Sleep and Well-Being During Covid-19 Remote and In-Person Periods: Experiences of College Faculty and Staff with and Without Disabilities

Catherine Fichten *, Samantha Wing, Georgiana Costin, Mary Jorgensen, Alice Havel, Susie Wileman, Sally Bailes, Laura Creti, Eva Libman

Posted Date: 22 August 2023

doi: 10.20944/preprints202308.1552.v1

Keywords: Covid-19; sleep; well-being; remote and in-person work; faculty and staff; disabilities

Article

Sleep and Well-Being during COVID-19 Remote and In-Person Periods: Experiences of College Faculty and Staff with and Without Disabilities

Catherine Fichten, Samantha Wing, Georgiana Costin, Mary Jorgensen, Alice Havel, Susie Wileman, Sally Bailes, Laura Creti and Eva Libman

Abstract: We explored the impacts of the remote and return to in-person work periods on sleep and well-being as reported by faculty (n = 22) and non-teaching staff (n=21) with and without disabilities. Our results show that contrary to expectations, the Covid-19 remote teaching/working period resulted in better sleep, as well as greater well-being, than the return to in-person. With respect to sleep, faculty members had slightly more negative outcomes than staff, most evident in heightened anxiety and work aspects. Faculty with disabilities had somewhat worse sleep and well-being during the remote period than faculty without disabilities. During the return to in-person work, both faculty and non-teaching staff reported more negative than positive sleep and well-being outcomes. In particular, during the in-person period faculty members experienced slightly more negative sleep outcomes related to anxiety and work, while staff members experienced slightly more negative sleep outcomes related to the need to commute and lifestyle. Our findings show that there were benefits and disadvantages to both remote and in-person work periods, suggesting a hybrid work schedule should be considered in more detail, particularly as an optional reasonable accommodation for faculty and staff with disabilities. Our study highlights that training to keep faculty abreast of the latest technological innovations, ways to promote work-life balance and steps to remedy classroom size and building ventilation to prevent the spread of disease all need urgent attention.

Keywords: COVID-19; sleep; well-being; remote and in-person work; faculty and staff; disabilities

1. Introduction

The Covid-19 pandemic officially began in March 2020 in Canada and sent much of the country home. With the exception of essential services, many jobs shifted to remote platforms and virtually all junior/community colleges in Quebec, Canada's second largest province, shifted to remote teaching and working to limit transmission of the virus (Perreaux, 2020). Instructors, most of whom had no experience with remote teaching, had to learn how to teach online within two weeks of the pandemic starting. Non-teaching staff also had to pivot to remote work. The restrictive public health measures and the social isolation during the Covid-19 remote period affected the well-being of many (Gabet et al., 2022; Smith & Lim, 2020). Additionally, the stress and anxiety about contracting the virus, or about a loved one getting sick, affected the sleep and well-being of innumerable Canadians (Osiogo et al., 2021; Statistics Canada, 2023).

Teaching and work officially returned to in-person in Quebec's junior/community colleges in Fall 2021, after a year and a half online. With the Covid-19 virus still circulating at that time, wearing masks and obeying social distancing guidelines were mandatory when returning to in-person teaching and working in colleges (Labbe, 2021; Radio Canada, 2021). This transition was difficult for many people after working and teaching remotely for so long (Abston & Soter, 2023).

Sleep Experiences During the Remote Period

A systematic review and meta-analysis showed that around the world 4 out of 10 individuals experienced sleep disturbances during the Covid-19 pandemic (Jahrami et al., 2022), with poor sleep quality and insomnia being the primary complaints (Jahrami et al., 2022.; Osiogo et al., 2021). While sleep duration increased during the Covid-19 remote period due to lack of commuting and increased flexibility in schedules (e.g., Arrona-Palacios et al., 2022), sleep quality suffered (Marelli et al., 2020;

 doi:10.20944/preprints202308.1552.v1

Trakada et al., 2022) as a result of increased anxiety and stress, as well as an overall disrupted routine (Amicucci et al., 2021; Trakada et al., 2022). Furthermore, there was an increased reliance on technology to teach, work and stay connected during the Covid-19 remote period. Therefore, sleep quality also may have also been affected by the increase in technology use as screen exposure in the hours before falling asleep is associated with reduced sleep quality (Amicucci et al., 2021; Brandau et al., 2022; Salfi et al., 2021).

While most studies highlight sleep disturbances during the Covid-19 remote period, some reports show that favourable sleep outcomes were also experienced. This was attributed to the ability to shift sleep schedule as desired, because of increased flexibility in bedtime and arising times. (Arrona-Palacios et al., 2022).

