

Integrative Medicine

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ASTHMA

SHORT REPORT

Racism, Stress, and Asthma

By *Ryan N. Walker, MD, MPH, and Suhani Bora, MD*

Dr. Walker is a third-year family medicine resident at Lawrence Family Medicine Residency, completing an area of concentration in integrative medicine with a focus on obesity management.

Dr. Bora is the director of the the Integrative Medicine Fellowship at Greater Lawrence Family Health Center/Lawrence Family Medicine Residency.

SYNOPSIS: This cross-sectional study of African-American children 1 to 6 years of age ($n = 31$) in Kansas City, MO, finds a statistically significant inverse correlation between asthma control (measured by Test for Respiratory and Asthma Control in Kids score) and stress from racism.

SOURCE: Jones BL, Staggs V, Woods-Jaeger B. Chronic stress exposure among young African American children with asthma. *Ann Allergy Asthma Immunol* 2019;123:507-508.

It is well established that asthma control depends on several different social determinants of health (SDOH), including built environment, socioeconomic status, and access to healthcare.¹ More recently, racism has been identified as playing a role in SDOH.² National data illustrate racial disparities in asthma morbidity and mortality among children of color compared to non-Hispanic white children.³

The authors conducted a cross-sectional study to assess the relationship between chronic stressors and asthma control in pre-school aged and younger African-

American children located in Kansas City, MO. The parents of 31 African-American children 1 to 6 years of age in a Head Start program completed questionnaires to assess chronic stressors and asthma control.

The chronic stressors assessed were home and caretaker instability (housing/caregiver instability), food insecurity (the six-item United States Food Security Scale), racism/discrimination (the Schedule of Racist Events), neighborhood disorder and violence, family abuse/violence (Expanded Adverse Childhood Experiences [ACE]), parental depression (Patient Health Questionnaire), and

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Summary Points

- This cross-sectional study aimed to assess the relationship between chronic stressors and asthma control in 31 African-American children 1 to 6 years of age in Kansas City, MO.
- Results showed a statistically significant inverse correlation between Test for Respiratory and Asthma Control score and stress from racism, with a *P* value of 0.02.

issues related to urban life (Crisis in Family Systems). Asthma control was assessed using either the Asthma Control Test (ACT, *n* = 11) or the Test for Respiratory and Asthma Control (TRACK, *n* = 20). Results were significant for an inverse correlation between TRACK score and stress from racism (*P* = 0.02). All other comparisons were found to be nonsignificant.

The authors recognized that limitations of the study include a small sample size and the use of parent experience from questionnaires as a proxy of the child's lived experience, which introduces measurement bias. On the other hand, using parent experiences as a tool of intergenerational trauma and its effect on asthma is interesting.

The study design in and of itself is a limitation. As a cross-sectional study, researchers are able to assess only the status of asthma at one point of time. A prospective study, although more time-consuming, would have provided additional information regarding the change in asthma control and stress factors and how this compares with a control group.

Furthermore, there is a question of generalizability, given the study takes place in one city and participants were all from the Head Start program. Those factors introduce selection bias and possible confounders. With all questionnaires, there is the potential of response bias. However, the study does not include the response rate.

An argument also could be made that the age range of participants is too large, given vast developmental differences in that age group. More specifically, the age range introduces the need to use two different questionnaires to assess asthma control — TRACK, which is for persons 5 years of age or younger, and childhood ACT, for ages 4 to 11 years.^{4,5}

For patients 4 to 5 years of age, it is unclear which questionnaire was used and how this was determined.

