et al. 1998; Chapman et al. 2004; Edwards et al. 2003). However, measures commonly used to operationalize social position (e.g., income, education, occupation, and class) do not encompass the range of socio-cultural factors associated with perceived social position (Kessler, Davis, and Kendler 1997). Status characteristics at the individual level—attributes such as ethnicity and race, or, more importantly, minority status, education, income, nativity, and the corresponding values attached to these attributes—are not only outward markers of social status, but factors in determining how the individual deciphers social location in society (Murphy and Athanasou 1999; Mullen et al. 1996; Collishaw 2007). Among children and adolescents, parental education and occupation (Goodman, Slap, and Huang 2003; Johnson et al. 1999; Goodman 1999), employment (Murphy and Athanasou 1999; Repetti, Matthews, and Waldron 1989), and social mobility (Das-Munshi et al. 2012) are related to mental health outcomes even after controlling for income, although variation in residual effects has not been examined systematically by race and ethnicity. There is reason to believe that the effect of income and perceived social status on mental health outcomes might differ by race and ethnicity (Johnson et al. 1999), although this possibility has seldom been considered in previous quantitative studies of the extent to which SES mediates or modifies the association between race and ethnicity

and mental health outcomes. Future research should employ models such as the Integrative Model for the Study of Developmental Competencies in Minority Children (Coll, Crnic, Lambert et al. 1996), developed by García Coll and colleagues, which emphasizes the central role of minority status in how children perceive their world and, consequently, their social position. Minority status, as well as experiences with prejudice, discrimination, racism, and oppression, can impact one's self-worth and, thus, mental health outcomes.

Other studies have found that the link between race and socioeconomic status in children is complex and difficult to measure. For example, multiple studies have found that the relationship between both subjective and objective measures of SES and poor mental health seems to be strongest for white children and adolescents. A study of the effects of poverty on the mental health outcomes of rural black and white children found that the association between poverty and psychopathology was stronger for white children, but that multiple moves, lack of parental warmth, and lax supervision were more important predictors of child mental health problems than SES (Costello, Keeler, and Angold 2001). In a review of literature on race, ethnicity, and poverty on child mental health, Samaan concluded that children and adolescents from some non-white racial and ethnic groups may have a lower likelihood of developing mental health problems than white children and adolescents of the same SES, and speculated that cultural factors may influence behaviors and perceptions associated with SES (2000). Another recent study looking at the relationship between SES, subjective social status, and adolescent mental disorders found that documented associations between mental disorders and SES are most directly due to differences in subjective social status for white and Latino adolescents, but that neither SES nor subjective social status were associated with mental disorders among black youth (McLaughlin et al. 2012). In addition, measures of SES may influence health through different pathways (Galobardes et al. 2006; Krieger, Williams, and Moss 1997), highlighting the importance of considering markers of social status, such as material deprivation or food insecurity, that go beyond a simple income measure (Melchior, Caspi, Howard et al. 2009).

The Differential Role of Childhood Adversities in Mental Health Outcomes by Race and Ethnicity

Adverse childhood experiences are important determinants of mental disorders (Felitti, Vincent, Anda et al. 1998). Exposure to early toxic stress, including maltreatment, family violence, and parental instability, has immediate and lasting disruptive effects on physiological development, health, and mental health (Chapman et al.; Kessler, Davis, and Kendler 1997; Shonkoff 2012; Shonkoff, Garner, Siegel et al. 2012). Retrospective studies consistently identify higher rates of these childhood adversities (CAs) among individuals with a mental disorder (Edwards et al. 2003; Kessler, Davis, and Kendler 1997), and this link has been confirmed by prospective studies (Fergusson, Horwood, and Lynskey 1996; Finkelhor, Ormrod, Turner et al. 2007). Importantly, CAs are associated with new disorder *onsets* in adulthood (Jaffee et al. 2002; Green, McLaughlin, Berglund et al. 2010), even after accounting for disorders with early-childhood onset, as well as with persistence and severity of mental disorders (McLaughlin et al. 2010). CAs are important from a public health perspective because they are common in minority populations (Kessler, Davies, and Kendler 1997; Finkelhor, Ormrod, Turner et al. 2007; Gree, McLaughlin, Berglund et al. 2010). They also strongly predict mental disorders (Fergusson, Horwood, and Lynskey 1996; Cohen, Brown, and Smailes 2001; Molnar, Buka, and Kessler 2001), and account for a substantial proportion of mental disorders (up to 30 percent) (Green, McLaughlin, and Berglund et al. 2010). CAs also predict role constellations that may drive racial and ethnic disparities in mental health outcomes, including teenage pregnancy (Fergusson, Horwood, and Lynskey 1997; Hillis et al. 2004), marital instability and divorce (Nelson, Heath, Madden et al. 2002), and single-parenthood (Roberts et al. 2004). National data suggest that racial and ethnic minorities have high rates of CA exposure (Turner, Finkelhor, and Ormrod 2006; Finkelhor and Asdigian 1996). This differential exposure has been invoked as a potential explanation for ethnic and racial disparities in mental health outcomes (Williams and Collins 1995), but little empirical research has directly examined this possibility in children—a critical omission given the importance of the timing of CAs (Braveman and Barclay 2009; Shonkoff 2012).

