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Comparing Health Risk Behaviors of Central Kentucky Middle School Aged Boys with Those of Their State-wide Counterparts: An Ecological Study in the State of Kentucky

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Abstract

The current study uses baseline data collected in 2017 on participants attending middle schools in Central Kentucky (Fayette, Scott, and Franklin counties) who were administered an abbreviated version of the Youth Risk Behavior Surveillance Survey (YRBSS) and participated in Kentucky State University's Please Call Me Mister Program (PCMMP) compared to results for their counterparts, who were randomly selected state-wide to complete a CDC national youth risk behavior surveillance survey state-wide referred to as the Kentucky Youth Risk Behavior Surveillance Survey (KYRBSS). PCMMP participants who resided in Central Kentucky were significantly more likely to have reported ever riding with a driver who had been drinking alcohol, having a physical fight, and being bullied in school. In addition, PCMMP middle school participants reported significantly higher rates of sexual intercourse, alcohol use, and participation on at least one team in the last 12 months. Conversely, students state-wide reported higher rates of rarely or never wearing a bicycle helmet when bicycling and skateboarding as well as carrying a weapon. The data uncovered in this research offer potential direction for larger studies investigating the causal differences in participation in high-risk behaviors among high school students in Central Kentucky and the state of Kentucky.

Keywords: Health risk behaviors; Middle school aged boys

Introduction

Prior research has included alarming data about the academic, social, and health disparities facing minority youth, with much of the current research describing this group as a disparate population [1,2]. According to United States Public Law 106-525 (2000), disparate populations are those with significant differences in overall prevalence, incidence, mortality, or survival rates related to diseases or conditions that affect health outcomes in comparison to the general population. A disparate population is disproportionately predisposed to negative health outcomes because of economic reasons [3-6] environmental reasons [3,6,7], and/or societal reasons [8,9].

Though national surveillance studies have collected and stratified health behavior outcome data for Kentucky middle school students through the Kentucky Youth Risk Behavior Surveillance Survey (KYRBSS) [10], limited ecological data have been collected and analyzed among the unique population of minority children living in Central Kentucky (Fayette, Scott, and Franklin counties) [11]. They are unique in that, as minorities, they make up a small percentage of the general population, and they are among the vulnerable residents in the area.

Franklin County, Kentucky has an estimated population of approximately 50,815 residents and serves as the state capital [12]. In this county, appropriately 36.1% of African Americans and 76.2% of Hispanic Americans live in poverty [13]. Fayette County has approximately 323,780 residents. In this county, 33.9% of both African Americans and Hispanic Americans live in poverty [13] Scott County have 56,031 residents, and 35.2% of its African Americans and 34.3% of its Hispanic Americans live in poverty [13].

The link between poverty or low socioeconomic status and poor physical and mental health has been well documented [14-16]. Specifically, living in a disadvantaged community, typically defined as one with a high concentration of minority families below the poverty level, is associated with a wide range of negative outcomes in early childhood and youth development. Adolescents who live in poverty are at an elevated risk for conduct problems, substance use, poverty-related stress, and depression [17-19].

The current study uses baseline data collected in 2017 from participants attending middle schools in Central Kentucky (Fayette, Scott, and Franklin counties) who were administered an abbreviated version of the Youth Risk Behavior Surveillance Survey (YRBSS) and participated in the Please Call Me Mister Program (PCMMP) at Kentucky State University (KSU) compared to the results for their counterparts, who were randomly selected state-wide to complete a CDC national youth risk behavior surveillance survey referred to as the KYRBSS.

Methods

KSU-PCMMP is a holistic program implemented in 2018 to serve vulnerable middle school youth in Central Kentucky. Prior to the beginning of the study, it was approved by the Institutional Review

Board of KSU. The investigative team met with administrators representing three large school districts in Central Kentucky seeking permission to conduct the study among students on their campuses. After verbal agreement was obtained from the schools' administrators, a memorandum of understanding was signed, granting the study team access to students, faculty, and staff to assist with data collection and survey administration. A contact person/co-ordinator at each school was assigned by the respective administrators to serve as the liaison between the school and the investigative team.

Students were given a consent form to take home to their parents or guardians. Students who returned their signed consent forms were considered eligible for study participation. Inclusion criteria for KSU-PCMMP participants included enrolment in a school in either district, the ability to speak, read, and write English, and parental permission. Informed consent was required of all participants. Individuals not returning consent forms or whose parents indicated that they did not wish them to participate were deemed ineligible to take part in the study.