Despite the limitations, this study builds on emerging research of the effects of racism on asthma. Clinicians taking care of Black children should consider the connections between chronic stressors, racism, and asthma control. They may consider incorporating screening for social determinants of health or adverse childhood experiences into their clinical workflow (assuming they have adequate behavioral health and community support within their clinical settings to adequately manage a positive screen at the time of the clinical encounter). More to the point, healthcare providers should consider the effect of racism and adverse childhood events and be aware of, and collaborate with, community resources and mental health agencies to address the many factors that contribute toward managing childhood asthma. Clinicians may consider taking active roles in advocating for anti-racism within their institutions and in their communities. ■

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FITNESS

ABSTRACT & COMMENTARY

Exercise, Screen Time, and Health During the COVID-19 Pandemic

By Ellen Feldman, MD

Altru Health System, Grand Forks, ND

SYNOPSIS: A Canadian survey capturing one week in the early stages of the COVID-19 pandemic found that respondents reporting exercising outdoors and decreasing or maintaining screen time were more likely to self-report higher levels of mental and physical health. This association was stronger in women when compared to men.

SOURCE: Colley RC, Bushnik T, Langlois K. Exercise and screen time during the COVID-19 pandemic. *Health Rep* 2020;31:3-11.

In March 2020, the world embarked on a race to control and slow the spread of severe acute respiratory coronavirus 2. “Lockdown,” “social distancing,” and “flatten the curve” became household terms. Schools and businesses closed or adopted remote access, unnecessary trips were discouraged, and, for many, electronic communication became the norm.

With a goal of understanding changes in screen time use, exercise, and any association with self-perceived mental or physical health, Colley et al surveyed a population-weighted cross section of Canadian adults during the week of March 29-April 3, 2020. Using a subgroup of participants from ongoing, large-scale surveys of health and related behaviors, 7,242 Canadians aged > 15 years were invited to participate in the Canadian Perspective Survey Series — Impacts of COVID-19 (CPSSI).¹ The 4,627 individuals who responded represent a population of 31 million. Of these, 4,524 responses from adults aged > 20 years contributed to the study.

The survey design is straightforward. Participants self-rated mental health and physical health by choosing one out of five possible responses from poor to excellent. Colley et al then combined the top two categories (very good and excellent) and bottom three (good, fair, and poor) to dichotomize results, facilitate analysis, and provide meaningful interpretation.

In addition, the survey asked if respondents were “doing any of the following activities for your health.” Choices included: exercising indoors for mental health, exercising indoors for physical health, exercising outdoors for mental and physical health, exercising outdoors for mental health, exercising outdoors for physical health, exercising outdoors for mental and physical health, or none

of these. Simplifying responses into exercising for any reason or not exercising aided with analysis.

The final survey category involved time spent with electronics, specifically television, internet, and video games. Respondents were asked if the weekly time spent on each of these pursuits had increased, decreased, or not changed at all. For analysis purposes, these responses were re-coded initially into increase vs. decrease/no change and then further simplified into increased two to three types of screens vs. increased 0 to one type of screen.

RESULTS

Exercise and screen habits reported during the week of March 29-April 3, 2020, include:

1. Sixty percent to 70% of men and women reported exercising outdoors.
2. Sixty-three percent of women and 55% of men reported exercising indoors ($P < 0.05$).
3. More than 60% of men and women reported increasing TV time.
4. More than 60% of men and women reported increasing internet usage.
5. Sixteen percent of women and 24.1% of men reported increasing video game usage ($P < 0.05$).

A more detailed breakdown of results has been summarized in Tables 1 through 3.

■ COMMENTARY

The results of this ambitious survey indicate that a cross section of Canadian adults who reported engaging in outdoor exercise while not increasing more than one type of screen usage over one week in March-April 2020 endorsed higher levels of mental health than those who

Summary Points

- The Canadian Perspective Survey Series — Impact of COVID-19 (CPSSI) surveyed a population-based cross section of 4,627 Canadian adults from March 29 to April 3, 2020, to document exercise habits and changes in screen time and compared those with self-reported ratings of mental and physical health.
- About two-thirds of men and women reported exercising outdoors. An association was seen between women reporting very good to excellent mental and/or general health and outdoor exercise.
- Screen time was divided into three categories: television time, video game time, and internet use.
- Compared with respondents increasing two or more screen types and not exercising outdoors, more respondents reported very good to excellent mental health if they increased the use of 0 to one category of screen and reported exercising outdoors; this association also was seen with physical health in women.

