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SPECIAL SECTION ARTICLE

Resilience in the transition to adulthood

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Abstract

The emerging adulthood years, commonly defined as the late teens and twenties, represent a period of significant variability and change for much of the population. Thus, it is important for the field to consider pathways of at-risk youth as they move through this key window of development. We review research on positive outcomes in the transition to adulthood following a history of experienced adversity, including both investigations focused on resilience in diverse specific populations as well as broader longitudinal studies. There is compelling evidence for major protective and promotive factors identified in younger age periods continuing to exert an influence at this stage of development, along with evidence for new factors unique to this developmental time and/or to specific populations. We conclude by noting recommendations for future work in this area, emphasizing Garmezy's call for the testing of competing models.

Research on resilience seeks to explicate the pathways by which individuals experiencing significant adversity nonetheless demonstrate adequate or effective adaptation to the world (Luthar, 2006; Masten, 2001). As discussed decades ago by Garmezy (1977), resilience work presents numerous challenges, including but not limited to sample selection, comparison group selection, outcome and variable selection, and method of data analysis. Nonetheless, empirical and theoretical work on resilience has grown substantially in the past 30 years, with new developments in areas such as interaction of factors from multiple levels of analysis that include psychobiology and genetics (Cicchetti & Curtis, 2003) as well as the description of resilience as a systems concept closely related to "regulatory capital" across those levels (Masten, 2007, p. 926), growth that reflects the central importance of this construct to developmental psychopathology despite the very real challenges of empirical rigor.

At the same time, research interest in the transition to adulthood has accelerated in recent years, influenced by Arnett's (2000) theoretical orientation of emerging adulthood, which views the transition years, usually defined as between ages 18 and 30, as conceptually distinct from both adolescence and young adulthood. Although the theory of emerging adulthood does not necessarily apply to all youth or to all domains of functioning, it offers a useful broad perspective on the challenges and opportunities facing many of today's young people by emphasizing the demographic variability in outcomes for youth in this age period (Cohen, Kasen, Chen, Hartmark, & Gordon, 2003). In terms of specific outcomes, the present paper is also influenced by a developmental tasks perspective (Havighurst, 1972; Masten & Coatsworth, 1998) in which age-graded societal markers of competence such as social competence, school achievement, stable employment, presence of romantic relationships, and parenting are strong foci of investigation (see Burt & Masten, 2010; Masten, 2001).

Combining the research and theory above leads to consideration of resilience in the transition to adulthood. The primary goal of the present paper is to take stock of this domain of inquiry by identifying common conclusions and suggesting directions for future work. Our focus is youth who are judged "at risk" to some degree, and who are facing or have recently faced the transition to independent adult living. Attention is given to both the continuity of resilience over time, where data are available, as well as the factors influencing changes in status across the transition to adulthood. Where possible, we follow Sameroff's (1999) distinction between protective and promotive factors, with the former referring to effects specific to a high-risk group and the latter referring to main effects observable in high- and low-risk groups (see also Rutter, 1985). This distinction is also related to Masten's (2001) juxtaposition of compensatory versus buffering effects.

Empirical studies providing data on this topic generally fall into two broad categories with somewhat fuzzy boundaries: (a) long-term longitudinal investigations of youth who are followed across this transition period, at least some of whom have experienced documented adversity; and (b) more focused, often cross-sectional or short-term longitudinal investigations of particular at-risk populations, such as youth transitioning out of foster care placement into indepen-

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dent living. Although there is considerable methodological variability across studies both within and across these two broad groupings, we aim to pull common themes and findings from this wide-ranging literature. First, however, we consider some theoretical points from recent publications on the topic of resilience as well as normative research on emerging adulthood.

Theoretical, Developmental, and Descriptive Considerations

Broad challenges of resilience research

One of the more formidable challenges facing resilience researchers is the breadth of phenomena that can be grouped under the topic. The heterogeneity of outcomes and measures collectively employed to study resilience has led some authors to recommend abandoning the term (e.g., Kaplan, 1999; Tarter & Vanyukov, 1999), judging that "resilience" has limited scientific advantage beyond drawing attention to outcomes that are more positive than expected. Although these criticisms are useful in articulating many of the conceptual and methodological challenges facing resilience researchers, others have countered that the term itself has considerable continued utility (e.g., Luthar, Cicchetti, & Becker, 2000). In some ways, the arguments of Kaplan (1999) and Tarter and Vanyukov (1999) anticipate part of the MacArthur mediation/moderation approach of Kraemer, Stice, Kazdin, Offord, and Kupfer (2001) that was developed for discrete psychiatric disorders, but they could also be applied to the study of protective factors and resilience. In other words, it is important for the field to be able to distinguish between "protective" *and* "promotive" factors that operate independently, versus those that are proxies for other factors, versus those that mediate or moderate the effects of other factors. Needless to say, this type of categorization may vary by outcome. Underlying this theoretical research is the important practical concern of prioritizing factors that are malleable and responsive to prevention or intervention efforts (Luthar & Brown, 2007).

It is noteworthy that authors on several sides of the "resilience terminology" debate have tended to recommend similar research strategies for the future, such as more detailed consideration of developmental context and consideration of gene–environment interaction effects as well as cultural variation. These challenges can themselves be broadly grouped as ways to bring the largely outcome-centered research in resilience further into alignment with the process-oriented nature of much theorizing in this area (Rutter, 2007). Unfortunately, relatively little of the research on resilience *in the transition to adulthood* has directly tackled these topics (see Luecken & Gress, 2010, for related discussion). No doubt, this is partly attributable to the complexities and difficulties inherent in such research. For example, Ungar et al. (2008) discuss how the challenges in conceptualizing and measuring resilience are magnified when attempting to apply construct validation techniques cross-culturally.

One mechanism by which to reduce the breadth of phenomena grouped under the term *resilience* is through stricter definitions of what constitutes "significant" adversity; another is to treat different outcome domains separately. For example, Vanderbilt-Adriance and Shaw (2008) have documented that "global resilience" (i.e., doing reasonably well across many key domains of functioning) is quite rare in very high risk samples such as ethnic minority youth living in extreme poverty in the United States, who are typically exposed to a variety of significant stressors (e.g., high levels of community violence) and have fewer protective factors (Luthar & Goldstein, 2004). Vanderbilt-Adriance and Shaw (2008) recommend a reframing of resilience for specific outcomes, so that researchers refer to constructs such as "educational resilience," representing better than expected academic achievement given one's risk profile. However, this stance conflicts with defining resilience as a broad pattern of successful adaptation.

