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School Children's Health In Relation To Their Sleeping Pattern, Screen Time And Eating Habits.

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ABSTRACT

This research used a statistically representative sample from the Begusarai region of Bihar to analyse sleep length and the correlation between short sleep duration and several lifestyle variables. There were a total of 209 kids (8-17 years old; 51% male) in the study. Students filled out computerised questionnaires with the help of professors to evaluate their dietary habits, sleep schedules (both workday and weekend), levels of physical activity, and amounts of time spent sitting. Physical education instructors collected anthropometric data and fitness assessments. Inadequate sleep duration was reported by a higher percentage of men than females (42.3% vs. 37.3%, P .001) and a younger age group than adolescents (42.1% vs. 32.8%, P .001). After controlling for other factors, researchers discovered that getting too little shut-eye was linked to poor eating habits too much time in front of the TV (OR 1.26, 95% CI 1.21-1.31), and excess weight or obesity (OR 1.21, 95% CI 1.17-1.25). Conclusions: This research found that kids and teens who didn't get enough sleep had a more unhealthy profile overall. These findings provide credence to the idea that interventions might assist college students increase their average nightly hours of sleep.

Keywords: Sleeping time, Screen time, Eating habit and Children's health.

INTRODUCTION

Insufficient sleep duration is defined as less than the minimum amount of time advised by the American Academy of Sleep Medicine [1]. This minimum amount of time is 9 hours for children and 8 hours for adolescents. Although almost 69% of American children and 58% of American adolescents get the recommended amount of sleep (at least 8 or 9 h/d) on school nights [2], many school-aged children and teenagers do not get enough sleep. More than an hour of sleep has been lost during the previous century among children and adolescents, according to an assessment of research that included data from 20 nations [3]. Children's hormones and metabolism are better regulated when they get the recommended amount of sleep [4]. Adolescents' physical and mental health, as well as their academic performance, may all suffer from a lack of sleep, as shown by several studies [5,6]. Short sleep duration is associated with dyslipidemia, impaired glucose homeostasis, and hypertension in children and adolescents [7-9]. Three recent meta-analyses and reviews reached the same conclusion: insufficient sleep is linked to a higher risk of becoming overweight in children and adolescents [11-13]. In addition, a Greek research of children aged 10 to 12 found that the body composition of its participants was moderated in part by

their intake of sugary beverages, their level of physical activity, and the number of hours they slept each night [14]. Several researchers found a correlation between screen usage and less time spent sleeping [15]. Children and teenagers' overall screen time has increased, and this may be to blame for the trend of shorter sleep duration over the previous century. The method in which we choose to eat is a critical behavioural route that has been linked to an increased risk of obesity and may be impacted by how long we spend asleep. Short sleeping times have been linked to poor diet choices [16]. Insufficient sleep has been linked to issues with eating, feeling full, and maintaining a healthy weight [17], and endocrinological processes involving hormones such cortisol, insulin, ghrelin, and leptin have been postulated to explain this. To sum up, there is a lack of information on how many aspects of children's daily lives affect their total amount of sleep each night. Consequently, the goals of the present research were to (1) assess the frequency with which adolescents (aged 8-17) do not get enough sleep and (2) explore the relationship between inadequate sleep and a variety of behavioural and environmental variables. We postulated that lifestyle parameters would suffer from inadequate sleep.

METHOD

PARTICIPANTS

The district wide school health survey in the city of Begusarai (Bihar) provided statistically valid and reliable results that were weighted to the district's population. From March to August of 2022, participants provided information on their anthropometrics, diet, PA, sleep, sedentary behaviours, and PF, as well as their age and sex. Twenty-nine elementary and middle school students (51 percent boys, 49 percent girls) from both public and private institutions volunteered to take part in the research. About this school health survey, parents were notified in writing.

School administrators were surveyed to get student demographic information (grade, gender, and birth year). The children's heights, weights, and waist sizes were measured using a standardised technique first thing in the morning. Body mass index (BMI) was classified using the standards established by the International Obesity Task Group [18], which account for both age and gender. All measurements were taken by certified physical education teachers (PE). The kid was given verbal permission from his PE teachers to take part in the tests. All five fitness tests were administered by trained professionals in the field of physical education (PE) in real time during regular PE classes; these professionals were provided with an extensive manual of operations and measured participants using a systematic approach to minimise inter-school variation. Patterns of Consumption Analysis Students who participated in the research filled out an online questionnaire on their eating habits, exercise routines, and screen time with the support of their teachers and/or computer science professors. The overall KIDMED (Mediterranean Diet Quality Index for Children and Adolescents) score ranged from 0 to 12, and it was divided into the following three parts: A score of 8 indicates strict adherence to the MD (adequate eating habits), a score of 4-7 indicates average adherence to the MD with some room for improvement to align dietary intake with guidelines (adequate eating habits to a lesser extent. The questionnaire was a revised version of those used in previous large-scale epidemiological investigations of children [21]. It was divided into three parts, each of which had three basic closed-type questions concerning the children's engagement in three distinct forms of physical activity. Walking, bicycling, jogging, practising aerobics, etc., all fall under the category of moderate to intense physical

