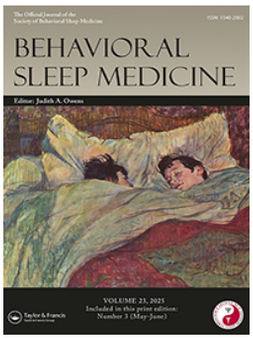

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No Earlier Than 9:45 A.M. A Qualitative Study of Adolescents' Experiences of Later School Start Times in Aotearoa New Zealand

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ABSTRACT

Objectives: Many teenagers suffer chronic sleep loss, which could potentially be mitigated by later school start times to accommodate the natural shift in their circadian timekeeping system favoring later bedtimes. This study explored experiences of senior students from a school in Aotearoa New Zealand with later school start times.

Method: Semi-structured interviews were conducted with 14 students, purposively sampled for equivalent numbers starting later every day (9:45 A.M.), or on just one weekday (10:00 A.M.). Transcripts were analyzed using reflexive thematic analysis.

Results: Four themes were identified that addressed the impact of later starts on sleep struggles, daily functioning, student autonomy, and routines and scheduling. Most perceived later starts as positively influencing their sleep quality, concentration, productivity, and personal well-being. The importance of autonomy over their learning, and impact of different start times on students' schedules was also emphasized. Major disadvantages were lack of free classes and potentially later finish times.

Conclusions: The experiences of later school start times for these adolescents were largely positive across a variety of life domains. Findings support the need for sleep health to be considered within school's health education and policy to address the unmet health concerns of chronic sleep loss in teens.

Introduction

Worldwide, many adolescents suffer from chronic deficits in sleep (Gariepy et al., 2020). Poor sleep in adolescents is associated with numerous consequences including lower academic performance (Hysing et al., 2016; Urrila et al., 2017), impaired emotional regulation (Baum et al., 2014; Reddy et al., 2017), mental health difficulties (Short & Weber, 2018; Short et al., 2020), higher susceptibility to infectious illness (Orzech et al., 2014), and higher cardiometabolic risk (Sun et al., 2020). This critical developmental period is also pivotal for influencing long-term mental health and cognitive outcomes (Ismail et al., 2017).

Between childhood and adolescence, there is a trend toward later bedtimes, a decline in total sleep time on weekdays (Karan et al., 2021; Sadeh et al., 2009), and an increased discrepancy in

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sleep and wake timing between weekdays and weekends, also known as social jetlag (Randler et al., 2019; Sadeh et al., 2009). Neurodevelopmental shifts in sleep-wake patterns that start at puberty significantly contribute to adolescents' increasing preference for later bedtimes (Jenni & Carskadon, 2005; Tarokh & Carskadon, 2010), further exacerbated by increased psychosocial pressures including academic expectations, extracurricular commitments, and social media pressures (Tashjian et al., 2019). However, there is no corresponding decline in the amount of sleep adolescents need for their age (Owens et al., 2014). Typical morning school start times reflect adult sleep-wake norms and do not accommodate adolescents' different chronotypes by allowing them to sleep in long enough to compensate for their biological preference for later bedtimes (Crowley et al., 2007).

The literature suggests that adolescents attending schools with later start times obtain more sleep, often accompanied by improvements in daytime sleepiness, and mental and physical health (Wahlstrom & Owens, 2017; Yip et al., 2022). Some have also found improvements in academic performance, attendance, and tardiness; however, findings have been mixed (Biller et al., 2022). Academic performance and attendance are pressing issues in Aotearoa New Zealand, with record levels of truancy following the COVID–19 pandemic school shutdowns (New Zealand Ministry of Education, 2022). Youth mental health is also a significant concern, with evidence to suggest that many students have experienced significant distress and a decline in mental health in the last decade (Sutcliffe et al., 2023). Later school start times is a potential strategy to address these concerning trends.