Two potentially related bodies of work not covered in the present review due to space considerations are studies including "resilience questionnaires" such as the Connor–Davidson Resilience Scale (Connor & Davidson, 2003) and work on the personality trait of hardiness (e.g., Kobasa, 1979; Maddi, 2002). Despite similar terminology and a degree of shared theoretical background, it is unclear to what extent the body of research using resilience questionnaires maps onto the broad developmental psychopathology literature on resilience. To our knowledge, this issue has not been given much explicit attention, perhaps because the most common resilience questionnaires tend to be employed with adult samples, often psychiatric or medical clinic samples, rather than youth. In addition, their item content focuses primarily on cognitive aspects of self-concept (for one review of resilience questionnaires, see Windle, Bennett, & Noyes, 2011). Likewise, although the hardiness personality literature has points of contact with the literature reviewed below, it derives from personality and management research and has a strong emphasis on cognitive style (for a review of this area, see Maddi, 2002), making it a somewhat narrower construct. Many judgments of resilience are deemed to require information from multiple informants over multiple domains over time (Burt & Masten, 2010), which may limit connectivity with these other programs of research. As interest grows in resilience across the transition to adulthood, however, links with both of these bodies of work should be revisited in more detail. For example, one of the key domains of hardiness is commitment to other people (Maddi, 2002), which echoes some of the well-known relational aspects of youth resilience.

Emerging adult development: Theory and descriptive psychopathology

Arnett's (2000) conception of emerging adulthood as a distinct developmental stage has served to heighten research attention on the transition years between adolescence and adulthood, although cultural variability in defining "adulthood" has been a challenge to theorists in this area. Of note, impor-

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tant aspects of brain development continue into and through the young adult years, including myelination of areas in the prefrontal cortex (Giedd et al., 1999). Paralleling these developmental changes are increased skills in the area of executive functioning (Zelazo & Bauer, in press). In one framework, executive functioning itself can be divided into cognitive flexibility, inhibitory control, and working memory (Miyake, Friedman, Emerson, Witzki, & Howerter, 2000) and is considered distinct from the orienting and alerting attention networks (Raz & Buhle, 2006). This framework has value for our purposes in that cognitive flexibility and inhibitory control are of particular relevance for the key developmental task expectations of emerging adulthood, which include controlling one's behavior in service of rules or obligations of society and making appropriate decisions for long-term stability and success (Burt & Masten, 2010).

Of course, work specifying greater precision in brain and cognitive functioning should also be viewed in light of calls to integrate study of structural and functional brain development with the changing *contexts* of adolescence and emerging adulthood adaptation (e.g., Dahl, 2004; Steinberg et al., 2006). For example, dramatic differences in late adolescent decision making have been demonstrated depending on the presence and behavior of peers (Dahl, 2004), and a disconnect between average cognitive ability and average psychosocial maturity is one of the hallmarks of the early emerging adult years (Steinberg, Cauffman, Woolard, Graham, & Banich, 2009). It is likely that the dramatic increases in cognitive flexibility seen in this period are related to the ability of some at-risk youth to take advantage of new, more positive developmental contexts, and thereby be classified as resilient, although surprisingly little data exist to directly test this assertion.

In terms of descriptive trends of psychopathology, the emerging adulthood years are a unique mix of positive and negative trends. On the one hand, this developmental period represents peak onset of some serious mental illnesses such as schizophrenia, along with sustained elevation in rates of mood disorders, especially among females, continuing from adolescence (Hankin & Abramson, 2001). Rates of substance use disorders also peak during this period (Masten, Faden, Zucker, & Spear, 2008). On the other hand, population trends of aggression and delinquency are on the decline, excepting a small group of persistent offenders (Schulenberg & Zarrett, 2006). In many ways, emerging adults are at the height of their physical and cognitive powers, although they remain vulnerable to problems of impulsive and sensation-seeking behavior that begin in early adolescence (Dahl, 2004). However, these normative trends can mask striking variability in adaptation among youth.

In their discussion of resilience in the transition to adulthood, Masten, Burt, and Coatsworth (2006) present a theoretical conceptualization of the qualities leading to success in this period despite a history of adversity. Although not a detailed process model, their description serves as a reminder of the complexity of forces that are involved for at-risk youth during this particular developmental period. In particular, it highlights the combination of (a) executive functioning capacities that increase in this window, (b) motivational aspects such as self-efficacy, and (c) the presence of appropriate opportunities such as mentors or positive school/work contexts. Of course, much work remains to be done in translating this broad conceptual model into testable and falsifiable hypotheses.

Although no individual study is able to assess the entire range of individual characteristics and outer contexts that are relevant to resilience in this age period, an increasing number of reports have appeared shedding light on pieces of the puzzle. We will now review in more detail selected empirical publications connected to resilience in the transition to adulthood; we return to conceptual and methodological issues for future work in our conclusion.

Key Longitudinal Investigations Including the Transition to Adulthood

Several pioneering large-scale studies have followed participants from childhood or adolescence through the transition to adulthood, using multiple informants and measures and tapping into constructs relevant to resilience, such as stress, coping, and competence. The list below is far from exhaustive, but includes many of the more intensive and/or large-scale studies in this area from which investigators have looked at questions central to resilience in this developmental period. For each study, we focus on only a subset of empirical findings. As noted by Garmezy (1977), the challenges of long-term longitudinal research on resilience are varied, including the substantial "latency period" for many major mental illnesses from point of first risk marker as well as the evolution of assessment methods and other empirical techniques within the span of a single investigation.

