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Childhood socioeconomic status and risk in early family environments: predictors of global sleep quality in college students

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ABSTRACT

Objective: Low socioeconomic status (SES) in childhood associates with poor sleep quality in adulthood. Separately, childhood family environments shape health into adulthood. Here, we investigated whether these early life factors independently or interactively inform global sleep quality in college students.
Design: Cross-sectional.
Participants: College students at a state university (N = 391).
Measurements: As a measure of childhood SES, we asked participants to consider their families' socioeconomic standing relative to the rest of the society during their childhood. We used the Risky Family questionnaire to measure adversity and the presence of warmth and affection in the family environment during childhood, and the Pittsburgh Sleep Quality Index as a measure of current global sleep quality. We used linear regressions adjusting for age and sex to examine relationships between childhood SES, risk in childhood family environments, and global sleep quality.
Results: Lower childhood SES and greater risk in childhood family environments independently predicted poor sleep quality. Importantly, in low-risk family environments, there was no significant difference in sleep quality as a function of childhood SES. However, students who were from low childhood SES backgrounds who also reported high levels of risk in their early family environments had the worst sleep quality.
Conclusions: Findings highlight the importance of considering socioeconomic and family environments in childhood as informants of sleep quality across the lifespan. Compromised sleep quality in college students could affect academic performance and health over time.

A large body of research documents a graded relationship between socioeconomic status (SES) and health, such that individuals from low-SES backgrounds are worse off compared to their high-SES counterparts.[1,2] This relationship takes shape early in the lifespan, with economic disadvantage in childhood associating with poorer physical health across the lifespan and reduced life expectancy.[3,4] These associations are largely independent of SES in adulthood.[3] Children raised in low-SES environments are exposed to more physical and psychosocial stress compared to children raised in high-SES environments[5,6] and are more likely to perceive ambiguous situations as a threat to their well-being.[7,8]

Separate from socioeconomic exposures, a growing body of literature documents an association between early life adversity and trauma with health across the lifespan.[9,10] Importantly, recent investigations suggest that it is not only the presence of adversity or trauma in early environments which can shape health and health behaviors in enduring ways but also the dynamics of the early family environment.[11] Family environments with high levels of conflict and low levels of warmth and affection can negatively impact adult health by shaping psychosocial functioning.[12,13] These family environments are referred to as *risky* and associate with increased risk for ill health.[11]

Greater exposure to stress during the early years of a child's life may negatively impact the health behaviors that develop during this time, and these patterns may in turn persist into adulthood, partially explaining the enduring effect of early life experiences on health.[14,15] For example, children raised in risky families are more likely to exhibit health-threatening behaviors including smoking, alcohol abuse, and drug abuse.[11] Children who are exposed to stress may rely on these strategies to manage negative emotions or to cope in the absence of adequate emotion coping strategies.[11] Sleep quality is one such behavioral pathway through which early life adversity and trauma are believed to negatively impact health.[16,17]

During childhood, socioeconomic adversity associates with compromised sleep quality,[18,19] and low childhood SES predicts worse

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sleep quality in adulthood, independent of adult SES.[20] Furthermore, previous research suggests that the relationship between low income and adverse health in adulthood is in part accounted for by compromised sleep quality.[21,22] In a similar manner, early life adversity and trauma associate with compromised sleep quality across the lifespan.[23,24] Specific to family environments, a prior investigation found that conflict in early life family environments associates with insomnia in adulthood.[25]

Multiple sources of early life environmental stress, such as low SES and a risky family environment, could have a cumulative negative effect on sleep. It remains unknown whether these independent dimensions of early life experience may interact to inform sleep quality, which is closely related to both physical and mental health.[26,27]