One hypothesis, supported by a growing body of evidence, is that these factors contribute to disparities

slowly over the course of an individual's life, through a process of “weathering (Gee and Payne-Sturges 2004).” Thus, disparities can be seen as resulting in part from “cumulative adversity” due to factors that disproportionately affect minorities (including childhood trauma, stress, pollution, poor housing, lack of education, low SES, exposure to community violence, and others) or cultural hardship (discrimination, prejudice, stereotyping, unfairness, sense of not belonging) that, over the long term, cause poor health and mental health outcomes (Keinan, Shrira, and Shmotkin 2012). While cumulative adversity can be difficult to measure, studies have documented associations between prolonged exposure to adverse conditions, particularly during childhood, and risk for mental illness (Ford, Clark, and Stansfeld 2011). MRI studies have even documented possible neurophysiologic differences associated with cumulative adversity (Ansell et al. 2012). But less has been documented on cultural difficulties and how they impact mental health by encapsulating commonly held views about social stratification that affect how one experiences social position as a minority.

The Differential Role of Family Structure in Mental Health Outcomes by Race and Ethnicity

In *The Truly Disadvantaged*, Wilson argues that U.S. macro-social and economic trends have led to changes in family structure for racial and ethnic minorities, including a dramatic increase in single-headed households, and that these changes are a primary contributor to increases in concentrated urban poverty and a wide range of social problems in high-poverty neighborhoods (1987), many because of a lack of institutional supports. This argument has been supported by numerous studies since Wilson's seminal work was published (Dupéré, Leventhal, and Lacourse 2009; Mair, Roux, and Galea 2008; Xue et al. 2005; Cassiano and Massey 2008). However, few studies have examined the contribution of family structure, role constellations, or changes in those structures across the life course as a contributor to racial and ethnic disparities in mental health outcomes of children and youth.

Family structure may contribute to mental health disparities through a variety of pathways. First, family structure is strongly related to exposure to CAs. Children living in single-parent homes and in step-families, for example, are more likely to experience maltreatment, family violence, parental instability, and a range of other

traumatic events in childhood than children living with both biological parents (Brown and Moran 1997; Wang 2004). Indeed, data from the Justice Bureau suggest that living in a single-headed household is among the strongest risk factors for child victimization (Wang 2004) and elevated risk for behavior problems over and above the effects of SES (Sampson, Raudenbush, and Earls 1997), although we are unaware of systematic research on the extent to which this is equally true for various racial and ethnic minority groups.

Second, being raised in a single-headed household is associated with subsequent role configurations in adolescence, including teenage pregnancy, marital instability, divorce, and single parenthood (Fergusson, Herwood, and Lynskey 1997; Ellis, Bates, Dodge et al. 2003), that may further contribute to mental health disparities (Molina, Alegria, and Chen 2012). Analysis of data from the National Comorbidity Replication (NCS-R) revealed that childhood adversities related to parental mental illness, substance abuse, family violence, physical abuse, sexual abuse, and neglect were most strongly correlated with onset of mental illness, but that no particular factors within this grouping were more significant when considered individually (Green, McLaughlin, Berglund et al. 2010). One study examining the relationship between socioeconomic status, residential stability, and family disruption found that 3 or more moves (residential instability) or parental separation or divorce (family disruption) before the age of 7 increased risk of major depression independently of socioeconomic status, and that this effect was most pronounced for depression with onset by age 14 (Gilman et al. 2003). Furthermore, both residential instability and family disruption were associated with increased recurrence and lower likelihood of remission of major depression (Gilman et al. 2003). A substantial literature, moreover, has documented strong associations between being a single parent and risk for depression among minority mothers (Brown and Moran 1997; Wang 2004).

Given evidence of increased risk for childhood adversities and of mental health problems among children of parents with mental disorders (Weissman, Gammon, John et al. 1987; Goodman and Gotlib 1999), there is reason to suspect a link between family structures and disparities in children's mental health outcomes. In terms of fathering roles, data from the longitudinal National Child Development Study suggest that father involvement at the age of seven serves to protect against adolescent psychological distress in non-intact families (Flouri and Buchanan 2003). As an increasing number of U.S. families include unmarried parents, understanding

father involvement and co-parenting dynamics is particularly important (McHale, Waller, and Pearson 2012; Cabrera et al. 2007). Yet there has not been a comprehensive assessment of whether the effects of role constellations vary across racial and ethnic groups, although some evidence suggests that the adverse effects of disadvantaged role constellations differ by race and ethnicity (Cohen et al. 1992; Thomas, Farrell, and Barnes 1996). This is especially significant given that 67 percent of Black children and 42 percent of Latino children live in single-parent households, compared with only 25 percent of non-Latino whites, according to data from the 2012 American Community Survey (Kids Count Data Center, Children in Single-parent Families 2014). This suggests the importance of institutional supports to facilitate co-parenting to contend and reduce the opportunities for childhood adversity.

