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Self-focused and other-focused resiliency: Plausible mechanisms linking early family adversity to health problems in college women

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ABSTRACT

Objectives: This study examined whether self-focused and other-focused resiliency help explain how early family adversity relates to perceived stress, subjective health, and health behaviors in college women. **Participants**: Female students ($N = 795$) participated between October 2009 and May 2010. **Methods**: Participants completed self-report measures of early family adversity, self-focused (self-esteem, personal growth initiative) and other-focused (perceived social support, gratitude) resiliency, stress, subjective health, and health behaviors. **Results**: Using structural equation modeling, self-focused resiliency associated with less stress, better subjective health, more sleep, less smoking, and less weekend alcohol consumption. Other-focused resiliency associated with more exercise, greater stress, and more weekend alcohol consumption. Early family adversity was indirectly related to all health outcomes, except smoking, via self-focused and other-focused resiliency. **Conclusions**: Self-focused and other-focused resiliency represent plausible mechanisms through which early family adversity relates to stress and health in college women. This highlights areas for future research in disease prevention and management.

Early family adversity is associated with poor health in adulthood,[1] and existing theory posits that multiple factors may exist to help explain this association. For example, the Risky Families Model postulates that early family adversity negatively impacts biological stress-response systems, emotion processing, and social competence, and these impairments subsequently make it difficult to cope with stress and manage health behaviors.[2] The broad full model also accounts for the potential influence of genetics and family social context, and studies have demonstrated support for the mechanisms theorized by the model to link early family adversity to stress and health behaviors known to contribute to poor health (for a review, see Repetti et al[2]). As such, the model provides a useful conceptual framework for considering the importance of psychosocial resiliency factors (see Figure 1), which is the focus of the present paper. However, with regard to psychosocial resiliency, the scope of resiliency factors accounted for is limited to emotion processing and social competence,[2] although studies have suggested that additional psychosocial factors may potentially link early family adversity to a variety of health problems.[3] As such, the purpose of this study is to examine whether broad psychosocial resiliency factors (ie, "self-focused resiliency" and "other-focused resiliency") constitute plausible mechanisms linking early family adversity to health problems facing female college students.[4]

A theoretical review describing a taxonomy of psychosocial resiliency resources suggests that emotion processing and social competence may reflect just 1 dimension (ie, behavioral and cognitive skills) of resources a person has available to them when they experience stress.[3] Yet, how individuals view themselves (ie, self-focused resiliency) and their relationships with others (ie, other-focused resiliency) may also help explain whether stress can negatively affect health.[3] Some work has found positive relationships between individual indicators of self-focused (eg, self-esteem[5,6]) and other-focused (eg, perceived social support[7–9]) resiliency and health in adulthood, and that early family adversity may disrupt the development of these resources (eg, self-esteem[10]; perceive social support[11,12]). However, existing work does not capture the broader dimensions of self-focused
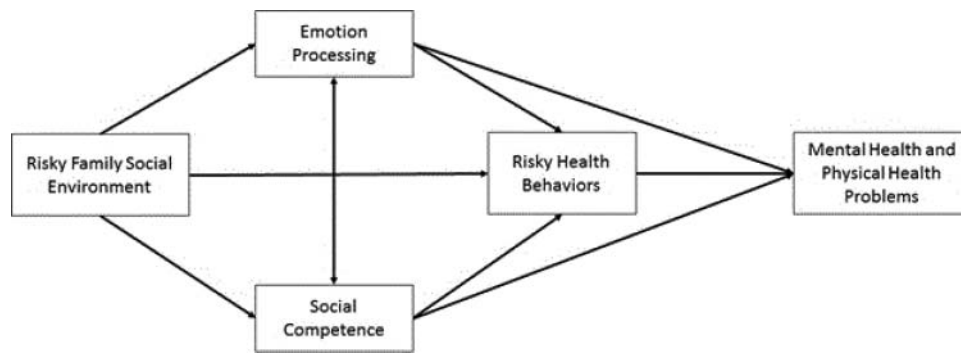
Figure 1. Conceptual model linking early experiences to health. For an illustration of the full Risky Families Model, see Repetti et al.[2]

and other-focused resiliency, and more work is needed to understand whether self-focused and other-focused resiliency explain in part how early family adversity leads to health problems more immediately relevant to female college students.