activity since they raise the heart rate and/or breathing rate. Children who met the PA recommendations by participating in at least 60 minutes of MVPA per day were considered to have met those requirements. Time spent each day by each student on sedentary activities (such as passive media consumption, non-academic internet use, and computer/console gaming) was also calculated (by multiplying the weekly frequency of participation with the duration per bout of participation in sedentary activities, and then dividing by seven). Based on the most up-to-date scientific facts and guidelines, twenty-two students were classified as sedentary or not depending on how much time they spend sitting each day (> 2 h/d vs. 2 h/d). Success's Main Metric All participants were required to maintain a sleep journal for the duration of the study, detailing how many hours and minutes they slept on average every day over the week. One example of a sleep-related query is "How long do you often sleep on weekends?" also, "On average, how many minutes per hour do you sleep?"

([minutes weekdays 5] + [minutes weekend days 2] / 7) was used to get a total sleep score for the week. Adolescents (those aged 13–17) who slept for at least 8 hours per day were considered to be getting an adequate amount of sleep, while children (those aged 6–12) who slept for at least 9 hours per day were considered to be fulfilling the standards. Under-rested kids and teens are those who get less than the minimum amount of hours of sleep each night.

RESULTS AND DISCUSSION

This study analysed information from 209 children and teenagers aged 8 to 17. It was found that 42.5% of men and 37.3% of women experience sleep deprivation (P .001). In addition, more kids than teens reported having trouble sleeping (42.1% vs. 31.8%, respectively; P .001). Women slept longer than males on weeknights, weekends, and averages (P .001). Women who are overweight (9.0 1.5 h/d) and obese (8.9 1.6 h/d) sleep less than women who are of a healthy weight (9.2 1.4 h/d) (all P .05). Sleep duration was greatest for those classified as normal weight (8.9 1.5 h/d) compared to those classified as overweight (8.7 1.5 h/d) or obese (8.6 1.6 h/d) (all P .05). Compared to participants of the same age and sex who obtained the necessary amount of sleep, those who were categorised as having inadequate sleep duration had higher body mass indexes, worse food habits, more screen time, and lower aerobic fitness and physical activity (only in teenagers) (all P .05). In unadjusted multivariate binary logistic regression, eating fast food, missing breakfast, and eating sweets/chips numerous times a day were each independently related with an elevated risk of insufficient sleep duration across both sexes. Conversely, eating more produce, beans, fish, olive oil, and dairy products each day was related with less fast food intake (Model 1). This association persisted even after accounting for other covariates (such as age, BMI, waist circumference, and physical activity) (Model 2). After further controlling for screen time, the same results persist (Model 3). Keeping in mind that those who did not get enough sleep had a lower lifestyle profile than those who did, stepwise logistic regression analyses (Model 4) were performed on both sexes to explore the probable relationships between various characteristics and sleep duration (sufficient versus insufficient). The first model (Model 1) indicated that the risk of inadequate sleep decreased by roughly 3% annually for boys as they grew older, but the risk of being overweight or obese increased by 25% annually for men and 16% annually for women. When the KIDMED index and PA levels were included to the analysis (Model 2), the results regarding the effect of age and obese status were unchanged, but good eating habits decreased the risk of children having insufficient sleep length. The results revealed that spending more time inactive had a

detrimental impact on sleep quality, even after accounting for screen time (Model 3). Finally, including PF measurements (Model 4) did not significantly alter the influence of the previously studied characteristics, while superior aerobic fitness performances were associated with lower risks of sleep deprivation. Using a sex-based discriminant analysis, we compared those who slept for short periods of time to those who slept for longer periods of time. The standardised function coefficients show that there is a higher association between membership in these groups and a person's dietary habits, screen time, and body mass index than there is between any of the other variables studied. The results of the classification indicated that the model correctly predicted that 73% of participants had an acceptable amount of sleep time, whereas 68% were incorrectly labelled as having insufficient sleep time.