The Differential Role of Neighborhood-level Factors in Mental Health Outcomes by Race and Ethnicity

Consistent evidence shows that socio-ecological context is an important predictor of the prevalence and differential course of mental disorders (Dupéré, Leventhal, and Lacourse 2009; Mair, Roux, and Galea 2005; Xue et al. 2005). As ethnic minorities disproportionately reside in high-poverty, segregated neighborhoods with high levels of concentrated disadvantage (Casciano and Massey 2008; Williams and Collins 2001), understanding the contribution of neighborhood context as a mechanism for explaining disparities in mental health outcomes is particularly critical. Indeed, Williams argues that residential segregation is a central social determinant of racial and ethnic disparities in health outcomes (Williams and Jackson 2005). Research on such effects exists in the literature on health disparities involving physical disorders. For example, Morenoff et al. found that pronounced racial and ethnic disparities in adult hypertension became non-significant when adjusting for indicators of neighborhood context (e.g., economic disadvantage, affluence/gentrification, racial/ethnic composition, and age composition) (2007). The extent to which neighborhood context explains ethnic and racial disparities in mental health outcomes for children and adolescents is mostly unknown, but we do know that neighborhood context influences ethnic and racial inequities in education, access to formal and informal institutional structures, social norms, and exposure to

a variety of risk factors ranging from violence and crime to ambient noise (Sampson, Raudenbush, and Earls 1997; Sampson, Morenoff, and Gannon-Rowley 2002)—all of which are associated with mental disorders in children and adults.

Numerous ecological models of mental health have been proposed in an attempt to map out the relationship between social and environmental context and mental health, but most focus on several key areas. Gee and Payne-Sturges clearly outline three primary ways in which neighborhood context can affect health: (1) structural factors, such as tax incentives, zoning laws, and infrastructure investment; (2) psychosocial conditions such as social disorganization, crowding, discrimination, economic deprivation, and crime; and (3) neighborhood resources, which include factors such as the concentration of political power, social capital, and a sense of collective efficacy (the existence of mutual trust allowing for coordinated group action to solve a problem) (2004). Some of these factors can benefit minority communities and contribute to well-being of minority children (i.e. zoning laws that improve housing quality and enable greater access to space for recreation), while others may negatively impact health¹⁷ and mental health (i.e. negative psychosocial conditions). For example, discrimination related stressors such as federal and local immigration policies, extensive workers' rights abuses, and marginalization have been related to psychological distress (Negi 2013).

Research into the relationship between neighborhood context and mental health has revealed several potential mechanisms for mental health disparities. Dupéré et al. tested the relationship between neighborhood context, self-efficacy, and adolescent mental health among adolescents in Chicago and found that adolescents living in violent neighborhoods reported lower self-efficacy due to fear, and that this led to more internalizing behavior problems (Dupéré, Leventhal, and Vitaro 2012). Those adolescents who moved to less violent neighborhoods, however, showed greater self-efficacy and lower internalizing behavior problems. A similar social experiment studying the effects of living in low-income neighborhoods found that the mental health of low-income girls whose families were randomly provided housing in higher income neighborhoods was better than girls whose families remained in low-income neighborhoods (Osypuk, Tchetgen, Acevedo-Garcia et al. 2012). However, the mental health of boys whose families moved to higher income neighborhoods was worse than that of boys who remained in low-income neighborhoods (Osypuk, Tchetgen, Acevedo-Garcia et al. 2012). These gender-based

differences in outcomes suggest that minority males and females may be affected by neighborhood context in different ways, and also that neighborhood factors beyond income may be of equal importance in causing or preventing mental health problems.

Another recent study examined the relationship between household SES and neighborhood social conditions such as perceived safety, housing conditions, garbage and litter, vandalism, and behavioral problems like bullying, depression and detachment in children and adolescents (Singh and Ghandour 2012). The authors found that children and adolescents ages 6-17 in the worst neighborhoods had 1.9 times higher odds of serious behavioral problems as youth in better neighborhood, while those in poverty had 3.7 times higher odds than those who were not in poverty. Finally, children and adolescents whose parents had less than a high school education had 1.9 times higher odds of behavioral problems when compared with children and adolescents whose parents were more highly educated (Singh and Ghandour 2012). These findings indicate the effects of neighborhood and other contextual factors on the development of behavioral problems and possibly mental illness in children and adolescents (Singh and Ghandour 2012). The differential effect of neighborhood context by race and ethnicity, however, is almost completely unexplored.

Neighborhood violence has a range of negative consequences beyond the visible physical injury and destruction it causes in the short term. Exposure to neighborhood violence has been linked to symptoms of post-traumatic stress disorder (PTSD) in children and adolescents, as well as to externalizing symptoms and adoption of aggressive behaviors (Fowler et al. 2009). Exposure to violence, including peer victimization (Sullivan, Farrell, and Kliewer 2006; Kuntsche and Gmel 2004) and bullying, leave minority children and adolescents vulnerable to a range of negative mental health outcomes (e.g., suicide attempts, elevated rates of depressive and anxiety symptoms, substance use), even though blacks, Latinos, and Asian children tend to have similar or lower overall rates of mental illness than whites (Merikangas, He, Burstein et al. 2010). Our work (Molina, Alegria, and Chen 2012) examining the associations of neighborhood context with substance use disorders suggests a complex relationship in which context is associated with substance use disorders differentially according to individual race and ethnicity (Bécares, Nazroo, and Stafford 2009; Eschbach et al. 2004). Similarly, there is some evidence of the linkage between exposure to violence and youth substance

use (Ramos-Olazagasti et al. 2013; Vermeiren 2003). Differences in internalizing symptoms have been found to be influenced by both experiences of discrimination and exposure to violence in childhood and early adolescence (Olazagasti et al. 2013), suggesting that membership in a minority group with high exposure to violence represents a risk for internalizing symptoms in childhood and early adolescence.