This study examines female college students exclusively and measures health outcomes and indicators of particular relevance to this group; these decisions are detailed below. Research has shown that women may be especially sensitive to poor health outcomes associated with childhood adversity (eg, posttraumatic stress,[13] physical symptoms,[14] alcohol dependence[15]). For example, although the lifetime prevalence and mean number of exposures to traumatic events were lower for women than men, women had an approximate 2-fold increase in the risk for posttraumatic stress disorder.[13] Multiple reasons may exist to explain this difference (eg, women may experience more severe or traumatic forms of adversity); yet, given the stronger association between trauma and poor mental health for women than men, it may be particularly important to examine how resiliency can account for the relationship between early family adversity and poor health in college women, as this knowledge could inform intervention efforts for this vulnerable population.

Regarding health problems facing college students, this study measured health outcomes and behaviors that are highly prevalent among college students, and which also predict future health status. For example, the college experience is perceived as highly stressful for many students,[16] and chronic states of stress can impair immune functioning and predict worse health later in life.[17] With regard to subjective health, health that is self-rated as "fair" or "poor" has been associated with worse health outcomes, including all-cause mortality,[18] and as many as 7.7% of college students rate their health this way.[19] For sleep, a review of the literature links short sleep duration to higher mortality risk,[20] and college students report a range of problems related to limited number of hours asleep, including insomnia, difficulty staying

asleep, and waking too early.[21] Finally, college students report a range of often negative health behaviors, including physical inactivity,[22] smoking,[23] and excessive alcohol consumption.[24] Engaging in poor health behaviors at a young age predicts poor health outcomes later in life, particularly smoking and excessive alcohol consumption, which are well known contributors to lung cancer and liver disease respectively.[25,26] In sum, female college students represent an ideal sample to test the impact of early family adversity on health more generally, as they may be prone to maladjustment resulting from early adversity and are likely to display health risk indicators predictive of later-life disease and mortality.

Early family adversity and health

Early family adversity can be characterized by childhood exposure to violence, quarreling, substance abuse, neglect, non-nurturance, unpredictability, or general household chaos.[1,2,27] These potentially traumatic childhood experiences are associated with a variety of health consequences in later life, such as ischemic heart disease and cancer.[1] In the intermediary, early family adversity may manifest itself in patterns of stress and health behavior that suggest low quality of life and predict later health outcomes. For example, early family adversity may result in chronic stress,[28] poor subjective health,[1] poor sleep,[29] physical inactivity, and increased smoking and alcohol consumption.[1] Because these early forming patterns predict subsequent health outcomes, it is important to examine mechanisms that could potentially link early family adversity to their formation.

In this study, we focus on 2 prominent dimensions of psychosocial resiliency involving perceptions of "self" (ie, self-focused resiliency) and of one's relationships with others (ie, other-focused resiliency).[3] These dimensions are thought to lessen damage caused by early family adversity, reduce stress, and promote better health behaviors.[3] Yet, little work has tested these self-focused and other-focused resiliency factors as explanations of

the relationship between early family adversity and health, at best finding negative associations between adversity and individual components of self-focused or other-focused resiliency, or positive associations between components of self-focused or other-focused resiliency and health. As such, this study aims to extend the literature by testing relationships between early family adversity and 2 broad dimensions of psychosocial resiliency composed of psychosocial factors related to (1) self-perception and (2) the perception of one's relationships with others, which we respectively refer to as "self-focused" and "other-focused" resiliency.

Self-focused and other-focused resiliency as plausible mechanisms

Research demonstrates that components of self-perception (ie, measured in the present study as self-esteem and personal growth initiative) are individually associated with both early family adversity and health problems commonly facing college students. For example, higher self-esteem (ie, one's overall sense of self-worth and personal value)[30,31] is associated with better subjective health, more exercise, and less substance use.[5,6] Likewise, psychological abuse in childhood, a more severe form of early family adversity, is related to impaired self-esteem.[10] This suggests that self-esteem may be an important link between early family adversity and college health outcomes. A less well studied but important component of self-focused resiliency is personal growth initiative, which refers to the extent to which individuals recognize and believe they can achieve their own potential and actively engage in developing as a person.[32] Personal growth initiative may contribute to better physical health and lower levels of psychological distress, and early family adversity is associated with impairments in personal growth initiative.[33,34] Considering its importance in how individuals develop, impairments in personal growth initiative may be detrimental to long-term health. Thus, self-esteem and personal growth initiative assess how individuals currently view themselves and their potential growth and include both emotional and cognitive assessments of the self; treated together, they broadly capture the construct of self-focused resiliency.