Kauai Longitudinal Study

The Kauai Longitudinal Study is a 40-year investigation of several hundred individuals making up the entire birth cohort of the Hawaiian island of Kauai for 1955 (Werner & Smith, 1982, 1991, 2001). Initial reports from this study have documented some of the individual (e.g., easygoing temperament, higher IQ) and family factors (e.g., positive parenting) that differentiate high-risk youth who succeed in adolescence from those who have more serious problems (Werner & Smith, 1982). Further follow-up study demonstrated first that the large majority of participants classified as "resilient" in adolescence maintained that classification into adulthood. At the same time, resilient participants were not problem free, as they showed higher levels of somatic and physical problems than individuals who had experienced less adversity.

Of interest for the current review, however, Werner and Smith (1992) document the importance of so-called "second chance" opportunities crucial for those youth experiencing several risk factors and problematic outcomes throughout childhood, who nonetheless were able to turn their lives in a more positive direction during and after the transition to

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adulthood. Generally speaking, these opportunities tended to derive either from changes in relationships, such as marriage to a prosocial partner or, in some contexts, the birth of a child, or from fairly dramatic changes in living context, such as attending postsecondary education and/or establishing a stable career (Werner & Smith, 1991). Of course, the ability to take advantage of (and in some cases, to create) these opportunities is itself a construct that is connected to conceptual and theoretical discussions of resilience. Finally, resilient participants (who by definition experienced high levels of family-related adversity when growing up) often reported having to balance separation from dysfunctional family contexts with acceptance and maintenance of ongoing relationships with their families of origin where feasible.

Project Competence

Project Competence is a 20-year longitudinal study of a normative Minnesota cohort ($N = 205$) originally assessed in middle childhood (for further study details, philosophy, and history see Garmezy, Masten, & Tellegen, 1984; Masten et al., 1995, 1999; Masten & Tellegen, 2012), which has drawn attention to the importance of assessing multiple domains of functioning (e.g., academics, social relationships, rule-abiding conduct, civic engagement), often with multiple informants and measures, as well as use of detailed life history information to assess experienced adversity. The second, third, and fourth waves of Project Competence occurred when participants were approximately ages 17, 20, and 30, allowing study of factors (concurrent and predictive) related to resilience in the transition to adulthood in this unique sample.

The report by Masten et al. (2004) describes the intersection of competence and adversity across the transition to adulthood in greatest detail. This study included both variable- and person-centered analytic approaches. In the latter, involving detailed examination of individual patterns of functioning, participants were classified as resilient (high competence + high adversity), competent (high competence + low adversity) and maladaptive (low competence + high adversity) during and after the transition to adulthood. In brief, although classification into resilient versus maladaptive status was relatively stable over time, change was predictable through constructs assessed during the transition to adulthood including interviewer ratings of youth's planfulness, autonomy, and the presence of a supportive adult outside of the immediate family. Looking at specific outcomes across the entire sample from a continuous variable-oriented perspective, being rated as planful was particularly relevant for academic competence (controlling for prior academics and IQ), autonomy ratings were relevant for romantic competence (see also Roisman, Masten, Coatsworth, & Tellegen, 2004), and work competence was best modeled by shared variance across the predictors. Overall, Project Competence data support constructs of planfulness, autonomy, and adult support as being central protective factors across the transition to adulthood (Burt & Masten, 2010).

Dunedin Health and Development Study

As with other studies reviewed in this section, the Dunedin Health and Development Study, a birth cohort in New Zealand with approximately 1,000 participants followed from birth to adulthood, is a broad investigation of development, personality, relationships, and psychopathology. Because of the comprehensive nature of the sample and the intensive follow-up design, reports from this study have long been central to resilience work, for example, in establishing cognitive ability as a key protective factor for youth at risk for delinquency (White, Moffitt, & Silva, 1989). In addition, recent work from this sample has highlighted the pervasive influence of childhood behavioral and emotional self-control in predicting a host of mental and physical health outcomes in young adulthood, a promotive factor that holds across several risk categories (Moffitt et al., 2011).

In terms of at-risk youth transitioning to adulthood, a major report from the Dunedin study focused on the distinction between life-course persistent and adolescence-limited juvenile delinquency (e.g., Moffitt, 1993), following up male study participants at age 26 who had been classified by childhood/adolescence into either the two groups above or two additional groups representing the remaining cells formed by crossing time point (childhood vs. adolescence) and status (delinquent vs. not delinquent; Moffitt, Caspi, Harrington, & Milne, 2002). Somewhat unfortunately, the results of this study suggested strong continuity, with chronically antisocial youth continuing to show significant adjustment problems in young adulthood, including arrests, substance abuse, and domestic violence. Those youth earlier labeled as "recoveries" (antisocial in childhood but not adolescence) showed high levels of internalizing problems in adulthood as well as intermittent continuing antisocial behavior in some cases, suggesting that their earlier "desistance" may have been more the result of being socially isolated from peers who are crucial contexts for adolescent delinquent behavior (Moffitt et al., 2002). Thus, although initially considered a resilient group when looking specifically at conduct problems, a broader picture reveals them to show significant problems in living.

The authors note that their results are not necessarily inconsistent with other delinquency research illustrating the powerful effect of positive marriages and other close relationships for "resilience" in antisocial males (e.g., turning points theory; Laub & Sampson, 2003; Sampson & Laub, 1993). However, in the Dunedin sample it was rare for antisocial men to maintain relationships with prosocial women (Moffitt et al., 2002), consistent with more general evidence for assortative mating (see also Simons, Stewart, Gordon, Conger, & Elder, 2002, discussed below).

Minnesota Longitudinal Study of Risk and Adaptation (MSRA)

The MSRA is a 30-year longitudinal study of approximately 180 youth at developmental risk due to poverty, with compre-

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hensive assessments starting prenatally and continuing frequently into adulthood. For our purposes, this study highlights some of the relational factors that predict positive outcomes in the transition to adulthood for a sample that has a higher than average general risk profile. More specifically, various MSRA romantic relationship outcomes in young adulthood have been shown to be either *additively* and/or *interactively* predicted by early attachment history and social competence in middle childhood (Sroufe, Egeland, Carlson, & Collins, 2005). Middle childhood social competence was also a strong predictor of work outcomes during the transition to adulthood (Collins & van Dulmen, 2006). Regarding academic outcomes, Sroufe et al. (2005) note that MSRA participants who dropped out of high school were much less likely to name (retrospectively at age 19) a teacher who took a special or particular interest in them. Overall, MSRA results support an organizational perspective on development (Sroufe, 1979) in which successful negotiation of challenges at each age period can set the stage for future success, even in at-risk youth.