Exposure to violence also has deeper and far-reaching consequences that affect social mobility and perpetuate violence and poverty for generations. For example, neighborhood violence is associated with statistically significant decreases in academic performance, which is closely tied to mental health outcomes. In a study of standardized test scores for third- through eighth-grade students in Maryland, higher violence neighborhoods had reading and math scores that were 4.2–8.7 percent lower than those in lower crime neighborhoods (Milam, Furr-Holden, and Leaf 2010). Another study of the association between neighborhood violence, academic performance, and “self care” (time spent outside of school without parental supervision) found that children with moderate to high levels of self care were more aggressive and had lower academic performance when they lived in high crime areas, but that this effect did not exist in low-crime neighborhoods (Lord and Mahoney 2007). The relationship between poverty, exposure to crime and violence, and academic performance becomes an even more pressing concern when one considers the degree to which early academic performance is predictive of later academic success. One study that tracked children’s reading abilities and overall academic performance over time found that 1 in 6 children who were not reading proficiently by third grade would not graduate from high school on time, and that 22 percent of children who grow up in poverty do not graduate from high school (Hernandez 2011). In a society that prizes educational achievement as the key to success, these results underscore the need for levers to encourage social mobility for children growing up in poverty, the majority of whom are children of color.

Nonetheless, social mobility is not exclusively an issue of poverty. Research shows that minority individuals are less upwardly mobile than whites with similar incomes, even at the lower end of the income distribution (Hardaway and McLoyd 2009; Isaacs and Trust 2007). And when blacks do join the middle class, their position is less secure because they often have to provide financial assistance to disadvantaged relatives and have less capital accumulated on both an individual and family level than whites (Hardaway and McLoyd 2009). Understanding the relative contribution of concentrated poverty, racial density, and other neighborhood contextual factors to mental health in children of color is an important research priority.

Protective Factors and Barriers to Mental Health Care

The Differential Role of Individual, Parental and Neighborhood-level Protective Factors in Mental Health Outcomes by Race and Ethnicity

Drawing on prior research, we identified several key protective factors found to reduce the risks for mental illness in ethnic and racial minority children and adolescents: a positive school environment (Bird et al. 2006), a good home environment (Bradley and Caldwell 1977), positive youth-parent interactions (Brody, Chen, Murry et al. 2006), high levels of social support (Friedman and Silver 2007), and positive peer interactions. Parental monitoring also protects children and decreases the likelihood of internalizing symptoms (Bird et al. 2006), while parent and child cultural stress, on the other hand, is associated with higher child internalizing symptoms. Social support has consistently been found to protect against anxiety and depression, although associations differ in important ways by gender and race and ethnicity (Cohen and Wills 1985; Holt and Espelage 2005; Thoits 2011). In fact, some scholars have connected childhood adversity with lack of social support, and theorize that this may lead to differences in mental health outcomes. One study comparing black and white adults found that greater childhood adversity helped explain worse health outcomes for black men relative to whites, and that this effect seemed to operate through the additional strain childhood adversity places on adult relationships (Umberson et al. 2014).

Religious involvement is also strongly associated with decreased depression, anxiety, and substance use (Koenig 2001; Smith, McCullough, and Poll 2003), with studies indicating that religiosity is a particularly complex

protective factor for minority populations, with varying forms of religious connectedness differentially associated with mental health outcomes (Ellison et al. 2009; Ellison and Flannely 2009). As protective factors that are found to effectively decrease disparities in mental health for racial and ethnic subpopulations can become pivotal points of intervention, testing these factors has the potential to make a particularly substantial contribution to eliminating negative mental health outcomes (Hogan, Linden, and Najarian 2002; Kawachi and Berkman 2001).

Differential Barriers to Mental Health Care by Race and Ethnicity

Research has identified mental health service disparities in African-American, Latino, and Asian-American children and adolescents (Austin and Wagner 2010; Cook, Barry, and Busch 2013). The vast majority of these minority children are reported as utilizing mental health services significantly less than non-Latino white children (Cummings and Druggs 2011; Guo et al. 2014); however, the lower utilization rate does not imply that African-American, Latino, and Asian-American children are less in need of these services. In fact, research suggests quite the opposite. In comparison to white children, some regional studies show that African-American children have higher rates of Attention Deficit Hyperactivity Disorder and Conduct Disorder (Coker, Elliot, Kanouse et al. 2009), while others evidence that Latino adolescents have higher rates of mood disorders (Merikangas, He, Burstein 2010) and that Asian American children have higher rates of internalizing symptoms (Huang et al. 2012). Despite these high rates, white youth ages 5-21 are reported as being more likely to initiate treatment for almost all mental health conditions (Cook, Barry, and Busch 2013). Unfortunately, even when

minority children and adolescents enter treatment, they continue to face obstacles that make it difficult for them to improve.