Disability

There are few studies regarding the impact of the remote and in-person periods on individuals with disabilities. Generally, those we have been able to find are related to things such as pain syndromes (e.g., Kamp et al., 2022; Timkova et al., 2021). For example, Çiftçi and Demirhan (2022) found that health-related quality of life among those with neck pain was worse among people working remotely than among those working in-person.

Beckel et al (2022), in a conceptual article, noted that remote work could – and should – be considered a disability accommodation. This view is consistent with our interest and hypotheses concerning sleep and well-being during the remote work and return to in-person periods among post-secondary employees who have a disability.

Remote Period

The Covid-19 pandemic demanded a transition to online learning for many professors as well as for non-teaching post-secondary staff. Working and learning remotely were major shifts in the daily routine for many. For some instructors, the transition to remote teaching was accompanied by stress and anxiety about adapting to a new teaching method, particularly new technology (Arrona-Palacios et al., 2022; Casacchia et al., 2021). The online platform can also be challenging for instructors in terms of student engagement and attendance. Speaking to "the void" arose as a psychological challenge for many instructors during the Covid-19 remote period (Casacchia et al., 2021). The transition to remote work likely varied in difficulty depending on factors such as family situations and living arrangements, level of comfort with technology, and general lifestyle. In addition, remote work can also lead to reduced social interactions during the day. With the Covid-19 virus limiting in-person social interactions during leisure time, well-being was affected negatively for many (Gibbs et al., 2021). Furthermore, decreased mobility due to the Covid-19 restrictions, as well as the shift to working on an online platform, resulted in decreased physical activity for many people; this, too, can have adverse effects on sleep and well-being (Massar et al., 2021).

Al Miskry et al. (2021) conducted a study comparing the effects of the Covid-19 lockdown on university faculty, staff and students in the UAE. They found that faculty and students experienced greater levels of distress than non-teaching staff. Additionally, they found that women experienced higher levels of distress than men during this time. Supporting these findings, a study conducted in Ireland found that teachers, including primary, secondary and post-secondary teachers, experienced higher levels of burnout and stress during the pandemic as compared to pre-pandemic reports (Minihan et al., 2022).

Return to In-Person

As the Covid-19 virus gradually became less of a threat with numbers of cases decreasing and access to vaccines increasing, the world had to re-establish its working and learning routines. While some post-secondary employees went back entirely in-person, others stayed entirely remote or adopted a hybrid schedule. Salfi et al. (2022), in a longitudinal study of sleep disturbances and mental health among a population of 1062 Italians, found a decrease in sleep disturbances, insomnia, depression and anxiety symptoms upon return to in-person work. However, these improvements were relatively small and both Salfi et al. and Massar et al. (2021) reported a decrease in sleep duration with the reestablishment of in-person work and school routines. This is most likely a consequence of

 doi:10.20944/preprints202308.1552.v1

having to wake up earlier in order to commute. The return to in-person work also came with increased risk of Covid-19 transmission, which was likely anxiety-inducing for the general population (Ozamiz-Etxebarria et al., 2021). As colleges accommodate thousands of people, it was stressful for faculty, staff and students to return to face-to-face activities in Fall 2021 with the Covid-19 virus still circulating and with the need to follow restrictions (e.g., social distancing, wearing a mask: (Radio Canada, 2021).

Massar et al. (2021) found that in a sample of 200 staff and students from the University of Singapore, the return to in-person activities had some positive results, with an increase in physical activity due to the routine of going to work and to the loosening of restrictions increasing activity in general. Social interaction, another lifestyle factor impacted during the remote period of the Covid-19 pandemic, returned to normal almost fully with the return to in-person activities (Barbieri et al., 2021). Although this increase in social interactions came with anxiety about Covid-19 transmission, positive well-being outcomes remained.

Ozamiz-Etxebarria et al. (2021) examined the experiences of 1,633 teachers, including post-secondary instructors, during the return to in-person teaching activities and found that a high percentage were suffering from stress and anxiety during this time. This study and others (e.g., Abston & Soter, 2023) show that reduced well-being outcomes are not only a result of the Covid-19 remote period, but also of the return to in-person activities.

Present Study

To the best of our knowledge, this is the first study to compare sleep and well-being during the remote and in-person periods of academic staff and faculty with and without disabilities. While there are studies comparing remote to in-person work experiences, many of these compared pre-Covid experiences with remote experiences (e.g., Kita et al., 2022; Thiria et al., 2022; Wright Jr. et al., 2020). Therefore, the aim of this primarily descriptive cross-sectional study is to explore sleep and subjective well-being (c.f. Das et al., 2020) experiences of faculty and non-teaching staff with and without disabilities at a large metropolitan junior/community college in Quebec during the recent Covid-19 pandemic remote period as well as during the return to in-person periods. We tested the following hypotheses.

