

factorial clinical trial was conducted at 3 US sites (Duke University, Oregon Health & Science University, and University of Colorado) between 2019-2023. A total of 247 survivors of critical illness with elevated symptoms of depression post-discharge were randomized. All participants (mean age, 50 yrs [SD=15], 42% female, 72% white, 14% black, and 10% Hispanic) received a self-directed, 4-wk, mobile app intervention consisting of daily audio, video, and text content. The primary outcome was depression symptoms (PHQ-9) at 1 month. Secondary outcomes included anxiety, PTSD symptoms, physical symptoms, and trait mindfulness at 1 and 3 months, plus measures of adherence and feasibility. We used GLM to compare outcomes across the intervention component main effects and interactions. **Results:** 75% of participants were retained at both 1 and 3 months. High dose was associated with significantly lower mean PHQ-9 score at 1 month (-1.2, 95% CI: -2.4, -0.04) and 3 months (-1.5, 95% CI: -2.8, -0.1). The other two intervention components had no main effects on the PHQ-9, and there were no substantive interaction effects. Secondary outcomes showed a similar pattern. On average, participants viewed 71% of expected app content (SD=65%). Nearly 90% of participants were actively using the intervention at its conclusion, and adherence was similar across groups. **Conclusions:** Among survivors of critical illness with elevated symptoms of psychological distress, the optimized version of a mobile mindfulness app intervention appeared to include a high dose of mindfulness training, an introduction via the mobile app, and an app-based method of responding to changes in distress over time. A multicenter clinical trial is needed to definitively determine the efficacy of the optimized intervention.

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Abstract 1160

ASSOCIATIONS BETWEEN DISCRIMINATION AND MARKERS OF SYSTEMIC INFLAMMATION: A SYSTEMATIC REVIEW AND META-ANALYSIS

Megan Cardenas, B.S., *University of North Carolina at Chapel Hill*, Natalie Antenucci, B.S., *University of North Carolina at Chapel Hill*, Keely Muscatell, Ph.D., *University of North Carolina at Chapel Hill*

Discrimination, or unfair treatment of individuals based on their social group membership, is a major public health concern. Accumulating evidence shows a link between discrimination and impaired psychological and physical health. Understanding the physiological mechanisms through which discrimination impacts health is thus critical for understanding the development of health inequities. Systemic inflammation likely serves as a physiological pathway linking discrimination and health given that (1) it is well established that stress leads to increases in inflammation, and (2) increased inflammation is implicated in a variety of chronic diseases and mental health conditions. However, estimations of the association between discrimination and inflammation vary widely across studies, and it is unclear if the magnitude of the association varies as a function of various methodological factors and sample characteristics. To address this gap, we conducted a meta-analysis of the association between discrimination and systemic inflammation in which raters identified 27 articles and 112 effects. A multilevel random effects meta-analysis with robust variance estimation revealed a significant overall association $z=0.053$ (95% CI [0.026, 0.081]), such that higher discrimination was associated with higher levels of inflammation in blood samples. In subgroup analyses, we found a positive association in studies that measured

racial/ethnic discrimination specifically ($z=0.042$, $p=.049$), as well as those that measured general discrimination (i.e., those not measuring discrimination on the basis of any specific characteristic; $z=0.050$, $p=.022$). Further subgroup analyses were conducted with CRP specifically given that it was the most commonly-measured inflammatory marker. Discrimination was significantly and positively associated with CRP ($z=0.050$, $p=.001$), for both racial/ethnic ($z=0.025$, $p=.070$) and general discrimination ($z=0.057$, $p=.029$). More analyses will be discussed. Overall, our results suggest that there is a significant association between discrimination and systemic inflammation in the literature, though the magnitude of the association differs as a function of key methodological choices. This review emphasizes the need for theoretical and methodological precision to advance our understanding of the mechanistic pathways by which discrimination gets under the skin.

Abstract 961

THE ASSOCIATION OF STRESS, LIFESTYLE AND ENVIRONMENTAL EXPOSURES WITH APPETITE HORMONE LEVELS IN CHILDREN AND ADOLESCENTS

Thais De Ruyter, MSc, *Ghent University*, Dries Martens, PhD, *Hasselt University*, Stefaan De Henauw, Prof., *Ghent University*, Tm Nawrot, Prof., *Hasselt University*, Nathalie Michels, PhD, *Ghent University*

Background: Appetite hormones are a promising target in fighting obesity. Further insights in the influence of stress, lifestyle, and environmental exposures on appetite hormones are needed to optimize psychological and behavioural interventions. In this study, we investigated the associations of fasting appetite hormone levels with stress, diet, physical activity, sleep, and environmental exposures in youngsters. **Methods:** A total of 534 fasting blood samples were collected from children and adolescents (4-16y, 50% boys) and appetite hormone levels (Glucagon-like peptide-1 (GLP-1), Peptide YY (PYY), pancreatic polypeptide (PP), leptin and ghrelin) were measured. Exposures included dietary quality (fiber-rich food intake and sugar and fat propensity), psychosocial stress (happiness, negative emotions, negative life events and emotional problems), sleep duration, physical activity and environmental quality (long term black carbon (BC), particulate matter $<2.5 \mu\text{m}$ (PM_{2.5}) and nitrogen dioxide (NO₂) exposure, and residential green space). Associations were tested using linear mixed regression models adjusting for sex, age, parental education and waist-to-height ratio.

Findings: Negative associations were found for air pollution and GLP-1 (NO₂ $\beta=-0.13$, BC $\beta=-0.15$, PM_{2.5} $\beta=-0.16$, all $p<0.001$), residential green space and leptin ($\beta=-0.11$; $p<0.001$) and (active and total) ghrelin and negative emotions (active ghrelin $\beta=-0.16$; $p=0.04$, total ghrelin $\beta=-0.17$; $p=0.013$). Positive associations were observed for GLP-1 and residential green space ($\beta=-0.07$; $p=0.04$) and (active and total) ghrelin and happiness (active ghrelin $\beta=0.25$; $p<0.001$, total ghrelin $\beta=0.26$; $p<0.01$). A totality of unhealthy exposures was associated with total ghrelin levels ($\beta=-0.22$; $p=0.04$).

Interpretation: We found associations for air pollution, green space and emotional well-being with appetite hormones. This fits within our recent hypothesis that nature exposure could influence eating behaviour by reducing stress and changing appetite physiology. We are now testing inflammation and gut microbiota differences by nature exposure as explanation for stress and appetite changes. We plan lab-studies, real-life food choice experiments, larger cohorts, and two canteen interventions to examine psychological, cognitive and physiological changes in eating behaviour by nature integration indoors.