In a study that examined 1,485 adolescents with past-year major depressive episodes, only 34 percent were reported as receiving adequate mental health care. A significantly higher portion of those receiving adequate care identified as white (Alexandre 2010), revealing disparities in the *quality* of mental health care that minorities receive as well. These differences have been observed in a variety of diagnoses, including major depression (Cummings and Druss 2011; Alexandre et al. 2010), autism spectrum disorder (Mandell, Wiggins, Carpenter, et al. 2009), and a variety of other disorders (Merikangas, He, Burstein 2010; Coker, Elliot, Kanouse 2009). Given the obstacles that minority children and adolescents face, such as discrimination (Coker, Elliot, Kanouse 2009)¹²⁵ and cultural conflict (Lee, Juon, Martinez et al. 2009), there is an increased need for professionals to adequately recognize and treat mental health symptoms in minority children and adolescents. Unfortunately, for minority children, the lack of adequate care extends beyond the clinical environment to schools, where they are less likely to be recognized as needing mental health care and consequently less likely to be referred to mental health services than white children (Guo et al. 2014).

Disparities in use of both psychotherapeutic and psychopharmacological treatments also suggest that minority children and adolescents are less likely to receive adequate mental health treatment than white children and adolescents. In the child welfare system, for example, researchers found that African American children were less likely to have access to counseling services than non-Latino white children, and that both private insurance and lack of insurance were associated with lower access to care (Wells et al. 2009). Numerous studies have also documented lower use of pharmacotherapy for conditions such as ADHD and depression, as well as differences in prescription patterns that may indicate receipt of lower quality care by minority children and adolescents (Leslie et al. 2003).

Racial and ethnic disparities also exist in treatment for adolescent substance use disorders. Cummings et al. estimated racial and ethnic differences in adolescent treatment rates using data from the 2001–2008 National Survey on Drug Use and Health (NSDUH) and found that weighted treatment rates among adolescents with substance abuse disorders varied significantly by racial and ethnic group: 11.9 percent of whites received treatment compared with 23.5 percent of Native American and Pacific Islanders, 18.2 percent of Native Americans and Alaska

Natives, 15.6 percent of multiracial respondents, 11.0 percent of Asians, 9.8 percent of Latinos, and 8.4 percent of blacks. When adjusted for demographics and health status, data showed that blacks and Latinos were significantly less likely to receive any treatment for substance abuse (adjusted rates were 6.9 percent for blacks, 8.5 percent for Latinos, and 10.7 percent for whites). Adjustment for family income and health insurance status were factors that increased the risk differences for blacks and Latinos. One important predictor of substance abuse treatment was past year receipt of any mental health treatment. Adolescents who received mental health treatment were about 60 percent more likely to receive substance abuse treatment than those who did not receive any mental health treatment (Cummings, Wen, and Druss 2011), suggesting that initiation and receipt of mental health care can be an important link to other forms of care for minority adolescents in need of substance abuse treatment.

Many researchers have attempted to identify the reasons for such disparities in an effort to improve access to health care, with several studies indicating immigration as an influential factor. Foreign-born youth are less likely to utilize mental health services than those born in the U.S. (Avila and Bramlett 2013; Bridges et al. 2010); research has suggested that this may be the result of language barriers. For instance, several studies have indicated English-language proficiency as a determinant of mental health care utilization (Avila and Bramlett 2013; Le Meyer et al. 2009), and even when minorities choose to utilize mental health care, language proficiency has been shown to determine their continuation of such services (Aratani and Cooper 2012). Again, this suggests that the barriers children and their families face do not only pertain to accessing mental health care, but to their ability to navigate the care itself.

Family level factors can also create barriers in access to mental health services for minority children and adolescents. Mental illness stigma remains high in minority communities (Nadeem et al. 2007), possibly due to fear of the double stigma of being both a member of a marginalized racial or ethnic group and a person who is perceived to have a mental illness (Gary 2005). For children and adolescents, who are often dependent on caregivers to initiate and coordinate mental health services, access to care may be blocked by a parent or caregiver who disapproves of mental health care, even when other structural barriers may not be present (McKay et al. 1998). Additional barriers can also include lack of citizenship of a family member, shortage of mental health providers in the area, parental lack of recognition of psychiatric symptoms, different preferences, and expectations of care (Cristancho et al. 2008).

Moving Forward: Developing a New Research Agenda

In its 2009 report on youth mental health, the Institute of Medicine argued for a shift toward prioritizing prevention strategies to address mental health problems rather than continuing to react to mental health problems only after they develop (O’Connell, Boat, and Warner 2009). This shift in priority should be taken as an opportunity to deal with issues of equity in child and adolescent mental health by tailoring preventive interventions to minority populations and addressing structural inequalities that contribute to the development of mental health disparities at the individual, neighborhood, and organizational levels.