Table 1. Exercise and Health

Percent Reporting High* Mental Health				
	Outdoor Exercise	No Outdoor Exercise	Indoor Exercise	No Indoor Exercise
Men	61.6%	56.5%	60.1%	59.4%
Women	53.7%**	43.6%**	51.3%	45%
Percent Reporting High* General Health				
	Outdoor Exercise	No Outdoor Exercise	Indoor Exercise	No Indoor Exercise
Men	69.4%	67.3%	69.8%	68.7%
Women	75.4%***	49.1%***	68.6%****	61.6%****

*Measured as participants self-reporting their health as very good or excellent.
 ** $P < 0.05$ for women reporting outdoor exercise compared to women reporting no outdoor exercise.
 *** $P < 0.001$ for women reporting outdoor exercise, compared to women reporting no outdoor exercise.
 **** $P < 0.05$ for women who reported indoor exercise, compared to women reporting no indoor exercise.

did not report such a combination. This association was consistently higher in women than in men and held for general health in women as well.

Colley et al are clear about the limitations of this survey. There are no data available regarding pre-existing levels of exercise or screen usage, no clear definition of exercise, and no standard criteria for ranking levels of mental or general health. All data are self-reported, and thus subject to reporter bias. There is certainly no evidence of causation; in fact, it is conceivable that respondents who had high confidence in their own health (mental and general) were more likely to feel comfortable exercising outside — especially in the early stages of COVID-19 when transmission mode was uncertain.

In some respects, this study raises more questions than it generates answers. Areas for future investigations include understanding differences in health outcomes when comparing outdoor vs. indoor exercise, socioeconomic factors influencing exercise and screen habits, and if men and women have a baseline difference in self-reports of health status.

Yet, even with limitations, the results of this survey are translatable for clinical use. Previous studies have shown

a link between exercise and improved mental and general health.^{2,3} Exercise is an important adjunct treatment for depression, and there is evidence that exposure to full spectrum light aids in treatment of specific types of depression.⁴ Excessive screen use time often is associated with sedentary behavior, and linked to worsening symptoms of depression and development of metabolic syndrome.⁵ The results from this current study echo these findings from other studies.

Public health messaging during the COVID-19 pandemic has justifiably focused on managing disease spread, with social distancing a key factor.⁶ The results of this study imply that, during periods of social isolation, there is an association between limiting screen time, engaging in outdoor exercise, and higher self-perceptions of mental and general health, especially in women. With further investigations, public health messaging may incorporate these findings.

It is likely that many of the pandemic-related restrictions will continue for the near future. With “pandemic fatigue” settling in, a focus on wellness is critical. This survey can serve as a reminder to the primary care physician to alert patients to the myriad benefits of physical activity and some of the potential health hazards

Table 2. Screen Usage and Health

Percent Reporting High* Mental Health						
	Increased Television	No Change or Decreased Television	Increased Video Games	No Change or Decreased Video Games	Increased Internet	No Change or Decreased Internet
Men	57.0%**	65.2%**	48.2**	63.2%**	58.4%	64.2%
Women	42.8%***	62.0%***	28.5***	52.1%***	45.5%***	60.5%***
Percent Reporting High* General Health						
	Increased Television	No Change or Decreased Television	Increased Video Games	No Change or Decreased Video Games	Increased Internet	No Change or Decreased Internet
Men	65.7%****	73.9%****	69.6%	69.0%	68.7%	68.6%
Women	62.9%****	71.8%****	63.8%	66.8%	63.3%****	70.8%****

*Measured as participants self-reporting their health as very good or excellent.
 ** $P < 0.05$ for men reporting no change or decrease in television use compared to men increasing television use, and also for men reporting no change or decrease in video game use compared to men increasing video game use.
 *** $P < 0.001$ for women reporting no change or decrease in television use compared to women increasing television use, and also for women reporting no change or decrease in video game use compared to women increasing video game use.
 **** $P < 0.05$ for men and women reporting no change or decrease in television use compared to men and women increasing television use, and also for women reporting no change or decrease in internet use compared to women increasing internet use.