Although the majority of research focuses on the impact of childhood environments on sleep quality in adulthood, previous investigations provide evidence of an association between childhood adversity and compromised sleep quality in college students.[24,28] More research in this area is needed given that the sleep quality of college students is particularly impaired.[29,30] For many students, college is the first experience of living independently from their caregivers. As they work to adapt to their new surroundings, experiences, stresses, and challenges, their sleep quality is at a greater risk for disturbance. It is possible that early life experiences related to SES *and* family environments may inform quality of sleep during this time of adaptation, with college students who were raised in low-SES environments who also experienced a risky family life environment reporting the worst sleep quality. At the same time, the association between low childhood SES and compromised sleep quality in college could be weakened by a less risky family life environment during childhood. Prior research supports this line of reasoning, with findings indicating that maternal warmth moderates the association between low SES and an immune system inflammatory phenotype (a marker of disease risk).[31] A separate investigation found that individuals reporting low levels of love and affection coupled with high levels of abuse in childhood had physiological profiles associated with high risk for disease in adulthood.[32]

The present study examines whether early life socioeconomic and family environments independently or interactively inform global sleep quality in college students. We predict that college students from low socioeconomic backgrounds who were *also* raised in risky family environments will report the lowest quality of sleep. This study extends prior research examining the relationships between adversity, SES, family environment, and sleep in important ways. First, prior investigations have largely focused on adversity, trauma, and conflict as shapers of sleep quality later in life. Here, we use a measure of early life environments which considers not only the presence of adversity or trauma but also the presence or absence of warmth and affection in the family environment. Furthermore, we consider the interaction between risk in early family environments and early SES. This is important because we are able to test whether a less risky family environment is capable of offsetting the previously observed relationship between low SES in childhood and low sleep quality later in life.[20]

Methods

Participants were students enrolled in introductory psychology courses at a large state university (N = 391). As part of their coursework, students were asked to participate in research. Students who elected to participate in this research completed several health- and behavior-related questionnaires, and course credit was awarded upon completion of the questionnaire. No exclusionary criteria were used, and the study was made available to all students in the participant pool. All measures were approved by the university's institutional review board, and informed consent was obtained from all participants.

Measures

Subjective childhood SES

The MacArthur scale of subjective childhood SES is used to capture SES during childhood across objective SES indicators. Participants are presented with a 10-rung ladder and are asked to indicate where they feel their family stood during their childhood relative to other families in the United States.[33,34] Scores ranged from 1 (lowest SES) to 9 (highest SES) (M [SD] = 6.42 [1.75]). The question explains that the top of the ladder represents those families with more money, education, and better jobs, whereas the bottom of the ladder represents families who were worse off, had the least amount of money or education, and had jobs that are poorly respected or were unemployed.

Subjective current SES

The MacArthur scale of subjective SES is used to capture an individual's current SES across objective SES indicators. The same l0-rung ladder described above is used, and participants were asked to place an "X" to indicate where they feel they currently stand relative to others in society with regard to occupation, money, and education (M [SD] = 6.10 [1.54]).[33]

Sleep quality

The Pittsburgh Global Sleep Quality Index (PSQI) was used as a measure of participants' global sleep quality.[35] The 19-item PSQI assesses sleep quality disturbances during the previous month. The scale consists of 19 items which were used to derive a total of 7 component scores: sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, sleep medication, and daytime dysfunction. The 7 component scores were summed to produce a global PSQI score. Global PSQI scores (with a possible range of 0-21; higher scores represent more severe sleep complaints) were computed for each participant (M [SD] = 6.58 [3.21]). Internal consistency in this sample between the 7 component scores was $\alpha = .75$.

Risky family environments

The Risky Families questionnaire was used to assess participants' exposure to physical, mental, and emotional neglect or abuse during their adolescent and childhood years in addition to the presence or absence of warmth and affection.[36] Participants indicate how frequently certain events or situations occurred in their homes during the ages of 5-15 years using a 5-point Likert scale (1 = not at all and 5 = very often). Example questions from this measure include "How often did a parent or other adult in the household make you feel that you were loved, supported, and cared for?" and "How often would you say there was quarreling, arguing, or shouting between your parents?" Items measuring the presence of positive qualities in the family environment are reverse scored, and all 10 items are summed to capture the overall level risk in the early family environment.

Depressive symptoms

We used Beck's Depression Inventory (BDI-II) as a measure of current depressive symptoms. The BDI-II is a 21-item questionnaire widely used to assess subclinical and clinical depression.[37] Each item includes 4 response options. As an example, participants are

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