While much of the initiative to implement comprehensive policy changes must come from state, local, and federal government, it is up to researchers to develop, test, and disseminate new and effective responses to inequality. The next generation of mental health research on minority adolescents could address the diffuse but interconnected network of factors that combine to cause mental health and service disparities by taking an ecological and multilevel approach to the study of inequalities. However, the growing complexity of developmental research among minority populations must be matched by a push to deal with the methodological limitations of past inquiries, specifically by expanding the replication of study results and encouraging researchers to demonstrate the robustness of their findings using multiple statistical methods to reproduce findings both within and across studies (Duncan et al. 2014). Finally, researchers should focus on identifying previously neglected mechanisms of youth mental health inequalities while building an evidence-base for interventions targeting those mechanisms that have been more thoroughly studied. Below, we identify a number of areas that should be the focus of future research to prevent mental health inequality among children and youth.

1. Key periods of developmental risk and vulnerability:

Recent research has set out not only to understand what sorts of mechanisms lead to racial and ethnic disparities in child mental health, but also to identify the key points during childhood and adolescence during which the developing mind is particularly vulnerable to factors such as poverty and adversity. Increasingly, evidence shows that a broad range of factors, circumstances, and experiences—ranging from exposure to toxins and poor nutrition to maltreatment and abuse—during early childhood (0-5 years) can have important neurobiological consequences that affect later behavioral development (Shonkoff and Phillips 2000). As a result, many interventions have been targeted at reducing and eliminating the effects of disadvantage in early childhood by expanding access to early childhood education, improving prenatal and infant nutrition, or by helping low-income parents deal with the stress and challenge of having young children (Mistry, Minkovitz, Riley et al. 2012). Preliminary results of these types of interventions are promising, indicating that they have the potential to reduce the prevalence of behavioral health problems throughout childhood and adolescence and into adulthood.

Nonetheless, more research is needed to identify which other periods of development play an especially large role in mental health and which factors are more important at specific points in development. It can be assumed, for example, that cultural factors, self-perceived social status, and perception of racial and ethnic discrimination are increasingly important as a child ages, but there is little information about the age at which these factors usually begin to play a large role in a child’s sense of self and how they relate to mental health. More attention must also be paid to the mental health effects for minority youth of longer adolescence due to earlier onset of puberty and delayed entry into adulthood, which have both been linked to complex differences in mental health outcomes

(Copeland et al. 2010; Schulenberg, Sameroff, and Cicchetti 2004). This detailed knowledge would allow for targeted preventive efforts throughout childhood and adolescence that could be adapted based on a child's profile of risk and protective factors (Beal 2004).

2. Socioeconomic disparities:

While socioeconomic differences alone do not explain disparities, they are undoubtedly a significant factor leading to differences in health and mental health by race and ethnicity. We believe that it would be unfeasible to eliminate mental health disparities without first targeting social inequality in general (Farmer and Ferraro 2005). Nonetheless, there are potential mechanisms through which policymakers could improve the socioeconomic status of minority groups and low-income populations, such as Earned Income Tax Credits or Conditional Cash Transfer programs (Williams and Mohammed 2014). Earned Income Tax Credits provide low-income families with cash awards through the tax system and have been shown to improve health for low-income populations, and particularly for African-Americans (Hoynes, Miller, and Simon 2012). Conditional Cash Transfer programs incentivize specific behaviors such as health care use or education by linking cash payments to specific requirements and have demonstrated effectiveness in encouraging use of preventive health services in developing countries (Rawlings and Rubio 2005; Ranganathan and Lagarde 2012). Incentivizing preventive mental health care and screening for minority and low-income youth in the US could reduce racial and ethnic differences in likelihood of initiating care or detecting potential mental health problems, while also alleviating some of the stresses associated with poverty or low socioeconomic status. In the US, only one study has looked at the effectiveness of cash transfer programs; much more research is needed before large-scale implementation of such programs could be undertaken. Mental health researchers could examine the potential of these poverty reduction programs both as a means of incentivizing prevention programs for children and for the potential mental health benefits of poverty reduction on its own.

3. Addressing childhood adversities:

Reducing the effect of childhood adversities, such as exposures to abuse, family or community violence, and drug use, requires intervention at both family and community levels. One approach to preventing childhood adversities is the implementation of parent training programs, which teach parents effective parenting techniques (Barth 2009). Parent training programs can be tailored to parents of children with mental or behavioral problems, or to parents with substance abuse and mental health problems

or who have demonstrated aggressive tendencies. These programs could reduce child abuse and exposure to other potential traumas by teaching parents non-violent strategies for improving child behavior and dealing with anger, as well as strategies to limit child exposure to parental or community drug use and neighborhood violence (Barth 2009). A randomized study of a parent training program for a sample of mostly African-American foster parents of children with behavioral problems found that, over time, children of parents who had received training had significantly fewer behavioral problems than children in the control group (Leather et al. 2011). In order to implement training programs for parents of at-risk youth, researchers should more clearly identify which groups can benefit from such trainings, the ideal duration and type of training to provide, and how such initiatives could be implemented and administered on a large scale. Others have suggested that interventions with parents and other caregivers are best spent in building their own capacity to develop effective coping skills (e.g., problem solving, self-regulation) when faced with adversities (Shonkoff 2012) that can then be transmitted to children. Given research finding that disparities in exposure to stress and adversities begin prenatally (Lu and Chen 2004) and have a cumulative effect in early childhood (Shonkoff 2012), early intervention is critical.