H1. We expected to see negative impacts of the Covid-19 remote period on the sleep and well-being of both staff and faculty,

H2. We hypothesized that faculty would experience more negative outcomes than non-teaching staff during the remote period due to the challenges related to teaching with unfamiliar technology (e.g., Metzler et al., 2022).

H3. We predicted that staff with disabilities would have more favorable sleep and well-being experiences during the remote than the in-person period since remote work is often seen as a disability accommodation (Beckel et al., 2022).

H4. We expected to see positive impacts of the return to in-person on work and lifestyle- related well-being, in both faculty and non-teaching staff (since work is sometimes more effective in-person and increased social interaction is often positive for well-being).

H5. However, we also expected some negative impacts of return to in-person work on sleep and well-being because of return to commuting for many, as well as increased risk of Covid-19 transmission, especially for faculty.

2. Method

Sample

Participants consisted of 43 individuals, 22 faculty (10 with a disability) and 21 non-teaching staff (10 with a disability) working at a large metropolitan junior/community college in Quebec. All had been working at their current job for at least three years, ensuring that they had experienced both the Covid-19 remote teaching/working period (from mid-March 2020 on) as well as the return to in-person teaching/working (Fall 2021). Eighty-one percent of the study participants were female and 19% were male. To the best of our knowledge, none had experienced a Covid-19 infection. Table 1

shows the age distribution of the study population, indicating that most participants were aged 45 and over.

Table 1. Age distribution of participants in the study.

Age Range	Faculty	Non-teaching staff
55 and over	9	6
45-54	4	8
35-44	8	4
25-34	1	3

Our sample consisted of 50% faculty and staff with disabilities. Their characteristics (see Table 2) show that the most common disability among our participants was a chronic health related disability followed by a sensory disability and attention deficit hyperactivity disorder. One third of the participants had two or more disabilities.

Table 2

Number of participants' disabilities

Disability	# of disabilities reported by faculty	# of disabilities reported by non-teaching staff	Total # of disabilities reported
Chronic health	4	7	11
Attention deficit hyperactivity disorder (ADHD)	3	2	5
Sensory	4	1	5
Mental health	1	2	3
Autism	0	2	2
Learning disability (Specific learning disorder)	1	1	2
Mobility	1	0	1
Prefer not to say	0	1	1

Note. The 19 participants with a disability indicated 30 disabilities.
Note . Of the 19 participants, 14 reported a single disability and 5 reported 2 or more disabilities.

3. Measures

Demographic Information. We collected information about gender, age and the presence or absence of a disability, as well as the type of disability. As recommended by AHEAD (2012) and Banerjee et al. (2020), we reported the disabilities disclosed by the participants.

Sleep and Well-Being Measures. Two open-ended questions asked participants about the positive and negative factors that affected their sleep and well-being during the remote and the in-person periods.

1. What were positive and negative factors that affected your sleep and well-being during the remote teaching/working period?
2. What were positive and negative factors that affected your sleep and well-being during the return to in-person teaching/working?

Procedure

During the remote period (March 2020 on), all education in Quebec's junior/community colleges was done exclusively online, mainly by Zoom. Most non-teaching staff members also worked online. Starting in the Fall of 2021, staff and faculty returned to in-person work.

The research protocol was approved by the Dawson College Research Ethics Board Certificate #FICHC21224325). Participants were recruited during October and November of 2022 through college platforms and personal contacts. We emailed interested individuals an information and consent form as well as the Demographic Information questions. Those who completed these questions were invited to take part in one of four one-hour long Zoom focus groups (two for faculty, two for non-teaching staff). If a participant could not attend a focus group, an interview was

Preprints (www.preprints.org) | NOT PEER-REVIEWED | Posted: 22 August 2023 doi:10.20944/preprints202308.1552.v1

scheduled instead. This usually lasted approximately half an hour. Twenty participants took part via an interview (12 faculty and 8 staff).

Zoom focus groups and interviews were not recorded. Two research team members took notes during the focus groups and these notes were then combined. One team member took notes during interviews. As a token of our appreciation, each participant received a $30 Amazon gift card.

A coding manual was developed to categorize participant responses (Wing et al., 2023) and group thematic coding was conducted (c.f. Braun & Clarke, 2006) by three team members. All responses were coded into a positive or negative sleep or well-being category. Once we coded the responses, we analyzed the frequencies of each category for both the remote and in-person periods (Table 3).

Table 3. Sleep and well-being coding categories.