Like self-perception, components of how individuals view their relationships with others (ie, measured in the present study as perceived social support and gratitude) have also been associated with early family adversity and health problems more immediately relevant to college students. For example, perceived social support (ie, one's appraisal of social resources based on the perception that

one is loved and respected)[35] may reduce stress and improve subjective health[7] and aid in the adoption and maintenance of healthy behaviors such as smoking cessation[8] and exercise.[9] Childhood maltreatment has been associated with decrements in perceived social support,[11,12] suggesting that alterations in perceived social support is a plausible link between early family adversity and later health outcomes. In addition to perceived social support, gratitude is an important component of how individuals view their relationships with others.[36] Gratitude encompasses one's sense of connection to others, an appreciation for the contributions of others to one's life, and a sense of obligation to return favors.[36] Gratitude is associated with fewer physical symptoms, better sleep, and more exercise.[37,38] Early family adversity is associated with feelings of mistrust in others and entitlement,[39,40] which are conceptually the opposite of gratitude, and preliminary evidence suggests that child abuse histories may decrease gratitude in adulthood.[41] Thus, perceived social support and gratitude assess what relationships individuals feel they currently have access to, the extent to which those relationships are valued, and how interconnected one feels with others around them; treated together, they broadly capture the construct of other-focused resiliency.

The current study

This study uses structural equation modeling (SEM) to examine associations between early family adversity, self-focused and other-focused resiliency, and perceived stress, subjective health, and health behaviors (ie, sleep, exercise, smoking, and weekend alcohol consumption) in college women. We hypothesize that (1) early family adversity is associated with impairments in self-focused and other-focused resiliency, greater perceived stress, worse subjective health, and worse health behaviors; and (2) any observed effects of early family adversity on perceived stress, subjective health, and health behaviors will be accounted for by indirect effects through self-focused and other-focused resiliency.

Methods

Participants

Participants ($N = 795$) were undergraduate college women attending a medium-sized, private US university. Data were collected between October 2009 and May 2010. Because the majority of college students are between the ages of 18 and 23,[42] participants aged 24 and older ($n = 47$) were excluded so as to examine typical college-aged students. The remaining participants

($n = 748$; $M_{age} = 19.75$, $SD_{age} = 1.27$) identified as Caucasian/White (70.3%), Asian (17%), Hispanic (6.7%), and African American/Black (6.7%).

Procedure

All study procedures were approved by the institutional review board. Participants were recruited campus-wide using flyers, online postings, and announcements in large lecture classes. Potential participants were invited to take part in an online survey about topics related to college students' lives, health, and well-being. Interested potential participants were provided with a Web link to the online survey and completed it at their convenience. The survey took approximately 20 to 30 minutes to complete. Upon completion, participants either received research credit toward a course or were entered into a raffle to win a gift card as compensation. Participants were required to respond to all questions in order to finish and submit the survey. As such, there were no missing data.

Instruments

Early family adversity

Early family adversity was assessed with the Risky Families Questionnaire (RFQ), an 11-item self-report measure of parental neglect, being a witness to or recipient of verbal abuse or physical aggression, and exposure to substance abuse during childhood (eg, "How often did a parent or other adult in the household push, grab, shove, or slap you?").[27] Response options ranged from 1 (*Not at all*) to 5 (*Very often*), with higher scores indicating more early family adversity. Previous studies have demonstrated good reliability,[1] and scores have been shown to correspond with interview-based recall assessments of early family environments.[27] The RFQ had good internal consistency in our sample ($\alpha = .89$).

Self-focused resiliency

Components of self-focused resiliency included self-esteem and personal growth initiative. Self-esteem was assessed with the Rosenberg Self-Esteem Scale (RSES), a 10-item self-report measure of overall self-concept (eg, "On the whole, I am satisfied with myself.").[31] Response options ranged from 1 (*Strongly disagree*) to 4 (*Strongly agree*), with higher scores indicating greater self-esteem. The RSES correlates with other assessments of self-worth and confidence.[43] The RSES demonstrated excellent internal consistency in our sample ($\alpha = .94$). Personal growth initiative was assessed with the Personal Growth Initiative Scale (PGIS), a 9-item self-report measure of cognitive and behavioral components of self-efficacy that support personal growth (eg, "I have a specific action plan to help me reach my goals.").[32] Response options ranged from 1 (*Strongly disagree*) to 6 (*Strongly agree*), with higher scores indicating greater personal growth initiative. Higher PGIS scores are associated with greater assertiveness and internal locus of control.[32] Consistent with previous research,[32] the PGIS demonstrated excellent internal consistency in our sample ($\alpha = .94$).

