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Abstract
The COVID-19 pandemic forced many governments to implement measures to curb the spread of the virus, some of which left an indelible negative impact on over 91% of the student population worldwide. Among these measures was the prolonged closure of schools, a decision by the Kenyan Government that posed substantial repercussions on the mental health of the adolescents, with some students showing an increase in drug substance use, change in sleeping and eating patterns, decrease in physical activities, and engagement in unprotected sex, an increase in screen time resulting from increasing in sedentary and risky behaviour. This study examined the relationship between prolonged school closure and adolescent students' behaviours. A correlation research design was adopted to address the study objective, determining the strength and the direction of the relationship between the closure of schools and students' behaviours. The study was conducted in Nakuru East sub-county, Kenya, premised on the Cognitive Behavioural Theory. The target population constituted 2546 four and three students from four co-educational public secondary schools in the region. A sample size of 335 students was determined by calculation using Taro Yamane formulae 1973, which can be used when the target population is in the thousands. Using Stratified Random Sampling, data was collected using survey questionnaires. The data was further analysed using descriptive statistics, Pearson's Correlation coefficient and regression analysis to establish the relationship between the study variables. The study established a significant relationship between prolonged closure of schools and adolescents' behaviour, with sedentary activities and risky behaviours. This study was, however, limited to a specific set of four co-educational public day secondary schools located within Nakuru East Sub-County, Kenya. Still, the findings can be applied to show a change in behaviour to a broader population with similar characteristics. The study recommends further research within non-co-educational institutions.

Introduction

The closure of schools due to the COVID-19 pandemic marked an unprecedented disruption in the lives of billions of children and adolescents across the globe (Burns, 2020). This abrupt and prolonged hiatus from traditional education environments posed unique challenges to adolescents, yet comprehensive data documenting their experiences during this period remains limited (Rogers et al., 2021). In Sub-Saharan Africa, the COVID-19 pandemic prompted numerous countries to enact indefinite school closures, ushering in a series of transformative effects on various aspects of adolescents' lives. The enforced home confinement resulting from school closures exhibited a clear link to heightened anxiety levels among adolescents. This anxiety was often attributed to disrupting their routines, the dearth of physical activities, and the diminished opportunities for social interaction (Jiao et al., 2020). Majorly, the social restrictions to contain the virus disrupted adolescents' behaviours. According to Margaritis et al. (2020) and Vandaloo et al. (2020), sedentary behaviours increased sleep patterns were interrupted (Lee, 2021; Becker, 2020; Gregory, 2020), and opportunities for physical activities were reduced (Zenic et al., 2020; Guerrero et al., 2020). Such behaviours were likely to develop long-term mental health outcomes among adolescents and schoolchildren.

There is limited data, however, investigating children and adolescents' behaviours during prolonged school closures. Preliminary findings indicate a downward trend in physical activity levels (Zenic et al., 2020). For instance, a survey done on 1472 Canadian adolescents found that 2.6% of adolescents were meeting the recommended guideline of 60 minutes of moderately vigorous physical exercise daily (Moore et al.,2020) as compared to 12.7% before the COVID-19 pandemic was reported in 2019 (Rhodes, et., 2019). Another study reported that Croatian adolescents did not meet the physical activity guidelines during the prolonged school closure due to COVID-19 pandemic restrictions. Those living in urban areas were more affected than those living in rural areas (Zenic et al., 2020).

Another study on Chinese adolescents reported that they had trouble falling or staying asleep in about 46% of the adolescents (Zhou et al., 2020). Additionally, unscheduled sleep during prolonged school closure, for example, there was no set bedtime or wake-up time reported among the adolescents. Further, children and adolescents (6-17 years) reported increased leisure and screen time when evaluated before and after the COVID-19 pandemic (Xiang et al., 2020). Several researchers have noted the potential impaired physical health due to excessive screen time, more irregular sleep pattern and less physical activities (Ghosh, 2020; Wang et al., 2020). Lee (2021) also reported increased psychosocial problems and less prosocial behaviours among the adolescents during prolonged school closure.