Notably, the majority of this literature has defined a late school start time as 8:30 A.M. or later and is based in the United States (U.S.), where high schools on average start at 8:00 A.M. (National Centre for Education Statistics, 2020). In Australasia, high schools rarely begin before 8:30 A.M. Despite this, many adolescents in Aotearoa New Zealand still do not get enough sleep (Galland et al., 2017; Short et al., 2013). Many do not meet the sleep health recommendations of 8–10 hr for adolescents aged 14–17 years and 7–9 hr for 18-year-olds (Hirshkowitz et al., 2015). Some studies have suggested start times of 10:00 A.M. or later convey benefits for sleep (Borlase et al., 2013), and consequently academic performance and health (Kelley et al., 2017). The benefits of these later starts have also been highlighted by COVID–19 pandemic-related school closures, with reports of increases in both sleep quantity and quality (Richter et al., 2023), and more students meeting sleep duration recommendations (Saxvig et al., 2022). One study further demonstrated that increased sleep duration was related to higher levels of well-being (Albrecht et al., 2022).

The issue of later school start times for teenagers is undoubtedly a contentious one, particularly amongst school communities. In the U.S., where implementation of later school start times took place in the State of California, multiple challenges were highlighted relating to transportation, extracurricular activities, employment, and the ability to look after siblings (Ziporyn et al., 2022). An opinion piece published by our group in 2022 that promoted start times no earlier than 9:45 A.M. for senior high school students created many divided opinions across social media (Barber et al., 2022). This highlights the need to consult widely to be able to truly understand the potential challenges and benefits to the many stakeholders whose day-to-day lives may be affected by later starts.

Qualitative methodologies provide an in-depth exploration of stakeholders' actual experiences with later school start times, offering valuable insights for both research and practical implementation strategies. However, this research base is mainly from the U.S., with different cultural and environmental landscapes making some of their findings not directly translatable to Australasian communities. In addition, much of the literature has focused on the perspectives of teachers, parents, and administrators, rather than the experiences of students themselves (Collins et al., 2017; Dunietz et al., 2017; Fitzpatrick et al., 2021). To the best of our knowledge, the opinions and experiences of adolescents have rarely been covered in the literature. Yet, adolescents are primary stakeholders given the issue affects their day-to-day lives and educational experiences. Therefore, the overarching aim of the present study was to explore, through semi-structured interviews, the perspectives and

opinions of students with first-hand experience of a later school start time in an Aotearoa New Zealand high school, with a particular focus on their sleep and well-being.

Methods

Participant recruitment

Participants were recruited from an urban high school that offered later school start times for senior students (last 2 years of high school). Prior to the interviews, participants had completed a questionnaire on various aspects of their sleep and well-being as part of a larger survey study (University of Otago Human Ethics Committee (ref 21/081)). In that questionnaire, expressions of interest were sought for this qualitative study. Interested participants received an information sheet, a consent form, and were informed of a NZD$30 gift voucher for participating. Purposive sampling ensured representation from students with daily and once-a-week later school start times. Ethical approval for the study was obtained from the University of Otago Human Ethics Committee (ref 21/131).

Data collection

All participants allowed the research team to access the sleep, transport, and demographic data collected in the survey described above to better understand participant contexts. The demographic information included age, school year level, gender, ethnicity, and address. The transport data included mode of transport and usual time taken to get to school. Home address was used to calculate the New Zealand Deprivation Index (NZDep18) (Atkinson et al., 2019), a measure of household socioeconomic deprivation, based on the most recent collection of national census data. Sleep data collected included sleep latency, and weekend and weekday bedtime and wake times. Sleep disturbance and sleep-related impairment scale measures were derived from the Patient Reported Outcomes Measurement Information System (PROMIS) pediatric 8-item short form (Forrest et al., 2018); a self-report measure that uses a 7-day recall period and is designed for children/teens aged 8–17 years. Items were rated on a scale of "never" (0) to "always" (5), with higher scores indicating more problematic sleep. The sleep disturbance scale includes issues such as perceived difficulties getting to sleep, staying asleep, and restless sleep. The sleep impairment scale includes daytime consequences such as concentration, alertness, sleepiness, and perceived influences on mood and enjoyment. Standardized T-scores were calculated for participants' sleep disturbance and sleep-related impairment using the scoring tool on the PROMIS Health Measures website (Health Measures, 2023). Scores were then categorized into Normal, Mild, Moderate, and Severe disturbance or impairment.