Iowa Youth and Families Project (IYFP)

The IYFP has followed 451 two-parent families in north central Iowa subsequent to the farm crises of the 1980s, beginning assessment when children were in seventh grade and continuing through adolescence and adulthood (Elder & Conger, 2000). This work has been informed by theoretical work on life course models of development, from which close attention is paid to the timing and broader historical/societal context of major life events and transitions (Elder & Shanahan, 2006), with early work contributing to the knowledge that positive and effective parenting serves as an important protective process for child adjustment in families experiencing economic distress and marital conflict (Conger, Ge, Elder, Lorenz, & Simons, 1994).

A major report from the IYFP on resilience in this sample continues this work by noting the continuing importance of effective parenting and parent–adolescent relationships for the transition to adulthood years, with parenting assessed using coded structured observations (Conger & Conger, 2002). In particular, IYFP data have shown strong links from nurturant and involved parenting in adolescence to high-quality romantic relationships in young adulthood, associations mediated by participants showing warm and nonhostile behavior toward their romantic partners during observation (Conger, Cui, Bryant, & Elder, 2000). Recent IYFP analyses have also highlighted influences from parental support to support from a extrafamilial partner, either a romantic partner or a close friend, which in turn is associated with changes in one's sense of mastery through the transition to adulthood (Surjadi, Lorenz, Wickrama, & Conger, 2011). Finally, Donnellan, Conger, McAdams, and Neppl (2009) have expanded the IYFP conceptual model to include personal characteristics such as conscientiousness, with evidence for promotive or compensatory effects on adult economic stress (controlling for childhood economic stress). Although these findings are unqualified by familial risk level, it should be noted that the IYFP sample has experienced higher than usual levels of stress, particularly economic stress, compared with population-based studies from the United States.

Add Health

The National Longitudinal Study of Adolescent Health, commonly referred to as Add Health, is a nationally representative sample of approximately 20,000 US adolescents first sampled in Grades 7–12 with three follow-up assessments extending into young adulthood (Bearman, Jones, & Udry, 1997). Recent Add Health research examining community and familial factors predictive of the transition to adulthood has shown evidence for both main effect and interactive models for the influence of these factors (Wickrama & Noh, 2010). Specifically, results suggested that community poverty/adversity as well as parental rejection exerted largely independent (negative) effects on subsequent educational attainment, with some evidence for parental education and parental marital stability as moderating factors. However, parental education and parental marital stability were markedly less protective under conditions of severe community adversity (economic deprivation and violence; see also Vanderbilt-Adriance & Shaw, 2008). In addition, this work clearly supports the deleterious consequences associated with early entry into adult roles, such as teenage pregnancy and school dropout, that have been previously demonstrated with other longitudinal data sets such as the IYFP (Wickrama, Conger, Lorenz, & Jung, 2008). Such early entry mediated links from earlier community and family adversity to adult education and depressive symptoms, affirming that high-risk youth who are able to maintain schooling and delay pregnancy or parenthood show better outcomes through the transition to adulthood.

Christchurch Health and Development Study (CHDS)

The CHDS is a 30-year longitudinal study of a birth cohort of approximately 1,200 individuals in greater Christchurch, New Zealand, with particular focus on physical and mental health outcomes. A recent CHDS report describes extensive analysis of childhood personality and family variables as they relate to socioeconomic adversity and behavioral/emotional problems in young adulthood (ages 18–21; Fergusson & Horwood, 2003). In general, this data set has found strong evidence for main effect models of young adult outcomes, in which personality-based (novelty-seeking, neuroticism) and family (strong attachment to caregivers) predictors work to "counteract" high levels of adversity in an additive manner rather than in statistical interactions. Additional work from the CHDS suggests that taking into account social and contextual factors surrounding physical abuse reduces, but does not eliminate, the estimated negative effects on adjustment in emerging adulthood (Fergusson & Lynskey, 1997).

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Other selected longitudinal investigations

As noted, the studies reviewed above represent only one set of longitudinal research projects that span the transition to adulthood. However, other well-known longitudinal studies have presented data that are especially relevant to the current review, in some cases even though assessments either were not made specifically during the emerging adult years or included a narrower range of outcomes. For example, a recent report (Collishaw et al., 2007) from the well-known Isle of Wight study (Rutter, Tizard, & Whitmore, 1970) discusses resilience to childhood maltreatment, based on assessments conducted in adolescence and then when participants were in their mid-40s. Collishaw et al. (2007) note that adults who functioned well (long-term absence of psychiatric disorder) despite a history of serious abuse showed evidence for low neuroticism as well as positive relationships with peers in both adolescence and adulthood. In addition, relationship factors continued to predict resilient status in middle adulthood controlling for characteristics related to severity of prior abuse.

Gutman and Sameroff (2004) report data from the Philadelphia Family Management Study, with assessments bridging adolescence and emerging adulthood and a specific focus on depressive symptoms. As with several of the studies described above, there was a particular attention to the interaction of multiple contexts (family functioning, peers, neighborhood) in development. The authors found evidence for several effects that differed by gender, with female participants broadly "protected" by closeness to family in emerging adulthood and male participants broadly "protected" by greater autonomy in adolescence; peers influenced the development of depressive symptoms in both genders. The question of gender differences in processes of resilience is important, and needs to be differentiated from mean-level gender differences on competence outcomes; in this vein, differential effects by gender found by Gutman and Sameroff (2004) may also be related to their focus on depressive symptoms as a primary outcome.

Summary of longitudinal investigations

What is perhaps most striking, looking across the set of unique longitudinal data sets reviewed above, is the general importance of *relationships* in the functioning of individuals judged resilient in young adulthood. Although this has been long recognized in resilience work (e.g., Luthar & Zelazo, 2003, and citations within), both the legacy of prior relationships as well as the concurrent effects of new and enduring relationships are striking. Emerging adults, by definition, are transitioning out of their families of origin while still maintaining connections to them. They are establishing new adult friendships while maintaining peer connections from adolescence, and they are moving into close romantic relationships, as the contexts of work and romance become more salient (Roisman et al., 2004). The studies above that have assessed ongoing family functioning, peer relationships, connections to teachers and other supportive adults, and prosocial romantic partners show that each of these relational contexts, sometimes in interaction with each other and other key factors such as cognitive ability, planfulness, and self-control, are longitudinally predictive of a more successful transition. At the same time, it should be noted that a given study, always with limited resources, can only detect protective or promotive factors from among those chosen for measurement. Relatively few longitudinal studies have included biological or specific neurocognitive influences that might moderate adjustment during this transition, so less information can be gleaned about those levels of analysis.