209 kids aged 8 to 17 from Begusarai's primary and secondary schools were used as the sample (Bihar). The major focus of the programme was to investigate the relationships between obesity, PF, PA, and other lifestyle factors (eg, eating habits, sleeping levels and screen time). Credible, consistent, and comparable findings emerged from the study's methodology. The involvement of school-based monitoring in the development and evaluation of public health intervention programmes was also shown to be beneficial. Lack of sleep was linked to poor eating habits, too much screen time, and being overweight in both boys and girls, affecting almost 40% of school-aged children. More over 40% of those polled reported feeling sleep deprived. Almost 35% of American school-aged children and teens do not get adequate sleep (defined as 8 or 9 hours per day) on school nights, according to recent figures. Similarly, a study of ten European cities indicated that over 34 percent of adolescents had trouble sleeping [23]. Women slept somewhat longer than men (8.9 1.4 h/d vs. 9.1 1.5 h/d, P .001), while younger people slept longer than teenagers (9.5 h/d vs. 8.5 h/d, P .001). Consistent with the current study, the United States National Sleep Foundation [24] observed in 2014 that adolescents slept, on average, less than children did (8.0 h/d vs. 8.9 h/d). According to the Healthy Eating and Lifestyle in Adolescence (HELENA) study [23], it has been shown that European teenagers sleep, on average, for eight hours each day. A worryingly high percentage of Greek youngsters are overweight or obese [25]. According to these findings, decreased sleep duration in children and adolescents is associated with a 20% increased chance of becoming overweight or obese. Several studies have shown evidence of this correlation. Insufficient sleep duration in children and adolescents is associated with an increased risk of obesity, according to three recent studies and meta-analyses [11-13]. The calculated pooled ORs for the association between inadequate sleep and obesity ranged from 1.30 to 1.71, with substantial variation in effect among studies. The discrepancy between the results may be due to variations in the cutoff for poor sleep, the location, the cohort, or the definition of overweight. Our results showed that short sleep duration was significantly linked to eating habits, screen time, and aerobic fitness. Scientists have shown that persons who get enough shut-eye eat healthier than those who don't [16,26,27]. This is because sleep-deprived people have a higher consumption of breakfast foods, fast meals, and sugary snacks. A meta-analysis of studies involving the general population found that a lack of sleep was consistently associated with unhealthy eating behaviours and diets [28]. We found that less sleep led to increased screen time for persons of both sexes. Kids' increasing screen time at school can be related to their reduced sleep time at home. Short-sleepers absorbed much more screen time than long-sleepers, according to the HELENA study of adolescents in 10 European cities [23,26]. In addition, research

conducted on children aged 4-13 found a correlation between TV and computer use, in particular, and reduced sleep length. Ninety percent of studies revealed a negative connection between screen time and reduced sleep duration, according to a meta-analysis of 67 studies including students [29]. Exercise did not affect people's sleep duration even after controlling for other variables. No statistically significant relationships were discovered between sleep duration and PA [23] in the HELENA study, which included participants aged 12.5–17.5 from 11 countries. Another investigation among 1,586 Italian 11–14-year-olds revealed no connection between total sleep time, weekday sleep time, or weekend sleep time and PA levels [16]. Recent studies of schools in Australia, Croatia, Slovenia, and the United States have shown no associations between objectively evaluated physical activity and sleep length [30, 31]. Finally, the current study emphasised that when aerobic fitness capabilities improved, the risk of receiving poor sleep also improved. Similar findings were obtained in a study of Canadian kids aged 6-17, which concluded that those with low aerobic fitness scores slept less than the norm [32]. In 1,726 Portuguese females between the ages of 10 and 18, researchers observed a link between poor sleep quality and worse aerobic fitness levels [33]. A recent systematic review of randomised controlled trials [34] concluded that regular physical exercise improved either the duration or quality of sleep. They were more likely to get adequate shut-eye, and their improved cardio fitness might have far-reaching positive effects on their future health. Standardized, verifiable, and comparable results may be extracted, allowing for a comparison of data from similar studies. The limitations of the present study include methodological issues (the cross-sectional design cannot prove causal linkages, other than recommendations for additional research) and the lack to analyse potentially confounding factors such as socioeconomic status and sleep quality. There was no provision in the original design to evaluate sleep-related respiratory disorders, delayed sleep phase syndrome, etc (school-based health survey). Physical activity, dietary intake, sleep duration, and time spent sitting or lying down were all self-reported, which raises the possibility of unintended effects of purposeful reporting bias. Nonetheless, regarding the main outcome, it is well acknowledged that self-reported sleep length is substantially associated with polysomnography-derived measures of sleep duration in a large population [35]. Participants were also guaranteed of their privacy, removing any motivation for them to offer inaccurate data. Finally, the large sample size makes it simple to achieve statistical significance.

CONCLUSIONS

There is a strong correlation between how long you sleep and a variety of negative lifestyle factors, including poor eating habits, excessive screen time, being overweight, and low aerobic fitness. Strategies that aim to increase the average amount of time people spend sleeping require immediate assistance.

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