Interview procedure

All interviews were conducted over Zoom by the first author (HS) who identifies as New Zealand European and underwent training in qualitative research methods. Prior to interviews participants had received communication from HS via e-mail. Recording began after participants had provided verbal consent to record the interview and to allow the use of the Zoom live transcription software, and participants were informed interviews could last up to 60 min. Participants were informed that the interview could stop at any point, and they did not need to answer anything they did not want to. Semi-structured interview guides were used covering sleep, morning and after school/evening experiences, activities and routines, and school experiences related to later school start times. They were also asked about how they would feel if later school start times meant also finishing later. Participants had the option to review and provide feedback on the interview transcript, with one participant requesting a copy but providing no comments.

Data analysis

Interviews were transcribed by the first author (HS) using audio recordings and Zoom automated transcriptions. The transcripts were uploaded to NVivo 1.0 (QSR International Pty Ltd., Melbourne, Australia) qualitative analysis software and analyzed utilizing the six-stage model of reflexive thematic analysis, informed by Braun and Clarke (Braun & Clarke, 2019, 2021). Reflexive thematic analysis was used in this study to effectively capture the subjective experiences of individuals within a unique setting. This type of analysis helps organize and clarify interview data, enabling the identification and interpretation of recurring themes related to the research topic. The first author (HS) reviewed transcripts to enable content familiarization. Initial codes were generated by HS using a data-driven inductive approach, to enable identification of new perspectives. Coded transcripts were reviewed by two investigators (HS & CB) and codes finalized. The existing coding framework was updated with new codes identified to describe concepts across the transcripts. Once all data were coded, the codes were collated into preliminary themes. The study investigators met regularly to discuss and refine these themes until unanimous agreement was achieved, ensuring their accurate application in interpreting the data and alignment with the aims of the study. Throughout the coding process, text excerpts that illustrated different themes were identified to ensure participants' voices were represented. Descriptive statistics for sleep and demographic information for participants were generated using Stata 17.0 (StataCorp, Texas).

Results

Fourteen students aged 16–18 years participated in the interviews. Interview length ranged from 16 to 56 min, with a mean duration of 25 min. All students started at 10:20 A.M. on a Wednesday, eight started at 9:45 A.M. the other 4 days a week (categorized as later starters 5 days a week; coded 5D in the transcript excerpts), while six started at 8:45 A.M. (regular school start time) the other 4 days of the week (categorized as later starters 1 day a week; coded 1D in the transcript excerpts). Interviewees identified as male ($n = 6$), female ($n = 6$), and non-binary/gender fluid ($n = 2$). Nine identified their ethnicity as New Zealand European, the others as Māori, Asian, or other European. Twelve came from areas of low to medium deprivation, and two from areas of high deprivation.

Mode of transport to and from school was to walk ($n = 4$), bus ($n = 5$), use a car ($n = 3$), and bike, scooter, or skateboard ($n = 2$). Two participants reported taking less than 10 min to get to school, eight taking 10–30 min, and four taking 30–60 min.

The reported median weekday bedtime was 11:00 P.M., wake time was 7:15 A.M., sleep latency was 38 min and weekday sleep duration was 7 hr and 35 min. Half of the participants (equally distributed across both start time groups) took more than 30 min to fall asleep, indicative of a long sleep latency.[38] Nine scored as having moderate or severe sleep disturbance, and 11 as having moderate or severe sleep-related impairment.

Themes

Four main themes were identified that addressed the impact of later school start times on sleep struggles, daily functioning, student autonomy, and routines and scheduling.

Sleep struggles

The majority of participants described struggling with tiredness and having difficulty waking up in the morning with regular school start times (8:45 A.M.), whether currently or in the past. Difficulty getting to sleep at night was discussed as well.

> I have like five alarms in the morning to get me up and it's awful. And sometimes I still sleep through them. (17, 1D)

Participants reported frequently not feeling sleepy at night and having active, intrusive thoughts that hindered their ability to fall asleep. Stress, homework, and device use were also reported as barriers to getting to sleep. Two participants also described using medication to aid sleep. Several participants noted difficulties getting enough sleep at night, and some were concerned about the sleep of other students.

> I know a lot of people who had really awful sleep schedules and I feel like I'm just worried about all them a lot because they did not get enough sleep at all in school. (18, 5D)

A key benefit of a later start was more time to wake up in the morning and the opportunity to obtain more sleep. Participants had mixed opinions about whether a later start promoted a later bedtime. However, most reported going to bed at a similar time on days with a later start time, or going to sleep slightly later but overall still obtaining more sleep.