Other-focused resiliency

Components of other-focused resiliency included perceived social support and gratitude. Perceived social support was assessed with the Social Support Appraisal Scale (SS-A), a 23-item self-report measure of one's perceptions of connectedness and support from friends and family (eg, "I feel a strong bond with my friends.").[35] Response options ranged from 1 (*Strongly agree*) to 4 (*Strongly disagree*). SS-A scores were reverse coded for ease of interpretation so that higher scores indicated more perceived social support. The SS-A is correlated with objective assessments of social support and greater support network resources.[35] The SS-A demonstrated excellent internal consistency in our sample ($\alpha = .94$). Gratitude was assessed with the Gratitude Questionnaire (GQ-6), a 6-item self-report measure of one's capacity for expressing grateful emotion (eg, "I am grateful for a wide variety of people in my life.").[36] Response options ranged from 1 (*Strongly disagree*) to 7 (*Strongly agree*), with higher scores indicating more gratitude. The GQ-6 is associated with more prosocial behavior[36] and, as in prior research,[36] demonstrated good internal consistency in our sample ($\alpha = .89$).

Perceived stress

Perceived stress was assessed with the Perceived Stress Scale (PSS), a 14-item self-report measure of perceived stress over a 1-month period (eg, "In the last month, how often have you felt nervous and 'stressed'?").[44] Response options ranged from 0 (*Never*) to 5 (*Very often*), with higher scores indicating more perceived stress. The PSS is associated with the number and impact of stressful life events.[44] Consistent with existing work,[44] the PSS demonstrated good internal consistency in our sample ($\alpha = .85$).

Subjective health

Subjective health was assessed with a commonly used single item, self-reported rating of global health: "In general, how would you describe your health during the past month?" Response options ranged from 1 (*Poor*) to 5 (*Excellent*). Although only a single item, this approach to measuring global subjective health has been shown to predict long-term health outcomes, including mortality, in a review of 27 studies.[18]

Health behaviors

The health behaviors examined include sleep, exercise, smoking, and weekend alcohol consumption. Sleep was assessed with a single item: "Over the past month, how many hours of sleep did you get in an average night?" Single-item assessments of sleep duration are common and have been associated with greater mortality risk.[45] Exercise was assessed with a single self-report item of the frequency of moderate physical activity over the past month (ie, "How often do you engage in moderate activity like walking more than a couple of blocks or bowling?"). A literature review of physical activities suggests that walking more than a couple of blocks or bowling requires between 3.0 and 6.0 metabolic equivalents (METs) of energy expenditure, which would be considered moderate intensity.[46] Single-item assessments of physical activity are common and correlated with objective indicators of fitness, such as body mass index (BMI) and oxygen capacity.[47] Response options ranged from 1 (*Never*) to 4 (*Nearly every day*). Smoking was assessed with a single fill-in-the-blank item: "Over the past month, how many cigarettes have you smoked per day on average?" Studies have demonstrated that global assessments of number of cigarettes smoked per day are predictive of biochemical markers of smoking frequency and correlate highly with interview-based recall assessments.[48,49] Weekend alcohol consumption was assessed with a single fill-in-the-blank item: "Over the past month, how many alcoholic drinks have you consumed on the average day during the weekend (Friday–Sunday) (one drink = 12 oz. beer, 4 oz. of wine, or 1 oz. of hard liquor)." Single-item assessments of alcohol consumption are correlated with daily-log measures of alcohol consumption.[50]

Data analysis

Bivariate correlations were used to test preliminary associations between the variables. Next, SEM was used to better capture how the latent factors (ie, self-focused and other-focused resiliency) are related to health, and to avoid examining potentially idiosyncratic (and less informative) relationships between a particular component of the latent factors (eg, self-esteem) and health outcomes. SEM was conducted in AMOS 18.0[51] using 4 goodness-of-fit indices: chi-square (χ^2), comparative fit index (CFI),[52] Tucker-Lewis index (TLI),[53] and root mean square error of approximation (RMSEA).[54] The chi-square statistic is the traditional index for evaluating goodness of fit, determined by nonsignificance at the .05 level.[55] Large samples, like the current sample, bias chi-square towards significance, and the other fit indices, which are less sensitive to sample size, are commonly included to assist in making judgments about model fit.[55] A CFI value greater than .95, TLI value greater than .95, and RMSEA close to zero with a confidence interval (CI) from .00 to .08 demonstrate good model fit.[56]