Moreira et al. (2021) in Portugal found that lockdown measures were significantly associated with decreased alcohol and tobacco consumption among adolescents. Moreover, the authors noted that the lockdown positively impacted family relationships and communication, which in turn promoted adolescent mental health. Overall, the literature suggests that the impact of lockdown measures on adolescent behaviour and mental health is complex and multifaceted and can vary depending on various factors, such as individual differences, cultural context, and the specific measures implemented during lockdown.

In Sub-Saharan Africa, many countries experienced changes in behaviours among adolescents during prolonged school closures. For instance, in South Africa, it heightened negative lifestyle changes such as increased sugar intake, increased screen time and sedentary lifestyle among adolescents (Ouma, 2020).

In Senegal and Ghana, adolescents experienced an increase in child labour and unplanned pregnancies, while in Rwanda, adolescent girls were cut off from people who could have sounded an alarm in suspected cases of child abuse at home (Ouma, 2020).

In Kenya, Kiambu County's truancy level has increased (Theuri & Mutisya, 2019). Negative peer influence, which contributed to risky relationships, was reported in Mombasa (Twalib, 2020). In Nakuru County (Kuria, 2021) reported that many girls left school due to pregnancy during prolonged school closure. There have been reports of drug and substance abuse in the Nakuru East sub-county, though not in the context of prolonged school closure (Njagi, 2014). This study, therefore, sought to establish whether prolonged school closure influenced behaviour changes among adolescents in public Day Coeducational schools in Nakuru East Sub-County. Given the lack of in-depth exploration in the existing literature, this study aimed to investigate the correlation between prolonged school closures and adolescent behaviour changes. By examining how extended periods away from school influenced their actions, decision-making processes, and engagement in various activities, this research will contribute valuable insights to understanding the multifaceted impact of prolonged school closures on adolescents' behavioural patterns.

The cognitive behavioural theory

This theory is based on the belief that thoughts, feelings, and behaviour all impact each other and interact together to affect the behaviour of the individuals. It also maintains that psychological problems are partly based on learned patterns of unhelpful behaviours caused by how events are interpreted, which affects feelings. CBT suggests that negative behaviours occur because of interpreting events in unhelpful ways, thus affecting behaviour. Positive thinking, therefore, can promote positive behaviour. The cognitive behavioural theory (CBT) aims to help people become aware of when they make negative interpretations of the behavioural patterns that reinforce distorted thinking (McLeod, 2019). The cognitive approach believes that mental illness stems from faulty cognitions and perceptions about others, the world, and individuals. This faulty thinking may be through cognitive deficiencies or cognitive distortions. These cognitions may cause distortions in the way people perceive things. Beck proposed that individuals interact with the world through their mental representation of it (McLeod, 2019). If the mental representations are inaccurate or our ways of reasoning are inadequate, our behaviours can change negatively. The theory is relevant in this study because it explains how thoughts and feelings affect one's behaviour. If the thinking or perception is faulty, one develops a negative schema, which affects the behaviour negatively, hence developing mental health problems; but if the thinking or feelings are positive, the mental health remains healthy, and behaviours are positive.

Method

This study adopted the correlation research design, which investigates the relationships between variables without the researcher's controlling or manipulating the valuables (Creswell, 2014). A correlation study reflects the strength and direction of the relationship between two (or more) variables. The direction of a correlation can be either positive or negative. In choosing this design, the author intended to examine the relationship between prolonged school closure and behaviour change among adolescents in co-educational public secondary schools in Nakuru East Sub-County.

Nakuru County is a metropolitan area with people from diverse cultural, political, and socio-economic backgrounds, with the largest populations in the Nakuru East sub-county residing in informal settlements. There are many co-educational public secondary schools in the sub-county, but this study

targeted four co-educational public day schools. Co-education schools were targeted because the students in these institutions are day scholars from informal settlements with limited space and scarce playgrounds, implying that they spent most of their time indoors without school. The target population in the four schools was 2,546 from form 4 and 3 students.