> Because usually I sleep or end up sleeping six and a half hours, which is okay. It gets me through the day, but it's not ideal. Yeah. If school started at 10:00 instead of 8:45, . . . I'd wake up at 9:00 and that's eight whole hours if I go to bed at 1 a.m. (17, 5D)

> I got more sleep, I would say with the later start. Because I did go to bed later, but then also I could sleep in a little bit more than normal. (18, 5D)

One participant remarked they no longer needed a nap in the afternoon when they had a later start and the beneficial effect of this on their ability to get to sleep at night.

> I think I was just less tired. I used to get home and need to take a nap after school, but when I got home, I was able to actually do stuff or do any homework I needed to do. (16, 5D)

Daily functioning

With regular starts, many students mentioned experiencing sleepiness, poor concentration, and reduced ability to complete schoolwork. Difficulty completing coursework without adequate sleep was also raised by some participants.

> I was just so tired that I couldn't understand anything that was happening around me, because I was just that tired. (18, 1D)

Several students mentioned improvements in concentration and productivity with later starts, particularly in first-period classes. Two participants with a late school start time every day remarked on their improvement in grades that school year due to perceived reductions in tiredness and improvements in concentration.

> If you're able to be more well rested and focused throughout the day, that's really important to actually do well in school and feel like you can do all the work that you need to do. (16, 5D)

Difficulty getting to school on time was also commonly referred to across the transcripts. Many participants remarked that a number of students would be late to the first period every day. Opinions of participants were mixed on the impact of later school start times on tardiness. While most students with 1 or 5 days of later school start times thought a reduction in tardiness was a benefit of later school start times, two students mentioned having more difficulty getting to school on time with later starts.

> I think that people like it a lot because a lot of people will kind of accidentally sleep in or miss their first period anyway and be late all the time. So, I think for a lot of people it just makes more sense for their routine. (16, 5D)

Participants reported having higher energy levels on days with later school start times, and some mentioned later school start times helped them sustain their energy throughout the day. Some participants also expressed improvements in mood, both in the morning and throughout the day, with later school start times.

> I found that the later start scheduling in my later years at [school name] really helped me sustain the energy I needed throughout the day. (18, 5D)

> I was a lot less tired throughout the day and just in a better mood because I didn't have to wake up an hour earlier. (18, 5D)

Participants also reflected on the negative impact of poor sleep on mood, and the potential for improvement in mental health with a later school start time.

> Sleep deprivation makes me really depressed. So yeah. I think it would just make me happier. (17, 1D)

Student autonomy

The desire for autonomy over their learning environment was an underlying thread expressed by many of the students interviewed. In particular, many referred to mornings as rushed and stressful, and expressed the desire and benefit of being able to start the day at their own pace with a later school start time. A number of students noted the benefit of having time for themselves in the morning before school, to feel more relaxed and in a better mental space to be prepared for the day.

> It made it significantly less stressful in the morning for me when I was just able to have time to myself. (18, 5D)

> If we started later, I feel like I would have more free reign over what I did in the mornings before school, whether that be sleep or do other things like going to the gym. (17, 1D)

With a later school start time, several proposed or experienced positive changes in outlook and attitude toward school. Some students emphasized that the later school start times gave them the flexibility to work when it suited them, allowing them to feel school was more of a choice. Other participants mentioned having time to prepare themselves in the morning with late school start times that late start times were motivating and facilitated a better mind-set for learning.

> I think being more. . . A way that I was prepared, helped because I had the time to make sure I was prepared and actually wanting to start doing things, made it easier to do work, most probably. (17, 5D)

Some students advocated for greater autonomy through flexible school schedules that adapt to various needs, including alternative timings to support neurodiverse students and those with medical conditions. They highlighted how the current school system schedules may not accommodate students who do not fit the neurotypical mould.