We tested a measurement model by grouping psychosocial resiliency variables into 2 latent factors based on their conceptual similarity.[3] Self-focused resiliency was created to indicate self-esteem and personal growth initiative, and other-focused resiliency was created to indicate perceived social support and gratitude. Self-focused and other-focused resiliency were allowed to covary. We used a bias-corrected bootstrapping procedure to test for mediation in the full model,[57] specifying direct pathways between early family adversity and perceived stress, subjective health, and health behaviors in addition to indirect paths via self-focused and other-focused resiliency. The bootstrapping procedure estimates standard errors and confidence intervals by repeatedly drawing random subsamples from the existing sample to generate a distribution that more closely resembles that of the population.[58] An effect is judged to be significant if the associated confidence interval does not contain the value 0.[58]

Results

Descriptive statistics and correlational analyses

Table 1 presents means, standard deviations, and correlations among all variables. Only 20 of the 748 participants (roughly 3%) reported no early family adversity (ie, responded "*Not at all*" to each of the 11 RFQ items), and mean early family adversity obtained in our sample is similar to that obtained in other studies comparable measures.[59,60] The most commonly reported types of early family adversity were quarreling, arguing, or shouting between one's self and one's parents (88.6%) and between one's parents (81.6%). The least commonly reported types of early family adversity were living with a problem drinker or alcoholic, or someone who used street drugs (23.4%), and living with a parent who behaved violently towards family members or visitors (21.5%). Percentages total more than 100% because many participants endorsed more than 1 type of early family adversity.

As expected, early family adversity was associated with impairments in components of self-focused and other-focused resiliency, greater perceived stress, worse subjective health, less sleep, and more smoking. Overall, components of self-focused and other-focused resiliency were associated with less perceived stress, better subjective health, more sleep and exercise, and less smoking.

Table 1. Means, standard deviations, and bivariate correlations for all variables included in the study.

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Early family adversity	1.86	0.71	—										
2. Self-esteem	21.50	5.67	−.42**	—									
3. Personal growth initiative	39.87	8.37	−.30**	.61**	—								
4. Perceived social support	79.01	10.05	−.44**	.63**	.46**	—							
5. Gratitude	6.09	1.01	−.36**	.47**	.39**	.55**	—						
6. Perceived stress	25.50	7.62	.38**	−.64**	−.54**	−.45**	−.35**	—					
7. Subjective health	3.28	0.89	−.16**	.33**	.28**	.25**	.16**	−.33**	—				
8. Sleep	6.76	1.55	−.10**	.13**	.10**	.14**	.07*	−.18**	.12**	—			
9. Exercise	3.41	.079	−.05	.10**	.17**	.17**	.16**	−.15**	.15**	.02	—		
10. Smoking	0.25	1.29	.14**	−.15**	−.10**	−.10**	−.05	.14**	−.14**	−.02	.04	—	
11. Weekend alcohol consumption	3.55	3.99	.00	.03	−.06	.10*	.02	.02	−.03	.08*	.03	.06	—

*p < .05; **p < .01.

Unexpectedly, early family adversity was not associated with reported exercise or weekend alcohol consumption, and perceived social support was associated with greater weekend alcohol consumption.

Structural equation model

Measurement model

The measurement model specifying covarying self-focused and other-focused latent factors had an acceptable fit: $\chi^2(2) = 3.46$, $p = .063$, CFI = .998, TLI = .986, RMSEA = .06, RMSEA 95% CI = .00 to .12. Self-esteem and personal growth initiative were indicated by self-focused resiliency (βs > .68, ps < .001), and perceived social support and gratitude were indicated by other-focused resiliency (βs > .64, ps <

.001). Self-focused and other-focused resiliency covaried highly ($\beta = .83$, $p < .001$).