Stratified sampling was adopted to categorise students into boys and girls, and Yamane's (1973) formula for estimating a sample size ***n*** from a known population, ***N*** was adopted: $n = N/(1+Ne^{2})$

Where:

n: the sample size
N: target population, 2546 in this case
e: the acceptable sampling error (0.05)

Substituting these values in the equation, the estimated sample size was 335 student respondents 10-15% is appropriate sample size as shown in Table 1 below.

Table 1: Distribution of Sample Size

Name of school	Form	No of Boys	No. of girls	Sample Size
School A	3	18	12	30
	4	15	9	24
Sub-total	-	33	21	54
School B	3	32	16	48
	4	26	13	39
Sub-total	-	58	29	87
School C	3	28	18	46
	4	25	17	42
Sub-total	-	53	35	88
School D	3	41	18	59
	4	33	14	47
Grand-total	**-**	**218**	**117**	**335**

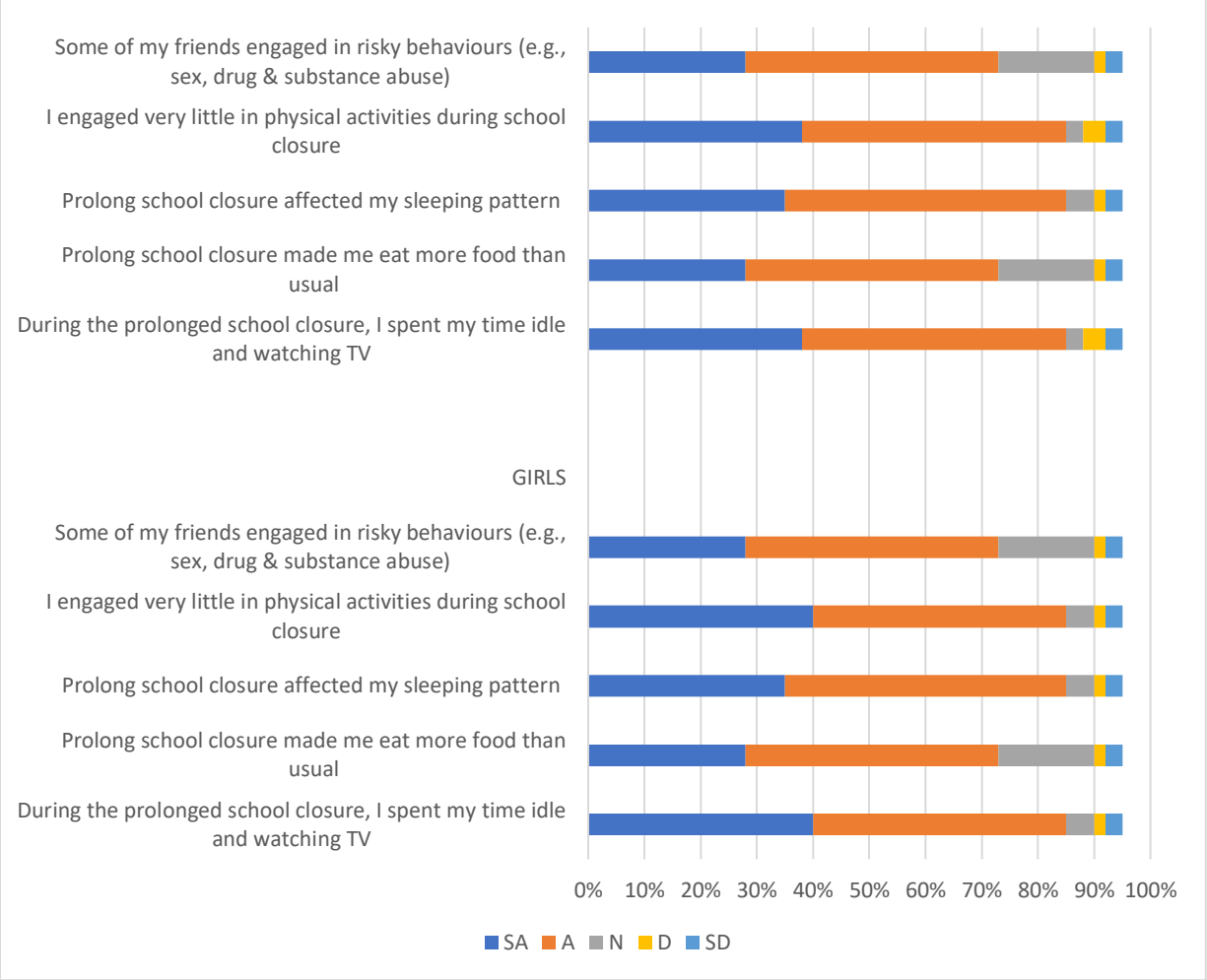
Source: Nakuru Town East Sub County Director of Education (2022)