> . . . a whole school schedule has been based around neurotypical brain types. And there's not really any room for people who don't work in the same way or in the same timetable as others, which I think should probably be addressed. That's not really a fair working environment and I also noticed that. (18, 5D)

Routines and scheduling

Many participants viewed time in the morning to do things as one of the major benefits of a later school start time. Participants discussed having more time to have breakfast, do homework, go to the gym, or attend sports training with a later school start time. Time to do activities such as meditation, playing music, and visiting cafes before school were also advantages raised by others.

> I had more time to do stuff in the morning, eat a proper breakfast and get ready and stuff. (16, 5D)

Later school start times were discussed in a positive and negative light with regard to transportation options. Some participants noted the bus schedule was less convenient for later school start times, while others mentioned the benefits of less traffic and crowding on buses later in the morning, as well as more time to plan out which bus to take. Some participants also expressed being more inclined to get a ride to school with a later school start time, whereas others reported they were less likely to. Greater flexibility in transport options for students living further from school was also regarded as a benefit.

> I would actually be able to properly plan out for what bus to take and actually be down in time and not just rushing out at the earliest convenience. (18, 5D)

All participants expressed a preference to start school later. Many also expressed the belief that this view was shared by teachers, and the majority either felt their parents were in favor of the later school start time or indifferent toward it. School start time preferences ranged between 9:30 A.M. and 11:00 A.M.

> Oh, the 8:45 a.m. start was horrible for everyone. (18, 1D)

> 10:00 a.m. I really like this start time. And it's the point that I'm not really tired when I show up, I'm able to properly concentrate. (18, 5D)

On the other hand, while all participants ideally liked the idea of a later start time, they also discussed the pitfalls of starting school later with their timetable structure. One of the downsides raised was that students with a later start time did not have other free periods during the day. Students who had their first period free and thus a late start time every day did not receive the benefit of finishing early some days or having a free period throughout the day. Despite all participants expressing a preference to start school later in theory, there were differences in opinion on whether a later start time was worth the absence of a free period later in the day. While many students expressed the beneficial effect of having a break throughout the day, others noted they disliked the disruption to learning of free periods during the day.

> And so I think intentionally putting it in the first period, I would never do that. I would rather slack off in class sort of thing rather than not having any break throughout the week. Because otherwise it just doesn't give you that break that you need. (18, 1D)

Another major downside of later school start times discussed was the potential for school to finish later. Participants had mixed views on this prospect. Some students mentioned a preference for starting later even if it meant finishing later. Other participants noted a later school finish time could cause barriers to extracurricular activities and employment. Students noted many of the challenges related to a discrepancy with the scheduling of other schools, such as team sports and competition for part-time jobs. One student expressed that these challenges could be negated if all schools had the same scheduling.

> The teenage workforce and school sports could adjust to a later end time for school as well, as long as the rollout of this was consistent with all the schools in a region. (17, 1D)

Discussion

The findings corroborate the sleep struggles many adolescents face as documented in the literature (Owens et al., 2014). Almost all participants reported difficulty getting up early in the morning for school with a regular school start time. Many reported challenges getting to sleep and resulting insufficient sleep, which was reflected in their reported sleep patterns where high numbers of adolescents reported having sleep-related disturbances or impairments. These findings are consistent with literature suggesting many adolescents face difficulty obtaining sufficient sleep with high rates of sleep difficulties apparent during this developmental period (Fernando et al., 2013). The interview data revealed that the ability to wake up later as a result of later school start times, and the resulting increase in duration of sleep, was perceived as a major benefit. This aligns with growing evidence that later school start times can have a beneficial effect on adolescent sleep (Minges & Redeker, 2016; Yip et al., 2022).

Students provided insights on the benefits they perceived on functioning at school from later starts, as well as the detrimental effects of sleep loss. Students, whether starting later every day or 1 day a week, described improvements in alertness, concentration, and productivity with later school start

times. Many mentioned that arriving late to morning classes was common with regular start times; however, there were mixed opinions about the impact of later starts on students' ability to get to school on time. While this study was not designed to examine whether this translated to better learning and achievement, previous literature has suggested this could be a beneficial outcome (Biller et al., 2022).