Full model

Figure 2 presents the full SEM, wherein early family adversity predicts self-focused and other-focused resiliency that in turn predict health outcomes, which fit the data well: $\chi^2(30) = 64.18$, $p < .001$, CFI = .982, TLI = .967, RMSEA = .04, RMSEA 95% CI = .03 to .05. The full model predicted 61.4% of the variance for perceived stress, 16.6% for subjective health, 3.2% for sleep, 4.6% for exercise, 4.1% for smoking, and 3.2% for weekend alcohol consumption. As hypothesized, early family adversity predicted impaired self-focused and other-focused resiliency. Self-focused resiliency predicted less perceived stress, better subjective health, more sleep, less
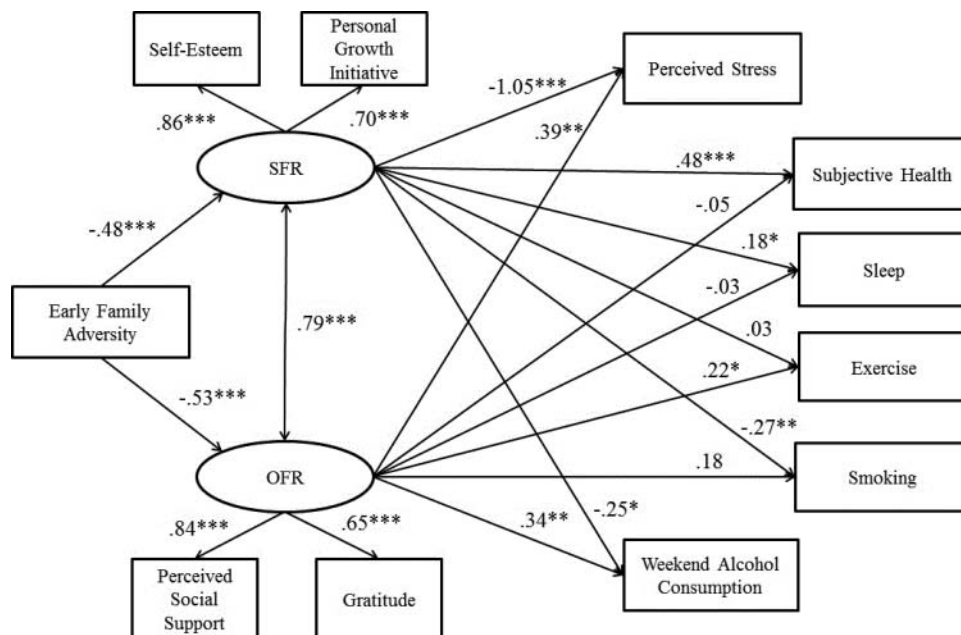

Figure 2. Structural equation model examining early family adversity predicting perceived stress, subjective health, and health behaviors through self- and other-focused resiliency. All paths show standardized regression weights. For ease of interpretation, direct effects of early family adversity on perceived stress, subjective health, and health behaviors not presented. SFR = self-focused resiliency. OFR = other-focused resiliency. *p < .05; **p < .01; ***p < .001.

smoking, and less weekend alcohol consumption. Contrary to expectations, self-focused resiliency did not predict exercise. As expected, other-focused resiliency predicted more exercise, but also predicted greater perceived stress (contrary to the bivariate association) and more weekend alcohol consumption. Other-focused resiliency did not predict subjective health, sleep, or smoking.

Also in support of our hypothesis, the bias-corrected bootstrapping procedure indicated that the effects of early family adversity on perceived stress (95% CI = 2.18 to 4.29), subjective health (95% CI = −0.31 to −0.15), sleep (95% CI = −0.27 to −0.02), exercise (95% CI = −0.23 to −0.08), and weekend alcohol consumption (95% CI = −0.75 to −0.06) were accounted for by significant indirect effects via self-focused and other-focused resiliency. The indirect effect of early family adversity on smoking via self-focused and other-focused resiliency was not significant (95% CI = −0.04 to 0.16).

Comment

The Risky Families Model postulates that early family adversity results in poor health because it impairs psychosocial resiliency factors that lessen stress and promote better health behavior.[2,27] The current study expands the scope of the Risky Families Model in several ways. First, by examining 2 broad resiliency factors, 1 related to self-perception (self-focused resiliency) and 1 related to the perception of one's relationships with others (other-focused resiliency). Second, by examining a wide array of health outcomes more immediately relevant to young college women (including perceived stress, subjective health, and health behaviors).[3] Third, this study examined whether the broad linkages between early family adversity and health were consistent with a mediational pathway, whereby early adversity was indirectly associated with patterns of stress and health in college through the 2 broad dimensions of psychosocial resiliency.