Table 3. Exercise, Screen Habits, and Mental Health

Percent Reporting High* Mental Health				
	Men: Maintained or Increased One Type of Screen	Men: Maintained or Increased Two to Three Types of Screens	Women: Maintained or Increased One Type of Screen	Women: Maintained or Increased Two to Three Types of Screens
Outdoor exercise	59.9%	62.3%	62.3%	44.6%
No outdoor exercise	68.1%	45.2%**	57.2%	29.5%**
Percent Reporting High* General Health				
	Men: Maintained or Increased One Type of Screen	Men: Maintained or Increased Two to Three Types of Screens	Women: Maintained or Increased One Type of Screen	Women: Maintained or Increased Two to Three Types of Screens
Outdoor exercise	70.4%	69.8%	78.6%	73.0%
No outdoor exercise	69.4%	66.5%	53.8%***	46.8%***

*Measured as participants self-reporting their health as very good or excellent.
 ** $P < 0.01$ for men and women who maintained or increased time on only one screen (television, video games, or internet) and were reporting exercising outdoors when compared with those increasing two to three types of screens and not exercising outdoors.
 *** $P < 0.01$ for women exercising outdoors and reporting very good to excellent general health, regardless of screen time compared to those not exercising outdoors. The highest percentage of women endorsing very good to excellent general health was for those who were exercising outdoors and maintained or increased only one type of screen.

inherent in screen use. The results of this study suggest concrete steps, such as increasing outdoor exercise and decreasing screen time, to enhance the self-perception of health during a very stressful period. ■

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ABSTRACT & COMMENTARY

Mindfulness in Disadvantaged Populations

By Ellen Feldman, MD

Altru Health System, Grand Forks, ND

SYNOPSIS: Participation in mindfulness-based group therapy shows promise for reducing stress and improving functioning in this pilot study involving 27 socioeconomically disadvantaged African-American women.

SOURCE: Burnett-Zeigler I, Satyshur MD, Hong S, et al. Acceptability of a mindfulness intervention for depressive symptoms among African-American women in a community health center: A qualitative study. *Complement Ther Med* 2019;45:19-24.

Mindfulness, or the ability to stay grounded and focused in the present moment, non-judgmentally with curiosity and compassion, may feel like part of a modern-day trend, but actually it stems from ancient Buddhist meditation techniques.¹ In the 1970s Herbert Benson, MD, and Jon Kabat-Zinn, PhD, introduced a secularized form of mindfulness to the medical world as a way to combat stress and stress-related disorders, including depression.¹⁻³

Since that time, the popularity of mindfulness-based interventions has grown, with systematic studies looking at its usefulness in alleviating a variety of disorders, including depression. Mindfulness-based stress reduction (MBSR)⁴ and mindfulness-based cognitive therapy (MBCT)⁵ are two structured programs with evidence of efficacy in preventing depression relapse and in reducing depressive symptoms.

However, much of the supporting evidence comes from studies where participant homogeneity interferes with the generalization of findings. Specifically, a 2018 systematic review of 69 randomized controlled trials investigating MBSR and MBCT found only one of the studies deliberately recruited participants from racial minorities or who were of low socioeconomic status. In the 56 studies (out of the 69 total) reporting race, more than 79% of the participants identified as Caucasian, and the majority of the total participants reported income more than \$40,000 yearly.⁶

However, poverty is a risk factor for depression, and studies in the United States have concluded that adult racial minorities are less likely than age-matched non-minority peers to receive treatment for mental health concerns. This high-risk population could clearly benefit from additional treatment options for depression. One concern in the literature about introducing mindfulness interventions to racial/ethnic minorities is that there could be a perceived conflict with religious or spiritual beliefs. Studies looking at this aspect of mindfulness have not found evidence of such a barrier.⁷

Recognizing the potential for use of such interventions in economically disadvantaged minorities, as well as the lack of studies involving this population, Burnett-Zeigler et al designed a pilot study to recruit socioeconomically disadvantaged women with depressive symptoms and determine if mindfulness-based exercises were acceptable and useful for this group. To this end, they recruited women aged 18-65 years from an urban community health center for the study.