Data was collected using questionnaires for students with closed-ended and one open-ended question. The collected data was then analysed through a well-structured blend of descriptive and inferential statistics, providing a balanced and thorough understanding of the research outcomes.

Results

The aim of the study was to investigate the correlation between extended school closure because of the COVID-19 pandemic and adolescent behaviours in co-education public day secondary schools located in Nakuru East Sub-County. The analysis was based on a Likert scale of 1- Strongly Disagree [SD]; 2- Disagree [D]; 3- Neutral [N]; 4- Agree [A]; 5- Strongly Agree [SA] to rate individual opinions. The results are summarized in Figure 1 and Table 2.

Figure 1: Boys and girls respectively



During the prolonged school closure, boys' and girls' students responded similarly to various effects. About 40% of students in both groups admitted to idly watching TV during this period. Additionally, 28% of respondents from both genders reported changes in their eating habits, consuming more food than usual due to the closure. Sleep patterns were also widely affected, with 35% of students in each group acknowledging disruptions. Likewise, a significant decrease in physical activity engagement was observed, with 40% of boys and girls participating less in such activities.

Moreover, 28% of participants in both categories noted that some friends engaged in risky behaviours, such as substance abuse and risky sexual activities, during the school closure. Overall, the data reflects common experiences shared by boys and girls, highlighting a shared impact of the prolonged school closure on various aspects of their lives. According to Cognitive behavioural theory, psychological problems partly stem from learned patterns of unhelpful behaviours. Long school closure resulted in idleness among the students, causing them to engage in unhelpful behaviours such as drug and

substance use and unprotected sex, which can lead to pregnancies, altered sleeping patterns, which led to insomnia, an increase in screen time and turn affected their mental health negatively.

Table 2: Prolonged school closure due to COVID-19 and adolescent behaviours

	Boys		Girls	
	Mean	Std. Deviation	Mean	Std. Deviation
During the prolonged school closure, I spent my time idle and watching TV	4.21	.879	4.51	.859
Prolong school closure made me eat more food than usual	4.19	.939	4.49	.839
Prolong school closure affected my sleeping pattern	4.21	.879	4.21	.879
I engaged very little in physical activities during school closure	4.19	.939	3.85	1.039
Some of my friends engaged in risky behaviours (e.g., sex, drug & substance abuse)	4.20	1.002	4.15	1.102
Overall Mean	4.2		4.2	

Results

The adolescents reported that most of them were affected by peer pressure, which made them engage in risky behaviours such as unprotected sex and drug and substance abuse. Many spent most of their time watching television, gaming, and chatting online with their friends. They ate and slept more than in their regular school holidays.