Studies of Specific Risk Populations

Although not always explicitly framed by a resilience-research perspective, studies of specific risk populations whose members are making or have recently made the transition to adulthood are of great relevance to the present review. In this section, we describe selected research on youth aging out of foster care, youth with chronic medical conditions, and other discrete studies of specific risk categories and how they impact this developmental transition. It is not surprising that there is substantial variability in the methods, samples, and time frames employed in the studies below. Length considerations restrict our discussion to only selected studies within each category.

Youth aging out of the foster care system

Researchers, practitioners, and policymakers have generated interest in the emerging adulthood outcomes of youth who at some point have entered into the foster care system. It is important to stress that length of placement, type of placement (i.e., extended family care, nonrelative care, institutional care), and total number of placements vary greatly across foster youth, and themselves likely covary with earlier predictors of interest, such as severity of emotional and behavioral problems. In addition, legal strictures guiding when youth leave the foster care system and provision of transitional services vary widely. Thus, one must be cautious when integrating conclusions across studies.

Although reasons for foster placement also vary, this population is frequently judged to have experienced some form of abuse and/or neglect, which would qualify as significant adversity under most definitions of the term. Evidence supports that, in aggregate, the emerging adult outcomes of foster youth are concerning on a number of metrics (Courtney & Heuring, 2005). In addition, some of the risk markers predicting abuse and neglect, such as low socioeconomic status (SES), likely continue to impact youth in other ways through the transition (Daining & DePanfilis, 2007), especially given that most middle- and upper-class American families provide extensive formal and informal supports to emerging adults through this transition, supports that are less available for foster youth (Settersten, Furstenberg, & Rumbaut, 2005). Of

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course, the practical challenges of conducting methodologically rigorous outcome research on this population are formidable. In particular, many studies of former foster care youth lack comparison groups, assess subsequent outcomes at a single time point, and collect primarily self-report data. Others use qualitative methods that require care in integrating with extant work. Nonetheless, the unique characteristics of this population make their focused study of importance for studying potential factors predictive of resilience in the transition to adulthood.

An unresolved question in this area is what constitutes "resilience" in the population of emerging adults who are aging out of the foster care system. Some studies have focused on one specific developmental task: attending college. Given the societal weight placed on an undergraduate degree, and the well-documented continuing increased average earnings for college graduates relative to nongraduates (US Department of Education, 2011), this seems a reasonable starting point. Hines, Merdinger, and Wyatt (2005) conducted in-depth qualitative interviews with 14 former foster youth attending a 4-year university and found that these youth consistently showed clear intellectual ability, the ability to draw support from others, connection to positive adult figures such as teachers or mentors, and some form of internal locus of control coupled with a strong goal orientation. Although this study did not employ a comparison group, the list of qualities just described is striking in its general consistency with the factors identified in Project Competence (Masten et al., 2004) and other longitudinal studies cited above. Hines et al. (2005) stress the multilevel nature of factors potentially related to resilience for this group (individual/family/societal) and the presence of continued problems (e.g., anxiety, depression) despite attaining the educational competence marker of college, which also echoes large-scale longitudinal findings (e.g., Moffitt et al., 2002).

Hass and Graydon (2009) also interviewed a sample of former foster care youth with educational success (either completing a postsecondary degree or achieving junior standing at a 4-year institution). Although lacking a comparison group, this study documented similar themes in terms of predicting success: the youth interviewed by Hass and Graydon showed planfulness, a sense of purpose, and self-confidence, and commonly mentioned social support from extended family, counselors, teachers, or mentors as being crucial in their ability to attend college. However, Hass and Graydon (2009) also note that their sample seemed to have less than average levels of some common risk factors seen in the foster care population, such as mental illness, special education status, and criminal justice involvement, making comparison work crucial in future research. In other words, it is reasonable to expect that former foster youth attending college are reliably differentiated from those not attending college by earlier risk and protective factors, and the comparative influence of these factors versus emerging adulthood variables remains to be delineated. The larger Pathways to College study conducted by Merdinger, Hines, Osterling, and Wyatt (2005) echoes these themes, noting both that former foster youth attending college can experience higher rates of other problems (e.g., unstable housing, difficulties with health care, mental health concerns) as well as the importance of support programs in helping these youth attend higher education.

Another strategy in this area of research is to look at continuous variability in broader outcomes, analogous to a cumulative risk gradient (Masten & Reed, 2002). Daining and DePanfilis (2007) adopt this approach, creating a "resilience score" (including educational attainment, employment history, avoiding early parenthood, stable housing, and avoiding drug use and criminality) using computer-administered interviews of 100 former foster youth ages 18–21. In brief, results showed that female gender, older age, less perceived life stress, higher perceived social support from family and friends, and higher spirituality all predicted more positive scores on their outcome index. The finding that female gender predicts resilience in this population has been noted by others (e.g., Stein, 2006), but it remains important to ensure domains where females are at greater overall risk (e.g., depression, other internalizing problems, relational aggression) are comprehensively assessed in future research, as some of the key outcomes in this literature include areas where males tend to be overrepresented, such as criminality and substance use disorders. It should also be noted that some protective factors are specific to this population; for example, delaying the timing of leaving care is related to more positive outcomes for some youth (Wade & Dixon, 2006).

Yates and Grey (2012) report a methodologically rigorous study of emancipated foster youth; using latent profile analysis, they explore the variability in outcomes seen among a sample of approximately 150 former foster youth. In brief, their results suggest a need to clearly delineate between success in external adaptation (competence as observed by others) and success in internal adaptation (freedom from depression and anxiety, high self-esteem and self-worth). In addition, their study suggests a key role for the personality construct of ego resiliency (the ability to flexibly deploy one's cognitive and emotional resources depending on the situation; Block & Block, 1980) in differentiating the subset of youth who maintained positive adaptation on both external and internal indicators. It was somewhat surprising that the resilient youth in Yates and Grey (2012) were not differentiated from other groups by characteristics related to placement. However, this encourages confidence that their groups represent comparable levels of experienced adversity.