Eligibility criteria included depressive symptoms in the mild-severe range (as measured by the Inventory of Depressive Symptomatology and the Quick Inventory of Depressive Symptomatology) without suicidal ideation, plan, or recent attempt. Exclusions included patients not fluent in English or patients currently practicing meditation or yoga at least weekly.

Notably, 86 women were referred (self-referred or from primary care) to this study — 55 were screened, and of the 50 eligible women, 31 enrolled in the study. There were two eight-week groups, each held for 90 minutes/week. The mean session attendance rate was 6.4 sessions for the 14 members of the first group and 6.6 sessions for the 15 members of the second group. The group intervention was an adaptation of classic MBSR with formal mindfulness training, including yoga and meditation instruction, weekly didactics, and assignments to practice daily and document between sessions.

In 2016, Burnett-Zeigler et al reported results from this study. Depression, perceived stress, and mindfulness practice at baseline, eight weeks (end of group), and 16 weeks were among the measurable outcomes. Quantitative results indicated a significant decrease in depression scores between baseline and 12 weeks ($P = 0.04$), with most of the drop occurring after week 8. Perceived stress scores fell throughout, with a significant drop ($P = 0.02$) between baseline and week 16. Other outcome measures, including mindfulness, self-acceptance, and growth, showed significant increases during the eight weeks and less significant increases at 16 weeks.⁸ In contrast, this

Summary Points

- Adult women with symptoms of mild to severe depression recruited from an urban community health center enrolled in one of two eight-week sessions of a weekly mindfulness group, culminating in an additional 60-minute focus group.
- Analysis of feedback and input from the participants during the focus groups provide data regarding the acceptability and applicability of this intervention in this population.
- Of the 86 women referred, 31 enrolled and 27 completed at least one session in addition to the focus group; attendance was high, with a mean attendance rate of 6.4- 6.6 sessions (out of eight sessions.)
- Benefits reported by the 27 women included better anger control, increased emotional regulation, better behavioral control, and a better ability to relax. Barriers included transportation problems and time conflicts.

follow-up study evaluates qualitative changes as documented by an analysis of a 60-minute focus group discussion after the eight weeks of mindfulness groups.

The aim of the study was to understand participants' thoughts and attitudes toward the mindfulness intervention, including whether participants found the intervention useful, and to elicit feedback regarding barriers to participation. Focus group invitations were issued to women who had attended at least one of the eight mindfulness groups; a small financial incentive (transportation reimbursement and a \$25 gift card) were offered to enhance motivation for attendance.

The summarized results include:

1. Reasons for joining the study included motivation to learn yoga, learn how to reduce stress, and revive or relearn mind-body approaches used in the past (such as meditation).
2. Perceived benefits of the mindfulness groups fell into four general areas as defined by the women in the focus group: anger control, emotional control, awareness/focus, and relaxation. Women voiced specific statements regarding improvement in at least one of these areas.
3. Perceived barriers to attendance, as defined by women in the focus group, fell into four general areas: transportation, time conflict with work, time conflict with family responsibilities, and psychological. Some of the psychological barriers included stigma and avoidance of difficult emotions.
4. "Facilitators" to attendance included holding the groups at a familiar site (medical clinic), providing transportation cards, homework, and the reinforcement of concepts with compact discs, social support, and keeping the group as women only.
5. Suggestions included offering a more advanced group after completion of the first group, expanding time for yoga, increased time for mindfulness meditation practice in groups, and offering the groups to other populations, such as teens in the community.