4. Targeting family-level mechanisms for mental health disparities:

Williams identifies two model programs that can reduce the effect of family-level mechanisms for health and mental health problems by intervening early in the lives of at-risk children (Williams and Mohammed 2013). The first of these programs, the Nurse-Family Partnership, provides low-income mothers with nurse home visits during pregnancy and over the first several years of their child's life. Nurses encourage mothers to adopt healthy behaviors for themselves and their children, assist with connections to social services, and intervene to prevent child abuse and neglect. Three separate randomized trials of these interventions have shown that they improve both parent and child health, reduce rates of substance use and child abuse and neglect, and reduce the need for welfare and other social services (Olds 2006).

A somewhat neglected area of research into family-level mechanisms of mental health is father involvement in the raising of children. Given the high number of female-headed minority households, much existing research into parenting and child mental health among minorities has centered on the role of the mother, although evidence shows that father involvement predicts a number of positive psychosocial outcomes for children (Cabrera et

al. 2007; Sarkadi et al. 2008). Results of interventions to improve father involvement in fragile families, using Marriage and Relationship Education or Access and Visitation programs, showed improvements in parental cooperation, increased parent-child contact, and increased payment of child support among unmarried low-income parents (McHale, Waller, and Pearson 2012). Nonetheless, strategies to improve parental involvement among unmarried parents are still in the early stages of development, and much more work needs to be done to educate parents on the importance of both maternal and paternal involvement with children. Furthermore, McHale notes, researchers still need to evaluate: whether group or dyad-based interventions are more effective; how culture, race, and ethnicity alter the effectiveness of such programs; the importance of program-duration and child age; and how to integrate co-parenting interventions into other socioeconomic, academic, and neighborhood support programs (McHale, Waller, and Pearson 2012). Williams also recommends the adoption of preschool programs for low-income children between the ages of three and four (Williams and Mohammed 2013). He cites the example of the Perry Preschool Program, which provided children from a low-income housing project with two years of early childhood education. The children were tracked over the course of childhood and into adolescence and adulthood, with intervention recipients consistently showing better outcomes than controls. Intervention recipients had higher scores on childhood tests of educational achievement, reported lower rates of substance use, had fewer arrests, and had higher income and educational attainment as adults (Muennig et al. 2009). Numerous other studies have demonstrated the favorable long-term impacts of early childhood education for low-income and minority children (Burger 2010; Gormley et al. 2005), and widespread implementation of such programs should be considered as a potential tool not only in the fight against poverty, but also in efforts to address health disparities. Given the proven effectiveness of early childhood prevention programs targeting a broad range of factors, future research in this area should examine how early childhood interventions can be combined with later interventions to have a greater and longer lasting effect on the success and psychological well-being of minority youth.

5. Improving neighborhood conditions:

In addition to directly targeting mental health problems, community interventions to reduce disparities must work to improve the social, economic, and political conditions that contribute to widespread societal inequality (Wiggins 2011). Based on the understanding that residential segregation by race, ethnicity, and socioeconomic status has concentrated minority populations in neighborhoods

that tend to have fewer resources and poor educational and career opportunities (Williams and Collins 2001), there are two approaches to intervention that could reduce neighborhood-level factors that contribute to mental health disparities. First, programs such as the Moving to Opportunity intervention, which provide low-income families with housing vouchers, could give low-income minority families the chance to move to neighborhoods with more resources, better infrastructure, more competitive schools, increased job opportunities, and less community violence (Osypuk, Tchetgen, Acevedo Garcia et al. 2012). Moving to Opportunity demonstrated some success in improving career and educational prospects as well as some health and mental health outcomes (Osypuk, Tchetgen, Acevedo Garcia et al. 2012; Ludwig, Sanbonmatsu, Gennetian et al. 2011). Simply moving minority families out of segregated neighborhoods is not sufficient, however, and researchers must develop interventions to improve overall conditions in low-income minority neighborhoods. For example, investment in better quality housing for low-income neighborhoods through refurbishment and repairs, interventions to improve energy efficiency and heating systems, and construction of new housing have been shown to have a beneficial effect on health (Thomson et al. 2009). Combined with broader urban renewal projects that seek to improve environmental conditions, reduce pollution, provide parks and community spaces, and improve neighborhood layout, neighborhood housing interventions could dramatically improve overall quality of life in low-income minority neighborhoods and address some of the possible mechanisms of mental health disparities (Lindberg et al. 2010).

Researchers who have documented the link between neighborhood conditions, social capital, and mental health outcomes often suggest targeting neighborhood conditions as a means of reducing disparities (Kruger, Reischl, and Gee 2007), but concrete, evidence-based strategies for neighborhood improvement are lacking. The creation and testing of interventions to improve social, environmental, and institutional conditions in low-income minority neighborhoods should be a top priority for youth mental health researchers because of the large potential benefits of such interventions. In particular, researchers must identify ways to strengthen minority neighborhoods without making them vulnerable to the displacement and inequality caused by gentrification (Amaro 2014). Community based participatory research (CBPR) offers one research method for improving health outcomes, creating prevention infrastructure, and building a sense of collective efficacy by involving community members in the research process (Wallerstein and Duran 2006). At the

same time, however, it is often difficult to assess the effects of CBPR interventions on indirect outcomes such as mental health, so researchers must develop new methods for evaluating the potential of such programs in fighting health inequalities (Cook 2008; Wallerstein et al. 2008).