With university and school district approval, the study began with the collection of baseline data. Trained research assistants collected baseline surveys by meeting with students in the schools' common areas that were not in use at the time data collection commenced. The importance of the study and the procedures in place to assure confidentiality were explained to students before each data collection period began. Students who did not wish to participate were escorted back to their classrooms by a member of the study team. To obtain the maximum number of student responses, reasonable efforts (at least two attempts within the 2 weeks before the original study date) were made to locate and survey students who were absent during scheduled survey administration days. The data collection team consisted of a principal investigator and two data collectors, both assigned to gather participant data. All received training from the project's principal investigator and were knowledgeable about the study's objectives and the rights of human subjects.

Measures

An abbreviated version of the YRBSS was used in this cross-sectional study. The YRBSS was developed in 1990 to monitor priority health risk behaviors that contribute markedly to the leading causes of death, disability, and social problems among youth and adults in the United States [20]. These behaviors, often established during childhood and early adolescence, include behaviors that contribute to unintentional injuries and violence, sexual behaviors related to unintended pregnancy and sexually transmitted infections, including HIV, and alcohol use. The CDC has conducted two test-retest reliability studies of the national YRBSS questionnaire, one in 1992 and the other in 2000. In the first study, the questionnaire was administered on two occasions, 14 days apart, to a convenience sample of 1,679 middle and high school students [20]. Approximately three-fourths of the items were rated as having a substantial or higher reliability (kappa=61%-100%), and no statistically significant differences were observed between the prevalence estimates for the first and second times that the questionnaire was administered. The responses of seventh grade students were less consistent than those of students in higher grades, indicating that the questionnaire is best suited for students in eighth grade or higher. Because all the questions taken from YRBSS for this study were categorical, the chi-square statistic was used to test differences in the reported health behaviors between the two data groups.

Results

Demographic data

The 166 students from KSU-PCMMP program were primarily African American (64.5%). Hispanic Americans (33.7%) were also represented. The respondents were currently in sixth (35.5%), seventh (30.7%), and eighth (33.1%) grades. Most of the sample reported that they were 11 (25.3%), 12 (27.7%), or 13 (34.4%) years of age. In addition, all the respondents were male. According to the CDC (2019) state-wide, 545 male middle school male students participated in KYRBSS state-wide. Most of the respondents were White (62.9%), followed by Hispanic-Americans (8.0%) and African Americans (6.2%). Accordingly, they also represented the sixth (24.0%), seventh (38.7%), and eighth (37.3%) grades. In addition, the majority of the sample was age 11 (11.3%), 12 (26.5%), or 13 (40.2%).

Vehicle-related behaviors causing unintentional injuries

Central Kentucky middle school aged PCMMP program participants were statistically significant more likely to have ridden with a driver who had been drinking alcohol than their counterparts reporting on the KYRBSS (23.6% *vs.* 16.2%) (X^2=7.34, $p \leq 0.05$). Comparison of data collected regarding respondents who rarely or never wore a bicycle helmet revealed that PCMMP participants reported significantly lower rates (KYRBSS: 73.9% *vs.* PCMMP: 61.5%) (X^2=10.26, $p \leq 0.05$). In addition, the KYRBSS results showed that boys state-wide were more likely to report rarely or never using a helmet when skateboarding (77.4%) than PCMMP participants (84.3%).

Weapon-related behaviors causing intentional and unintentional injuries

PCMMP participants were less likely to report carrying a weapon than their counterparts reporting on the KYRBSS (20.5% *vs.* 45.4%) (X^2=34.3, $p \leq 0.05$). However, PCMMP respondents reported much higher rates of having a physical fight than their state-wide counterparts (66.9% *vs.* 45.8%) (X^2=34.3, $p \leq 0.05$); being electronically bullied (22.3% *vs.* 14.2%) (X^2=5.6, $p \leq 0.05$), and being bullied in school (44.6% *vs.* 37.7%). Last, PCMMP respondents reported higher rates of planning to kill themselves (8.4% *vs.* 6.4%) and ever trying to kill themselves (4.8% *vs.* 3.9%) than KYRBSS respondents.

Drug use and sexual behaviors

KYRBSS respondents reported (16.2% *vs.* 24.1%) a statistically significant lower lifetime prevalence of alcohol use (X^2=5.5, $p \leq 0.05$). Almost twice as many PCMMP respondents reported participation in sexual intercourse (12.7%) as their KYRBSS counterparts (6.3%) (X^2=7.2, $p \leq 0.05$). Although the result is not significant, KYRBSS respondents overall showed a higher lifetime prevalence of cigarette smoking (11.0%) than the PCMMP respondents (13.3%). In addition, KYRBSS and PCMMP respondents reported comparable rates of vaping in their lifetime (13.9% *vs.* 14.6%), whereas PMMM reported higher marijuana use (6.6% *vs.* 10.2%).