Improvements in mood with later school start times were also expressed, both as a direct consequence of obtaining more sleep and reduced time pressure and greater freedom over the morning routine, potentially linking to a greater sense of well-being and autonomy over their schooling. Previous literature has indicated later school start times can be beneficial for psychological health (Minges & Redeker, 2016; Yip et al., 2022); however, these studies involved a comparison with much earlier start times than those experienced by adolescents in Aotearoa New Zealand. Youth mental health is a pressing public health concern, with rising levels of depression and anxiety symptoms within the last decade in Aotearoa New Zealand (Sutcliffe et al., 2023), and similar trends across Western countries (Mojtabai & Olfson, 2020; Pitchforth et al., 2019; Sawyer et al., 2018). Given insufficient sleep is closely intertwined with poor mood and mental health (Short et al., 2020), later school start times could offer a non-stigmatizing public health initiative for many teenagers with the potential to benefit their mental health and well-being.

Across the interviews, students expressed a desire for autonomy over their routine. The importance of autonomy in adolescence and in the transition to adulthood is well documented (Steinberg, 2005), and positively associated with a number of well-being measures (Eagleton et al., 2016; Eriksson et al., 2022). Students expressed that later starts allowed them to begin their day at their own pace and work when it suited them. Students also valued flexibility to accommodate the different needs of students, including students with chronic illnesses, disabilities, and neurodiversity. A school system that can accommodate different needs is crucial to foster success and well-being (Benade, 2019). The importance of considering students' views in discussions affecting their schooling experience, such as later school start times, is consistent with the aims outlined by the Ministry of Youth Development in the Youth Plan, which emphasizes the importance for young peoples' perspectives to be recognized and an integral part of decision making (New Zealand Ministry of Youth Development, 2020).

Participants unanimously preferred to start school later; however, they were divided on whether this would be worth losing free periods during the day or finishing school later. When asked about what it would mean for them if later starts meant finishing later, many students expressed concern about this, particularly for students with after-school commitments. Hesitance for a later finish time is consistent with reports by students surveyed in the U.S. (Meltzer et al., 2017), as well as what has been described by school staff (Collins et al., 2017; Fitzpatrick et al., 2021). Although the school utilized flexible timetabling to provide this option without the need for a later finish, the potential to finish later was strongly perceived as undesirable. Notably, one student suggested that for later school finish times to work effectively, it would be beneficial if all schools in a region adopted the same approach. This highlights a potential barrier for individual schools but emphasizes the need for discussions with stakeholders and communities.

U.S. literature has consistently raised transportation as a key barrier to the implementation of later school start times (Collins et al., 2017; Fitzpatrick et al., 2021). However, in the present study, while some students mentioned less flexibility in bus timetables or more reliance on parents for a ride, none raised transportation as a significant barrier. Notably, our participants were drawn from an urban area, with most able to get to school in half an hour or less; four within walking distance. Perspectives may differ in more rural communities with fewer transportation options. Literature outlining facilitating factors for a successful transition to a later school start time in the U.S. has emphasized the importance of engagement with the school community and stakeholders (Meltzer et al., 2017). While legislation since 2016 has allowed schools in Aotearoa New Zealand flexibility in start and finish times (Legislation, 2020), the importance of consultation and involvement with all members of the school community should be considered.

Although the semi-structured interviews allowed for rich, detailed insights into their experiences, the study has some limitations. The study's insights are specific to students in one school and location,

not representative of opinions across Aotearoa New Zealand. Self-selection bias across both interview participation and selection is another potential limitation. Whilst there was some gender diversity within the sample, the study lacks cultural diversity, limiting insights into the perspectives of Māori and Pasifika populations within the Aotearoa New Zealand context. There is some evidence to suggest inequities in aspects of sleep health between rangatahi Māori (Māori youth) and predominantly New Zealand European adolescents (Dorofaeff & Denny, 2006; Galland et al., 2020; Muller et al., 2024). Furthermore, as this study was limited to senior high school students, the perspectives of stakeholders such as school staff, transportation operators, employers, and coaches or leaders of extracurricular activities, would offer further insight into the advantages and disadvantages of later school start times.

In conclusion, the study findings contribute to a limited literature base providing insights into the perception of the impact of later school start times on their lives. Based on experiential accounts of students with a later school start time, this qualitative research suggests potential benefits for learning and achievement, along with energy, mood, and mental health. Aligning public health initiatives with school start times is crucial for improving the sleep health of our teens, with many flow-on effects for their health, and well-being and school experience.

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