Finally, some research has focused in more depth on mentors as potential protective factors for youth transitioning from the foster care system. Osterling and Hines (2006) report results from a mixed-methods study of a successful mentoring program for mid- to late adolescents in the system, with focus on information and services related to independent living. Although they document positive effects of the mentoring program, they also show important selection factors, such that youth with a history of experienced abuse were less likely to have mentors continue with the program. Qualitative interview information suggests that mentors and youth were often

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disappointed with available support services, and it was not surprising that mentors emphasized the importance of forming the mentoring relationship as soon as possible (i.e., in early rather than late adolescence) and maintaining it for the most beneficial effect.

Overall, research on the experiences of youth transitioning out of the foster care system is still in the early stages, in some ways paralleling earlier work on resilience more generally, where one of the first tasks is reliably documenting that some youth from adverse backgrounds fare better than expected. This has now been done, and the challenges for future work in this area parallel some of the challenges for broader resilience work, such as isolating key malleable protective factors and examining mediators and moderators of the protective factor–outcome relationship. There is a great need for longitudinal, multiple-informant studies of foster care youth that either representatively sample youth transitioning out of care or include one or more comparison groups. There is also some disagreement over what might constitute a resilient outcome for this population, and clear need to attend to the distinction between external and internal adaptation (Yates & Grey, 2012). Nonetheless, the evidence reviewed above is quite consistent with the broader resilience literature (e.g., Masten et al., 2004) in emphasizing positive connections with supportive adults, personality characteristics such as planfulness and intrinsic motivation, and cognitive skills as some of the key factors fostering positive adjustment in these at-risk youth.

Youth with a history of chronic physical or mental illness

Increased attention is being paid in the pediatric psychology and general medical literature to the psychosocial consequences of vastly increased survival rates for serious pediatric illnesses such as cancer, spina bifida (SB), and cystic fibrosis (CF). This welcome survival trend is likely to increase in the near future with further advances in treatment and care, but it is important to note that youth and emerging adults with serious medical conditions can face great challenges in establishing independence, autonomy, and adult identity. Much work on psychosocial adjustment to chronic illness in youth focuses, appropriately, on middle childhood and adolescence, but more studies are appearing related to the emerging adulthood years. This work is clearly relevant to resilience, given that the medical conditions above are widely agreed to represent significant adversity in their own right.

A sophisticated example of research in this area is provided by Zukerman, DeVine, and Holmbeck (2011), who have followed youth with SB and demographically matched controls from middle childhood (Holmbeck et al., 1997) into emerging adulthood. Because Zukerman et al. (2011) conceptualize their study in terms of Bronfenbrenner's (1979) ecological model, their theoretical perspective connects with much of the longitudinal resilience work reviewed above, and several of their findings warrant mention. As expected, comparisons between controls and SB youth on competence domains in emerging adulthood resulted in group differences favoring controls on most domains, such as leaving home, attending college, maintaining employment, and having romantic relationship experience, although not on number of close friends.

Of greater interest for our purposes, comparisons between SB and control youth, restricted to those from each group who had completed high school, did *not* generally show differences in other domains, emphasizing both the key nature of academic attainment in mainstream American society as well as the possibility that SB youth can attain many emerging adulthood milestones, just on a somewhat delayed timeframe relative to controls. Additional findings from Zukerman et al. (2011) suggest an important role for executive functioning in the prediction of emerging adulthood outcomes, a negative effect of parental intrusiveness on romantic relationship experience, and a moderating role of SES in the prediction of number of friends (i.e., SES predicted number of friends for SB youth but not for controls). However, key predictors such as executive functioning and intrinsic motivation were generally promotive factors common to both groups (SB and controls) rather than protective factors serving as moderators of risk (illness) status.

Other researchers in this area have focused attention on narrower illness-specific variables that might have predictive power for adjustment in the transition to adulthood. Schwartz and Drotar (2009) explore the construct of "health-related hindrances," adapting personality research on goal formulation and attainment to examine to what extent the effects of chronic illness block youth's ability to work toward desired personal goals. Comparing emerging adults with CF and pediatric cancer survivors to a control group of healthy individuals, Schwartz and Drotar found that health-related hindrances, as well as self-efficacy, were predictive of several relevant emerging adult outcomes; health-related hindrances actually related more consistently to self-esteem and distress than did a more traditional measure of health-related quality of life.

Casier et al. (2011), focusing on the more severely affected population of youth diagnosed with CF (with approximately 50% survival rate into adulthood), assessed youth's "acceptance" of their condition, defining acceptance (which appears similar to key aspects of coping) as perceived ability to live with the illness and manage its consequences. The authors found that higher levels of acceptance were associated with fewer depressive symptoms 6 months later, controlling for preexisting depressive symptoms; they also predicted better concurrent social functioning. Of note, acceptance itself was unrelated to illness severity. Thus, for a serious medical condition such as CF, proactive acknowledgment of the limitations of the illness appears to serve as an illness-specific potential protective factor.

In terms of youth serious mental illness, the pioneering investigation of Hauser, Allen, and colleagues (Allen, 2010) warrants discussion. This study, which could also be classified as a long-term longitudinal study, followed approximately 150 mid-adolescents (approximately age 14) for over 30 years, half of whom had experienced a nonpsychotic, nonorganic psychiatric hospitalization. Rich assessments, including qualitative inter-

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views and observational data, have been collected on this sample across several follow-up visits. First, looking at descriptive patterns of resilience to this type of adversity (major mental illness) through the transition to adulthood, results suggest that it was rare (12%, as opposed to 46% for the demographic comparison group) for the hospitalization group to experience success in both external and internal adaptation during young adulthood (Gralinski-Bakker, Hauser, Stott, Billings, & Allen, 2004). This is consistent with other data suggesting that for youth experiencing very serious adversity, simultaneously succeeding in age-graded developmental tasks while also being relatively free from internalizing distress is rare (see also Luthar, 1991; Vanderbilt-Adriance & Shaw, 2008; Yates & Grey, 2012). As reviewed by Allen (2010), some of the characteristics assessed in adolescence that prospectively differentiated those youth in the hospitalization group who went on to greater success in adulthood included a "drive to mastery," an interest in inner processes (without necessarily having high self-understanding), and a drive to relate to others. In other words, those youth who showed promise of positive social and attachment relationships as well as the desire to understand and control their environments tended to fare better across the challenging transition to adulthood.