Health and social behavioral norms

KYRBSS respondents overall showed a statistically significant higher prevalence of playing on a sports team in the last twelve months (35.5%) compared to their PCMMP respondents (77.7%) (X^2=95, $p \leq$

0.05). KYRBSS and PCMMP respondents reported similar rates of not eating breakfast in the last 7 days (8.4% *vs.* 7.1%). KYRBSS respondents reported (12.5% *vs.* 14.5%) less physical activity for at least 60 minutes in 1 day over the last 7 days than their PCMMP counterparts. In addition, KYRBSS respondents reported (24.0%) a lower rate of watching of 3 or more hours of television on school days than their PCMMP counterparts (30.7%). KYRBSS and PCMMP respondents reported (46.2% *vs.* 44.6%) similar rates of 3 or more hours per day playing video or computer games. The two groups also had similar rates (43% PCMMP *vs.* 46.1% KYRBSS) of receiving less than 8 hours of sleep on an average school night.

Discussion and Conclusion

Compared to their and state-wide middle school counterparts, PCMMP participants who resided in Central Kentucky were significantly more likely to report ever riding with a driver who had been drinking alcohol, having a physical fight, and being bullied in school. In addition, PCMMP middle school participants reported significantly higher rates of sexual intercourse, alcohol, and participating on at least one team in the last 12 months.

Minorities who reside in urban environments are disproportionately exposed to chronic stress by systemic racism, discrimination, violence and crime, food insecurity, unemployment, neighborhood devaluation, and low socioeconomic status [21-24]. When youth are chronically exposed to environmental stressors, deregulated stress response creates the need for a coping strategy to alleviate negative effects that are longitudinally more difficult to treat or manage [25,26]. These data suggest that sexual activity and alcohol use may be gateway coping strategies that PCMMP respondents use to self-medicate. In addition, researchers have hypothesized that these urban stressors may have led to PCMMP respondents reporting higher rates of violence.

Conversely, students state-wide reported higher rates of rarely or never wearing a bicycle helmet when bicycling and skateboarding as well as carrying a weapon carrying to the United States Census [12,27] nearly 50% of all counties in the state of Kentucky are rural. Traditionally, there has been a major disparity in the accessibility of health public resources between rural and urban communities [28,29]. Specifically, the social norms that have been implemented and reinforced in urban communities, such as policy enforcement, public health education, and policing, are not equitably operationalized between urban and rural counties [29]. It has been hypothesized by researchers that traditional rural behaviors such as carrying a weapon may be associated with equipment for hunting, sport shooting, and protection from wildlife, in contrast to the urban context of young people carrying guns and promoting unwise usage, dangerous play, and violence toward society [30-34]. Nonetheless, because nearly half of the middle school students who participated in the state-wide KYRBSS could have been rural, these and other socio-cultural differences such as how race and culture interact with public health issues need additional research discovery and interventions.

This is one of the first health behavior studies designed to explore the differences between a cross-section of middle school students in Central Kentucky (Fayette, Scott, and Franklin counties) and the state of Kentucky. Because this ecology study by nature does not suggest causality, the findings from this study must be interpreted with caution. The current study has four limitations. Because of the small sample of students in the current study, conclusions regarding students who reside in Central Kentucky are extremely limited. Although this study provides a start, larger comparative studies will provide a more accurate reflection of the rates of the explored health behaviors. Second, data for this study were taken from treatment and comparison group participants entering a health education program. The sample size and the limited area from which student respondents were drawn limit the generalizability of the study's results. Third, this study does not reflect the entire youth population in Central Kentucky because of the lack of inclusion of White youth. Last, the present study is limited by the number and types of questions asked of the participating students. Nonetheless, the data uncovered in this research offer potential direction for larger studies investigating the causal differences in participation in high-risk behaviors among high school students in Central Kentucky and the state of Kentucky.