■ COMMENTARY

At first glance, this qualitative analysis may not appear impressive. The numbers of participants are low, and specific data points (such as percentage of women reporting specific improvements) are lacking. A deeper look, however, reveals that Burnett-Zeigler et al accomplished a stated goal of understanding perceived benefits, usefulness, and barriers to a mindfulness intervention in this population in a straightforward manner — by asking the women and then analyzing the replies.

The low number of participants is very appropriate for a pilot study. More studies looking at the use of mindfulness techniques and interventions in low socioeconomic populations and in racial minorities will promote understanding whether the acceptability and usefulness of this type of intervention are generalizable, or whether it is more suited to specific subsectors. Cost factors, not reported in this investigation, also will be useful in evaluating the full benefits of mindfulness interventions.

This work also may serve as a reminder to primary care physicians that antidepressants are not the only intervention with evidence-based efficacy for depression and depressive symptoms. Depression is a complex, multifactorial disease state best addressed with a holistic, multi-pronged approach.⁹

Although this study focused on qualitative results, some of the numbers deserve mention. Out of the 55 women screened to participate in this study, 50 (91%) were eligible. This highlights the level of depression in this population and suggests motivation to explore complementary therapy or a perception of unmet need in current treatment plans. This is consistent with reports in the literature noting that compliance with antidepressants is low (40% to 75%) in general, and that African-Americans and Hispanics are more likely than Caucasians to find antidepressants unacceptable because of a variety of concerns, including side effects and addiction.⁹ Availability of alternative interventions may help increase willingness

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to be treated. However, it also is noteworthy that, of the 50 eligible participants, only 31 (62%) enrolled in the study. Understanding the factors compelling these women not to proceed would be helpful in gaining a more complete picture.

It is both curious and troubling that past studies of mindfulness-based interventions have not targeted lower socioeconomic groups or racial/ethnic minorities. This qualitative analysis of the Burnett-Zeigler et al pilot study, along with the previously published quantitative results, point strongly to a prominent role for mindfulness interventions in the treatment of depression for disadvantaged, depressed women, and may spark curiosity about evidence-based studies in other marginalized communities.

While waiting for broader and more definitive studies, it is well worth promoting and advocating for the availability of this intervention when working with depressed women in urban clinic settings. ■

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CME QUESTIONS

1. In the study by Jones et al, poor asthma control was associated with:
 - a. food insecurity.
 - b. parental depression/mental health.
 - c. racism and neighborhood violence.
 - d. racism only.
2. A Canadian survey during early days of the pandemic showed:
 - a. men and women who exercised outdoors and maintained or increased time on only one screen reported higher levels of mental health compared to those not exercising outdoors and increasing time on two or more screens.
 - b. more women than men exercised outdoors.
 - c. a higher percentage of women exercising outdoors endorsed higher levels of general health compared with early 2020.
 - d. men who increased video game usage tended to self-report lower mental health.
3. Qualitative findings from mindfulness group therapy in a population of socioeconomically disadvantaged women:
 - a. suggests that this type of therapy is potentially useful, but not well accepted by the majority of participants.
 - b. suggests that this type of therapy is potentially useful and well accepted by the majority of participants, but impractical to administer because of costs and staffing factors.
 - c. suggests that this type of therapy is potentially useful and well accepted by the majority of participants, but that there may be undocumented barriers to attendance (as noted by the 62% enrollment rate of those referred and screened).
 - d. suggests that this type of therapy is potentially useful and well accepted by the majority of women participating in the groups, but attendance rates were quite low because women stopped coming to groups because of stigma and transportation problems.

[IN FUTURE ISSUES]

Metabolic Associated
Fatty Liver Disease
and Exercise

Dairy and Bone Loss

Rheumatoid Arthritis
and Diet

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