Other studies of specific risk populations or at-risk emerging adults

Using data from the prospective longitudinal Study of Adult Development, DiRago and Vaillant (2007) examined the effect of childhood factors on occupational status in adulthood. Participants in the Study of Adult Development were all males living in the inner city and recruited around the age of 14 years. At age 25 years, childhood social class and protective environmental factors of relationships with mother and father and overall home atmosphere were predictors of occupational status. However, beginning at age 32 years, IQ and timely development (measured based on lack of premature birth, poor health at birth, tics, enuresis after 8 years old, lisping, speech delays, motor delays, and extremely difficult temperament) became predictors of occupational status. Number of years of education was associated with occupational status at all ages and, along with timely development, mediated the association between IQ and occupational status. These results suggest that childhood protective environmental factors remain important to occupational status during the transition to adulthood, but may become less important as individuals move through adulthood.

One population salient to the study of resilience is children born to opiate-dependent parents. Using data from the Focus on Families Project, Skinner, Haggerty, Fleming, and Catalano (2009) classified young adults (mean age = 23 years) as resilient if they were employed or in an educational program, had no lifetime substance abuse or dependence diagnoses, and had no adult criminal charges for at least 5 years. Among their sample, only 24% of participants met criteria for resilience and females were almost four times more likely to be classified as resilient compared to males, largely due to their lack of criminal charges. In addition, high levels of parent-rated internalizing and externalizing symptoms as children were associated with a lower likelihood of being resilient as a young adult.

Another area of experienced adversity in youth deserving of attention is parental bereavement. In a prospective study of parentally bereaved youth, positive parenting by the surviving parent at the time of bereavement was found to moderate the association between later life stress and levels of the stress hormone cortisol (Hagan et al., 2011). During a laboratory conflict discussion 6 years later (when participants were 14–22 years old), a higher number of recent negative events was associated with increased cortisol levels, but only for individuals who received less positive parenting 6 years earlier.

In addition to these longitudinal studies, other smaller scale studies have found moderator variables related to resilience. For example, Bugental, Beaulieu, Fowler, O'Brien, and Cayan (2010) proposed that one indicator of resilience is the ability to adapt to a repeated stressor by becoming habituated to it. They found that for emerging adults (mean age = 20 years) with a medical or physical disorder, high perceived social support was associated with enhanced habituation to a laboratory stressor as measured by cortisol levels. Specifically, high feelings of attachment, including emotional closeness and sense of security, was associated with greater increases in cortisol levels during the first exposure to the laboratory stressor and greater decreases in cortisol levels at the second exposure. For individuals without a medical or physical disorder, social support was not found to enhance habituation, indicating that some type of chronic adversity may be implicated in experiencing the benefits of perceived social support in habituating to a stressor.

In a retrospective study of children who were abused or neglected prior to 11 years old, the number of participants classified as resilient dropped from 48% in adolescence to 30% in young adulthood (DuMont, Widom, & Czaja, 2007). Resilience in adolescence was defined as being successful in at least four of five domains prior to age 18 years (graduating high school, no psychiatric diagnoses, no substance abuse/dependence diagnoses, no arrests, and no self-reported violence). In young adulthood, resilience was defined as being successful in at least six of eight domains (same as adolescence with the addition of employment, homelessness, and social activity) between 18 years old and the time of reporting. However, it is important to note that participants were an average of 29 years old at the time of reporting and therefore arguably past the transition to adulthood. During adolescence, being female, non-White, and growing up in a stable household were predictors of resilience, whereas again being female but also having a highly supportive spouse or partner and having fewer stressful life events was associated with resilience in young adulthood. It is also notable that individuals who grew up in a relatively advantaged neighborhood and had high cognitive abilities were about three times more likely to be classified as resilient as young adults than those from similar neighborhoods with lower cognitive abilities.

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In another cross-sectional study of Chinese young adults (mean age = 21 years), coping flexibility (using an array of coping strategies) and androgynous personality traits were found to be protective under high levels of stress (Lam & McBride-Chang, 2007). High coping flexibility buffered against psychological distress under high life event stress and having more androgynous personality traits was associated with better interpersonal functioning under high life event stress than having only high masculine or high feminine personality traits.

Along with the more commonly studied variables already described, some researchers are beginning to study more novel moderators, such as lucid dreaming (Soffer-Dudek, Wertheim, & Shahar, 2011). After exposure to 3 weeks of terrorism-related stressors in Israel, young adults (mean age = 23 years) with higher levels of exposure to terror had increased psychological distress if they had low, but not high, levels of lucid dreaming. Soffer-Dudek and colleagues (2011) hypothesize that this finding may be due to a stronger sense of control associated with lucid dreaming.

Summary of specific risk population studies

As might be expected, studies from specific risk populations both confirm some of the same protective and moderating factors as the broader longitudinal studies reviewed above, while also highlighting factors that are risk population-specific. Some of the "usual suspects" factors, such as cognitive skills, parenting, and SES, play a major role in this research just as they do in resilience research more broadly (Masten, 2001). Chronically ill youth with effective executive functioning skills may be more able to handle the twin demands of illness acceptance and positive or action-based coping. Chronically ill children with parents who gradually promote their independence, albeit on varying timelines, are more likely to succeed in their own close relationships. Positive parenting from the surviving parent facilitates emerging adulthood adjustment for bereaved youth, and greater economic resources can facilitate access to social activities that help chronically ill youth maintain age-appropriate friendships.