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References

1. Peters RJ, Meshack A, Amos C, Scott-Gurnell K, Savage C, Ford K (2010) The association of drug use and post-traumatic stress reactions due to Hurricane Ike among Fifth Ward Houstonian youth. J Ethn Subst Abuse 9: 143-151.
2. Williams DR, Mohammed SA (2009) Discrimination and racial disparities in health: Evidence and needed research. J Behav Med 32: 20-47.
3. Dawkins CJ, Shen Q, Sanchez TW (2005) Race, space, and unemployment duration. J Urban Economics 58: 91-113.
4. Kalousova L, Danziger S (2014) Racial disparities in economic well-being in the Detroit metropolitan area after the great recession. National Poverty Center Working Paper Series.
5. McLoyd VC, Jayaratne TE, Ceballo R, Borquez J (1994) Unemployment and work interruption among African American single mothers: Effects on parenting and adolescent socioemotional functioning. Child Dev 65: 562-589.
6. Williams D (2012) Race, ethnicity and crime: Alternate perspectives. New York, Algora Publishing.
7. Costello EJ, Keeler GP, Angold A (2001) Poverty, race/ethnicity, and psychiatric disorder: A study of rural children. Am J Public Health 91: 1494-1498.
8. Allen TD (2007) Katrina: Race, class, and poverty: Reflections and analysis. J Black Stud 37: 466-468.
9. Ornelas IJ, Amell J, Tran AN, Royster M, Armstrong-Brown J, et al. (2009) Understanding African American men's perceptions of racism, male gender socialization, and social capital through Photovoice. Qual Health Res 19: 552-565.
10. Kann L, McManus T, Harris WA, Shanklin SL, Flint KH, et al. (2016) Youth risk behavior surveillance-United States, 2015. MMWR Surveill Summ 65: 1-174.
11. United States Census Bureau (2016) Quick facts: Franklin County, Kentucky.
12. United States Census Bureau (2019) Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2018.
13. Centers for Disease Control and Prevention (2019) 1995-2017 Middle School Youth Risk Behavior Survey Data.
14. Santiago CD, Wadsworth ME, Stump J (2011) Socioeconomic status, neighborhood disadvantage, and poverty-related stress: Prospective effects on psychological syndromes among diverse low-income families. J Econ Psychol 32: 218-230.

15. Wolff BC, Wadsworth ME, Santiago CD (2011) Family poverty, stress, and coping. Encyclopedia of adolescence 941-951.
16. Ayoub M, Gosling SD, Potter J, Shanahan M, Roberts BW (2018) The relations between parental socioeconomic status, personality, and life outcomes. Social Psychological and Personality Science 9: 338-352.
17. Ross CE (2000) Neighborhood disadvantage and adult depression. J Health Soc Behav 41: 177-187.
18. Ross CE, Mirowsky J (2001) Neighborhood disadvantage, disorder, and health. J Health Soc Behav 42: 258-276.
19. Steptoe A, Feldman PJ (2001) Neighborhood problems as sources of chronic stress: Development of a measure of neighborhood problems, and associations with socioeconomic status and health. Ann of Behav Med 23: 177-185.
20. Brener ND, Kann L, Shanklin S, Kinchen S, Eaton DK, et al. (2013) Methodology of the youth risk behavior surveillance system-2013. Morbidity and Mortality Weekly Report: Recommendations and Reports 62: 1-23.
21. Grant KE, Katz BN, Thomas KJ, O'Koon JH, Meza CM, et al. (2004) Psychological symptoms affecting low-income urban youth. J Adolesc Res 19: 613-634.
22. Hong JS, Voisin DR, Lee J (2018) Urban African American youth and their caregivers' perceptions of school safety in Chicago: A social-ecological perspective. Youth Violence and Juvenile Justice 16: 174-189.
23. Lardier Jr. DT, MacDonnell M, Barrios VR, Garcia-Reid P, Reid RJ (2018) The moderating effect of neighborhood sense of community on predictors of substance use among Hispanic urban youth. J Ethn Subst Abuse 17: 434-459.
24. McCabe KM, Clark R, Barnett D (1999) Family protective factors among urban African American youth. J Clin Child Psychol 28: 137-150.
25. Goldstick JE, Bohnert KM, Davis AK, Bonar EE, Carter PM, et al. (2018) Dual trajectories of depression/anxiety symptoms and alcohol use, and their implications for violence outcomes among drug-using urban youth. Alcohol Alcohol 53: 659-666.
26. Walton MA, Epstein-Ngo Q, Carter PM, Zimmerman MA, Blow FC, et al. (2017) Marijuana use trajectories among drug-using youth presenting to an urban emergency department: Violence and social influences. Drug Alcohol Depend 173: 117-125.
27. United States Census Bureau (2019) Metropolitan and Micropolitan.
28. Gutschall M, Thompson K, Lawrence E (2017) Addressing health disparities in rural nutrition practice: A qualitative model from rural Appalachia. J Hunger Environ Nutr 13: 84-99.
29. Hartley D (2004) Rural health disparities, population health, and rural culture. Am J Public Health 94: 1675-1678.
30. Mencken FC, Froese P (2017) Gun culture in action. Social Problems 66: 3-27.
31. Yamane D (2017) The sociology of US gun culture. Sociol Compass 11: e12497.
32. Centers for Disease Control and Prevention (2017) High school YRBS participation history & data quality, 1991-2015.
33. Robert Wood Johnson Foundation (2015) County health rankings.
34. Walston H, Meshack A, Peters RJ (2017) Intervention methodologies targeting vulnerable youth in Frankfort, Kentucky: Measuring developmental assets. Int J Soc Sci Stud 5: 9-15.