Consistent with and extending previous research, our model indicates that early family adversity is associated with impaired self-focused resiliency,[10,34] which is associated with less perceived stress, better subjective health, more sleep, less smoking, and less weekend alcohol consumption.[5,6,33] Our results also demonstrated that early family adversity is associated with impaired other-focused resiliency,[11,41] which is associated with more frequent exercise[1,30] and, unexpectedly, greater perceived stress (only in the structural equation model and not in the bivariate correlations) and more weekend alcohol consumption. The SEM indicates that, for college women, the effects of early family adversity on self-focused and other-focused resiliency account for a

relatively small proportion of the variance in reported health behaviors (3.2% to 4.6%), a moderate amount in subjective health (16.6%), but a substantial proportion of the variance for perceived stress (61.4%). Overall, these results extend our understanding of how early family adversity may influence patterns of stress and health in college that contribute to serious health consequences in later life.[17,18,25,26]

The associations between other-focused resiliency and weekend alcohol consumption and perceived stress were not entirely straightforward. For example, although it was predicted that other-focused resiliency would be associated with less weekend alcohol consumption, we found the opposite relationship. Yet, this result has precedence in that college students' perceived social norms about drinking alcohol in college may exacerbate drinking behavior.[61] As such, students may perceive that drinking more alcohol can secure positive social evaluations. For perceived stress, although the bivariate correlations demonstrated components of other-focused resiliency were negatively correlated with perceived stress, we observed positive associations between other-focused resiliency and perceived stress in the SEM. Taking into consideration the large covariation between self-focused and other-focused resiliency, these unexpected associations may reflect a suppression effect. That is, health benefits of self-focused and other-focused resiliency are being partialled out through one another, and what remains may be a specific (unique) component of other-focused resiliency that contributes to poor health. Conceptually, this may reflect concerns over how one is being viewed and/or evaluated by others.[62] Social evaluation can be stressful,[63] and this may help explain the positive association between other-focused resiliency and perceived stress. This explanation is speculative, and further research is needed to understand both the health benefits and potential costs associated other-focused resiliency.

We focused on college women as some research suggests that women may be prone to poor health outcomes associated with early family adversity.[13] The inability to cope with the exposure to stress and trauma likely explains these poor health outcomes, and indeed in the present study, early family adversity was associated with impaired self-focused and other-focused resiliency in these women. Yet, it will be important to examine this and related models for college men as well. Although research finds that health suffers as a result of early family adversity for both men and women,[64] the mechanisms explaining the development of poor health may differ by sex.[65] Other resiliency resources, such as one's personality, cultural beliefs and worldviews, social position, and health behaviors may also related to poor health,[3] and

might help explain differential outcomes for men and women as a result of early family adversity.

Understanding how early family adversity is associated with psychosocial resiliency and health in college can highlight potential intervention targets to prevent poor health outcomes, but it is important to first understand that scores obtained from the Risky Families Questionnaire are averages,[27] and even low scores may indicate severe early family adversity. For example, endorsing a score of 5 (*Very often*) on the item "How often did a parent or other adult in the household push, grab, shove, or slap you?" could potentially yield an average RFQ score as low as 1.36, but would still indicate severe abuse. Although mean early family adversity appears low in our sample, the results of this study demonstrate that maladaptive patterns of stress and health are already emergent for college women with any history of early family adversity, and that psychosocial interventions to help women adaptively cope with stress and manage health behaviors in college may be warranted. Future work may wish to examine how the severity of early family adversity is associated with psychosocial resiliency and health outcomes in addition to the occurrence of early family adversity.