6. Reducing neighborhood violence:

Reducing neighborhood violence could reduce some of the mental health problems often associated with living in low-income neighborhoods. Robust initiatives, such as the Boston Gun Project and the recent Cincinnati Initiative to Reduce Violence, offer successful models for reducing neighborhood violence (Piehl, Kennedy, and Braga 2000; Engel et al. 2008). Both programs increase police presence and scrutiny of violent individuals and groups through intensive outreach programs that communicate program goals to community members. Focusing on violence prevention rather than on punishment, as well as effectively communicating their intentions to reduce violence rather than to disrupt daily life for neighborhood residents, were key elements of both programs (Kennedy, Braga, and Piehl 2001). Additionally, offering coordinated social services, including employment assistance, to individuals who had been involved in violence but who expressed a desire to change their behavior acted as a crucial incentive to break the cycle of poverty, joblessness, and violence afflicting many low-income neighborhoods (Engel et al. 2008). In particular, researchers should develop methods of reducing violence in minority neighborhoods that do not add to the already large number of incarcerated blacks and Latinos. While somewhat effective at reducing violence in the short term, mass incarceration may actually cause more violence by contributing to neighborhood instability and increasing the number of minority youth with incarcerated parents.

7. Expanding access to care and improving opportunities for minority youth in schools:

Given lower likelihood of initiating and having access to care among minority youth, school-based mental health services and interventions should be a key component of efforts to reduce disparities. Such programs can lead to rapid improvements in mental health, behavior and academic performance, and have been shown to be effective in identifying mental health problems as they develop (Atkins,

Frazier, Birman et al. 2006). Additional interventions could be targeted more specifically towards encouraging better behavior and academic success to address less direct mechanisms of mental health disparities. Reforms of school discipline using restorative justice approaches, which avoid punitive disciplinary practices and give students a chance to make amends with those affected by misbehavior, have been shown to reduce the disproportionate impact of school discipline on minority students (Losen, Martinez, and Okelola 2014). Addressing inequities in special education identification and service provision is another important target for reducing gaps in educational achievement and access (Skiba et al. 2006). The benefits of early and sustained intervention to improve mental health, academic performance, and opportunities for minority children are potentially quite large and could continue to confer protective effects on mental health well into adulthood by improving social mobility, educational attainment, and career success (Sawhill and Karpilow 2014). Schools have often been hostile and challenging environments for minority youth, due both to individual discrimination from other students and teachers, as well as the institutional racism that results in chronic underfunding of schools that serve minority populations. We must research new ways to construct positive school environments that engage minority students, build their trust in the school system, and avoid the disproportionate impact of harsh disciplinary policies on minority youth and their mental health.

8. Studying provider-side mechanisms of mental health disparities:

Research on adult experiences in mental health care suggests that provider biases and discrimination can contribute to the development of racial and ethnic disparities by reducing the quality of the patient-provider relationship and lowering the perceived and actual quality of care (Burgess, Fu, and Van Ryn 2004). Moreover, ethnic matching between patients and providers has been shown to improve trust and communication between patients and providers, and can even lead to better treatment outcomes in both physical and mental health care (Cooper et al. 2003). While research into ethnic and racial matching has not typically looked at interactions between minority youth and mental health providers, it is likely that cultural differences and both conscious and unconscious provider biases may affect quality of care for minority children (Huang et al. 2004). Some research has shown that minority youth are more likely to drop out of mental health care, but there has been less attention devoted to communication and provider-related factors affecting the mental health treatment of minority youth (Haan et al. 2014). This gap in the literature should be addressed to ensure that communication problems do not create yet another barrier to accessing mental health care.

Conclusion

Over the past decade, study of inequality in health and mental health has grown rapidly, with researchers seeking to quantify the extent of the problem, identify causal mechanisms, and develop interventions to eliminate specific disparities (Thomas et al. 2011). Even so, inequity persists, and in most areas of health care progress has been limited and incremental in nature. There is good reason to believe that a renewed focus on prevention of youth mental health problems among minorities could not only yield more rapid results, but could also drastically reduce overall inequality in the long-term. Much disparities research, including most of the studies cited in this manuscript, has involved the evaluation of brief interventions focused on a single mechanism of disparities such as parental involvement or neighborhood violence. To have a significant impact on mental health disparities

among children and adolescents, researchers must design and study interventions that improve conditions for minority children throughout childhood and adolescence and across the various environments in which they live. New interventions should combine proven methods to target the causes of mental health disparities in the social, economic, family, school, neighborhood, and health care contexts. While this type of multilevel intervention model is not entirely new, child mental health highlights the intersection of various forms of inequality—specifically because the developing mind is shaped by the different settings in which a child lives—and makes clear the need to attack inequity as a whole in order to eliminate its effects in any single sphere of life or health.

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