At the same time, it is important to attend to the unique protective and promotive factors available for study in specific populations. Findings on health-related hindrances suggest that giving chronically ill youth targeted support around defining their personal goals and working to minimize the impact of physical illness on those goals should yield broad dividends (Schwartz & Drotar, 2009). Emancipated foster youth who are able to delay the transition out of care tend to fare better than those who choose, or are forced, to leave care immediately upon reaching age of eligibility (Courtney & Dworsky, 2006; Wade & Dixon, 2006).

Summary and Conclusion

Research from multiple domains of emerging adult life have shed light on the factors that help to facilitate a positive transition to adulthood in youth who have experienced significant adversity throughout childhood and/or adolescence. In many cases, these factors are similar to those that have been identified as important for resilience in youth generally. To the extent that processes of resilience represent fundamental adaptational systems (Masten, 2001), it is not a surprise that some of the same factors continue to be implicated in the transition to adulthood. Cognitive skills, the ability to plan ahead and effectively modulate attention, personality traits of low neuroticism/high emotional stability, receiving positive and effective parenting, and having adequate economic resources are all important for the emerging adult years, often for reasons closely related to their importance in other developmental periods. Yet there are important developmental changes in these domains as well. For example, effective parenting of an adolescent and young adult represents balancing their increased need for autonomy and independence with the continued provision of targeted supports, a balance that is especially challenging for parents of chronically ill youth.

At the same time, research on resilience in the transition to adulthood highlights particular factors that may be especially relevant, or sometimes only applicable, within certain populations. The timing of exit from foster-care placement and the opportunity for foster youth to enter into a relationship with a formal mentor are two factors that seem especially relevant to this population, with the added research complication that mentor commitment and circumstances of leaving care are themselves sometimes predictable from prior indices of adversity.

There is not a single narrow picture of the "resilient emerging adult," but rather many different manifestations. At the same time, there are certain commonalities in empirical findings that suggest avenues for more detailed future exploration. Many studies highlight the cognitive/personality characteristic of planfulness as being of special importance in this period, which is closely related to aspects of executive function. The increased freedom accorded emerging adults in contemporary Western society doubtless places a premium on the ability to plan ahead, delay gratification, and make positive choices. In addition, self-efficacy and a drive for mastery have been implicated in research; that is, resilient emerging adults have experienced difficult times without defining themselves by their adversity. Finally, close relationships, whether continuing relationships with parents or (more often) supportive romantic partners, close friends, and mentors, are prominent factors influencing resilient adaptation in the transition to adulthood. However, joining into and taking advantage of the benefits of a close relationship requires a degree of emotional maturity and security, and each of these broad areas can be fruitfully broken down and studied in more detail, along with their interactions. For example, among samples of resilient youth, observational study of romantic relationship interaction quality could be combined with individual assessments of perspective taking, self-efficacy, and attachment to investigate why some at-risk emerging adults are better able than others to maintain supportive close relationships.

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In addition, continued focused attention is needed on the neuropsychological, psychobiological, and genetic factors that may play a particular role during the emerging adult transition years (Cicchetti & Curtis, 2003). Only a small subset of the work reviewed above has included measurements at these levels of analysis. Of course, some of the "usual suspect" protective and promotive factors previously discussed, such as IQ and executive functioning, lend themselves more easily to more detailed conceptual analysis and breakdown in this vein (see, e.g., Miyake et al., 2000). Where possible, it will be necessary to link detailed cognitive studies to studies of the dramatic differences in context, such as by conducting process-based cognitive assessments across multiple settings (e.g., alone vs. with peers vs. with a romantic partner). In addition, there is a clear need for further research on prevention and intervention studies with at-risk youth in this age group. Despite the significant methodological challenges of this research, such work is invaluable in helping to clarify potentially causal influences (Masten et al., 2006).

The challenges for future research in this area are formidable. Some of the major challenges parallel those of resilience investigations in youth, such as the need to carefully control for level of experienced adversity to ensure that one is not mislabeling lack of adversity as resilience, or the difficulties in detecting statistical interactions in nonexperimental designs (McClelland & Judd, 1993). Others are especially relevant to this developmental period. For example, investigating low base rate and/or dramatic contextual changes, such as major geographic moves or religious/spiritual conversions, poses many logistical (and generalizability) problems for researchers, despite the centrality of these events for some emerging adults. In addition, some of the important constructs hinted at by pioneering investigations, such as "knack for finding a niche," are exceedingly hard (if not impossible) to operationalize for further study. More broadly, resilience arising in the transition to adulthood needs to be distinguished from adolescent resilience that stabilizes during that transition.

Research for this review was grouped into two broad categories, reflecting studies commissioned either for a broad, long-term look at youth development (studies that often require a great deal of time, effort, and money) versus those looking at a particular population and/or a narrower time interval. Although the predictive and theoretical power of large, long-term longitudinal studies is without equal, the field can also benefit from a greater number of more focused studies, especially if those studies are designed to test elements of developmental theory. In fact, the analysis and discussion of results from both types of studies would benefit from sharpening our theoretical predictions and making them more "risky," especially in terms of how protective factors might interact with each other and with other aspects of development. Many well-conducted studies in this domain are informed by a developmental psychopathology orientation that attends to multiple levels of analysis, with the introduction sections of reports presenting complex conceptual models. However, the conversion of such overarching theoretical models to testable (and falsifiable) analytic models has been far more challenging. Ideally, the field should pay greater attention to this type of translation, which is admittedly easier when dealing with discrete outcomes that may have well-developed predictive links as opposed to the breadth of outcomes subsumed under the construct of resilience (cf. Luthar et al., 2000). As noted above, the MacArthur mediation/moderation framework (Kraemer et al., 2001) may have substantial utility for resilience researchers in this regard, as it represents a way to focus future investigations.

Norman Garmezy was well attuned to the importance of specific models for a cumulative science of resilience. He argued clearly and presciently for greater use of alternative theoretical models in resilience research, models that were close enough to data to be pitted against one another in one data set yet different enough to generate contrary testable predictions (Garmezy, 1990; see also Roberts & Pashler, 2000). This was only one of several major lines of work that Garmezy urged on the field decades ago that continue to warrant sustained attention. When considering resilience in the transition to adulthood, it will be important for future researchers to continue to follow Garmezy's lead in applying a critical lens to existing theory, with concomitant attention to issues of population selection, comparison groups, measurement, and outcome definition.

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