Discussion

According to the findings presented in Table 2, the respondents in the study had similar experiences regarding the effects of the prolonged school closure due to the COVID-19 Pandemic on their behaviours. The overall mean was 4.2, indicating the respondents agreed that there was a change in behaviour during lengthy school closure. Many respondents agreed that they spent their time idle and watching TV during the long school closure, with a mean of 4.2 for boys and 4.5 for girls, which suggested an increase in sedentary behaviour, which was slightly higher in girls than boys. This corresponded to (Margaritis et al., 2020 Vandaloo et al., 2020) findings and (Ouma, 2020) that sedentary behaviour increased during extended school closure. Cortina (2020) argues that prolonged school closure contributed significantly to negative lifestyle changes such as increased screen time, sugar intake and sedentary lifestyle among adolescents,

Additionally, the statement "Prolonged school closure made me eat more" received a high mean score of 4.19 for boys and 4.49 for girls, indicating changes in eating behaviour. Amran and Jamuludin (2020) had similar findings that adolescents faced challenges with dysfunctional eating patterns during prolonged closure. It was noted that girls ate slightly more than boys in the current research findings, which can be attributed to the fact that they engaged in sedentary behaviour slightly more than male respondents. Furthermore, respondents agreed that the prolonged school closure affected their sleeping patterns, potentially due to changes in daily routines or increased stress and anxiety. In previous studies, Lee (2021), Becker (2020) and Gregory (2020) had similar findings, which showed that sleep patterns were interrupted during the extended closure.

The statement, "I engaged in minimal physical activities during prolonged school closure," received a lower mean score of 3.85 in girls and 4.19 in boys, suggesting that prolonged school closure decreased physical activity among adolescents. This agrees with Zenic et al. (2020), Moore et al. (2020) and Zenic et al. (2020), who established a downward trend in physical activities during prolonged school closure. The statement, "Some of my friends engaged in risky behaviours," received a mean score of 4.15 in girls and 4.20 in boys, indicating that some respondents were exposed to risky behaviours during the prolonged school closure. These led to unplanned pregnancies and addictions to drugs. Ouma (2020) had similar findings that adolescents engaged in unprotected sex, leading to unplanned pregnancies. Negative peer influence increased (Twalib, 2020). However, the current study noted involvement in risky behaviours more in boys than in girls.

The findings from the study closely align with the principles of Cognitive Behavioural Therapy (CBT). The behavioural changes observed among adolescents during the prolonged school closure, such as increased sedentary activities, altered eating patterns, decreased physical activity, and engagement in risky behaviours, reflect the concepts addressed by CBT. The theory's focus on identifying and modifying negative thought patterns and behaviours could assist in challenging irrational beliefs underlying these behaviours. The cognitive behavioural therapeutic approach can provide a comprehensive framework to address the psychological impact of these changes, guiding adolescents toward more adaptive coping strategies and potentially mitigating long-term mental health problems.

Overall, the data revealed that the prolonged school closure brought a significant change in adolescents eating and sleeping patterns, a decrease in physical activities, an increase in sedentary behaviours and an increase in engagement in risky behaviours, which could have long-term mental health consequences.

Conclusion

The students reported experiencing peer pressure that forced them to partake in risky behaviour such as stealing, unprotected sexual intercourse and drug and substance abuse. The risky sexual behaviour led to unplanned pregnancies. The adolescents practised sedentary behaviour by watching movies, gaming and chatting with their friends, implying that if they watched unfiltered, they exposed themselves to pornographic materials.

The mean of adolescent behaviour during the prolonged school closure underscores a strong relationship between the closure and changes in behaviour. The composite means of 4.2 suggests that the closure significantly impacted adolescent behaviour. Many adolescents reported spending considerable time watching television (standard of 4.21 for males and 4.51 for females, SD .879 and SD .859, respectively). This sedentary behaviour was accompanied by disrupted sleep and eating patterns and reduced physical activity. Moreover, a noteworthy portion of adolescents engaged in

risky behaviours like unprotected sexual intercourse and substance abuse. Although both genders exhibited engagement in risky behaviours, male respondents seemed slightly more involved (mean score 4.20) than female respondents (mean score 4.15). The Pearson correlation coefficient of -0.788 ($p < 0.05$) underscores a significant negative correlation between prolonged school closure and adolescent behaviour, reflecting its implications for mental health. The open-ended responses further elaborated on risky behaviours, including sexual activities, drug abuse, and excessive use of technology, and their negative consequences on physical and mental health.

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