Regarding potential intervention targets to help prevent poor health outcomes associated with early family adversity, one implication of our model is that psychosocial interventions during college may help improve maladaptive patterns of stress and health that predict a variety of poor health outcomes (eg, impaired immune functioning,[17] all-cause mortality,[18] lung cancer,[25] and liver disease[26]). For example, decades of research demonstrate that psychotherapy can enhance psychosocial resiliency,[66] which may be useful for changing the course of poor health outcomes associated with early family adversity. However, it is important to note that early family adversity is common among individuals with college backgrounds.[1] Only 20 of the 748 women who participated in this study reported no early family adversity, and college counseling and health centers would be overwhelmed trying to accommodate these numbers if all students who had experienced adversity sought services. Therefore, it is important to consider how college health services might best help students with histories of early family adversity manage stress and engage in healthier behaviors. One possibility may be for college health services to focus on providing psychotherapy to students struggling with less common and/or more severe forms of early family adversity while encouraging students dealing with more common or less severe early family adversity to form relationships with healthy role models on campus. Given that 97% of our sample report some form of early family adversity, directing students with more common, and potentially less severe, forms of early family adversity to peer support resources would help liberate professional resources for students struggling with less common, and potentially more severe, histories of early family adversity. For example, many students may benefit from having healthy role models such as academic advisors, faculty, or senior peers in campus organizations or support groups, particularly at colleges with limited or no access to counseling and psychological services. Peer-led health education may be especially beneficial, as it has been shown to improve a variety of health behaviors in college students[67] and can be run by students in lieu of mental health services on campus. Roughly 22% of our sample reported more severe forms of early family adversity, and these students may benefit a great deal from professional help. At colleges with limited resources, students dealing with extreme early family adversity may still benefit from peer support, but future studies will be needed to understand whether certain types of early family adversity are amenable to peer support or likely to require psychotherapy.

One final point worth mentioning is that although college samples typically have access to a variety of health resources that, when utilized, could limit the negative effects of early family adversity on stress and behavior, students may not equally be using these services. Students who grow up in poor families are less likely to use mental health services.[68] Problematically, students with histories of early family adversity may have concurrent histories of socioeconomic disadvantage, as low socioeconomic status tends to be associated with multiple forms of early family adversity (eg, neglect, witnessing domestic violence[69]). Thus, it may be that the very students who would most benefit from the available health resources are those least likely to utilize them. As such, future efforts may seek to encourage students from disadvantaged backgrounds to access college health services. Unfortunately, it was beyond our ability to examine the role of socioeconomic status in this study, and future research will need to consider socioeconomic influences on associations between early family adversity, psychosocial resiliency factors, and health problems facing college students.

Limitations and future directions

There are a number of limitations to the current study that should be noted. The ordering of the variables in our SEM suggests a temporal relationship in which early family adversity predicts the impairment of self-focused and other-focused resiliency, which in turn predict perceived stress, subjective health, and health behavior in young adulthood. The model, however, is derived from cross-sectional data and we cannot confidently infer

causation; rather, our analysis indicates that the data are consistent with our proposed model. The ordering of variables is based on prior research and theory (eg, early family adversity logically is the first variable in this sequence and thus would predict resiliency and health). Future research, however, should study these relationships longitudinally. Other factors beyond psychosocial resiliency may have important implications for how early family adversity can impact health. For example, the Risky Families Model suggests that biological stress responses, family social context, and genetics may also be important.[2] Future work should consider how these others factors impact and interact with resiliency to predict health. Additionally, self-report measures may be subject to bias, such as underreporting of adverse childhood experiences,[70] and future studies should seek to utilize more objective measurements (eg, case histories and medical records), preferably with multiple indicators and assessment points. Although we modeled self-focused and other-focused resiliency as latent variables to estimate these broader dimensions, this modeling was still reliant on the particular measures we used. Future work may wish to use additional scales to tap dimensions of self-focused and other-focused resiliency. Finally, our subjective health and health behavior outcomes were assessed with single-item measures and some of the wording in these items may have lacked specificity. Future work may wish to use multi-item measures to capture subjective health, sleep, exercise, smoking, and weekend alcohol consumption with greater validity.

Conclusions

In conclusion, this study helps extend and expand upon previous theory and data by demonstrating that, for college-aged women, early family adversity is associated with 2 fundamental aspects of psychosocial resiliency: how individuals perceive themselves (self-focused resiliency) and their relationships with others (other-focused resiliency). These impairments are likely to have overarching negative effects on perceived stress, subjective health, sleep, exercise, smoking, and weekend alcohol consumption. The results of this study have important implications for lessening stress and promoting better health and health behaviors in the face of early family adversity, but more work will be needed to understand how self-focused and other-focused resiliency mediate relationships between early family adversity and health outcomes in young adults in college. As more is understood about the associations between early family adversity, psychosocial resiliency, and health, improved prevention efforts may help individuals avoid serious health consequences associated with early family adversity.

Conflict of interest disclosure

The authors have no conflicts of interest to report. The authors confirm that the research presented in this article met the ethical guidelines, including adherence to the legal requirements, of the United States and received approval from the Institutional Review Board of Syracuse University.

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