Sleep or well-being, remote and in-person	Category includes
Anxiety & stress	Covid-related concerns to do with the virus
Commute	Commuting/travel to and from college
Work	Teaching, technology, administration, work-place social interaction
Lifestyle	Family circumstances, work-life separation, routine, leisure time, social interaction outside work
General	Relevant responses that did not fit into the other categories

4. Results

To enable statistical analyses that reflect both positive and negative experiences we converted the four Figure 1 frequency scores to States of Mind (SOM) ratios (Amsel & Fichten, 1990). This involved dividing the number of positive codes by the sum of positive and negative codes, with a correction of 1 in case either the negative or the positive frequency was 0. The larger the number, the more favorable the experience. As a check on SOM scores we also carried out a series of Chi Square tests on frequencies related to Figure 1.

Sleep and Well-Being Comparisons between Disability Status, Faculty vs. Staff, Remote vs. In-Person Periods

Sleep. A 2 (In-Person/Remote) x 2 (Positive/Negative) Chi Square test of sleep category frequencies showed that participants (n = 43) had relatively more negative and fewer positive sleep related comments during the in-person period than during the remote period, $X^2(1,168) = 8.53$, $p = .004$.

Table 4 and the results of a 3-way mixed design analysis of variance (ANOVA) (2 Disability/No Disability) x 2 (Faculty/Staff) x 2 (Remote/In-Person) on SOM sleep scores, show a significant Remote/In-Person Sleep main effect, $F(1,33) = 5.61$, $p = .024$, $\eta = .145$. This indicates that participants had higher SOM scores (i.e., better overall sleep) during the Remote ($M = .504$, $SD = .156$) than the In-Person period ($M = .432$, $SD = .118$).

Table 4. Sleep States of Mind (SOM) ratios.

	Remote		In-Person	
Group	Faculty	Staff	Faculty	Staff
Disability	.458	.491	.403	.450
No disability	.469	.615	.477	.379

The 3-way ANOVA interaction on SOM scores approached significance, $F(1,33) = 3.66$, $p = .068$, $\eta = .097$. Post hoc tests suggest that during the remote period the sleep of faculty was worse than that of staff. Figure 1a and the Chi Square test also show that during the Remote period, the sleep of faculty was significantly worse than that of non-teaching staff, X^2 (1,91) = 4.33, $p = .038$. Table 4

 doi:10.20944/preprints202308.1552.v1

suggests that this is mainly because faculty with disabilities had somewhat worse scores during the Remote period than the other three groups.

Post hoc tests on the SOM ratio also suggest that the sleep of staff without disabilities was worst during the in-person period and best during the remote period ($p < .10$). Indeed, the Chi Square test shows that during the In-Person period, staff without disabilities had relatively fewer positive codes than those with disabilities, X^2 (1,40) =3.25, p = .071, and relatively more negative codes than those with disabilities, X^2 (1,42) =3.94, p = .047.

Well-Being. A 2 (In-Person/Remote) x 2 (Positive/Negative) Chi Square test of well-being frequencies shows that participants (n = 43) had somewhat more negative and fewer positive well-being comments during the in-person period than during the remote period, X^2(1,276) =2.89, p = .089 (i.e., better overall well-being during the remote period).

Table 5 and the results of a 3-way mixed design ANOVA (2 Disability/No Disability) x 2 (Faculty/Staff) x 2 (Remote/In-Person) on SOM well-being scores shows only a significant Remote/In-Person main effect, F(1,35) =6.50, p=.015, η =.157. This indicates that participants had higher SOM scores (i.e., better overall well-being) during the Remote period (M = .515, SD = .165) than the In-Person period (M = .431, SD =.152).

Table 5. Well-being States of Mind (SOM) ratios.

	Remote		In-Person	
Group	Faculty	Staff	Faculty	Staff
Disability	.425	.565	.449	.381
No disability	.542	.535	.421	.460

The 3-way interaction on SOM scores again approached significance, F(1,35) =3.27, p =.077, η = .087. None of the post hoc tests were significant. Remote scores in Table 5 suggest that the well-being of faculty with disabilities appears to be worse than that of the other three groups, and that the well-being of staff with disabilities appears to be worse than that of the other three groups during the In-Person period.

Remote Period: Positive and Negative Impacts on Sleep and Well-Being in 5 Categories Reported by Faculty and Staff

Sleep during the remote period. Consistent with the SOM ratio and Chi Square test results, Figure 1a shows that, overall, during the Remote period faculty reported more negative impacts on their sleep in all categories than did non-teaching staff.

Preprints (www.preprints.org) | NOT PEER-REVIEWED | Posted: 22 August 2023 doi:10.20944/preprints202308.1552.v1

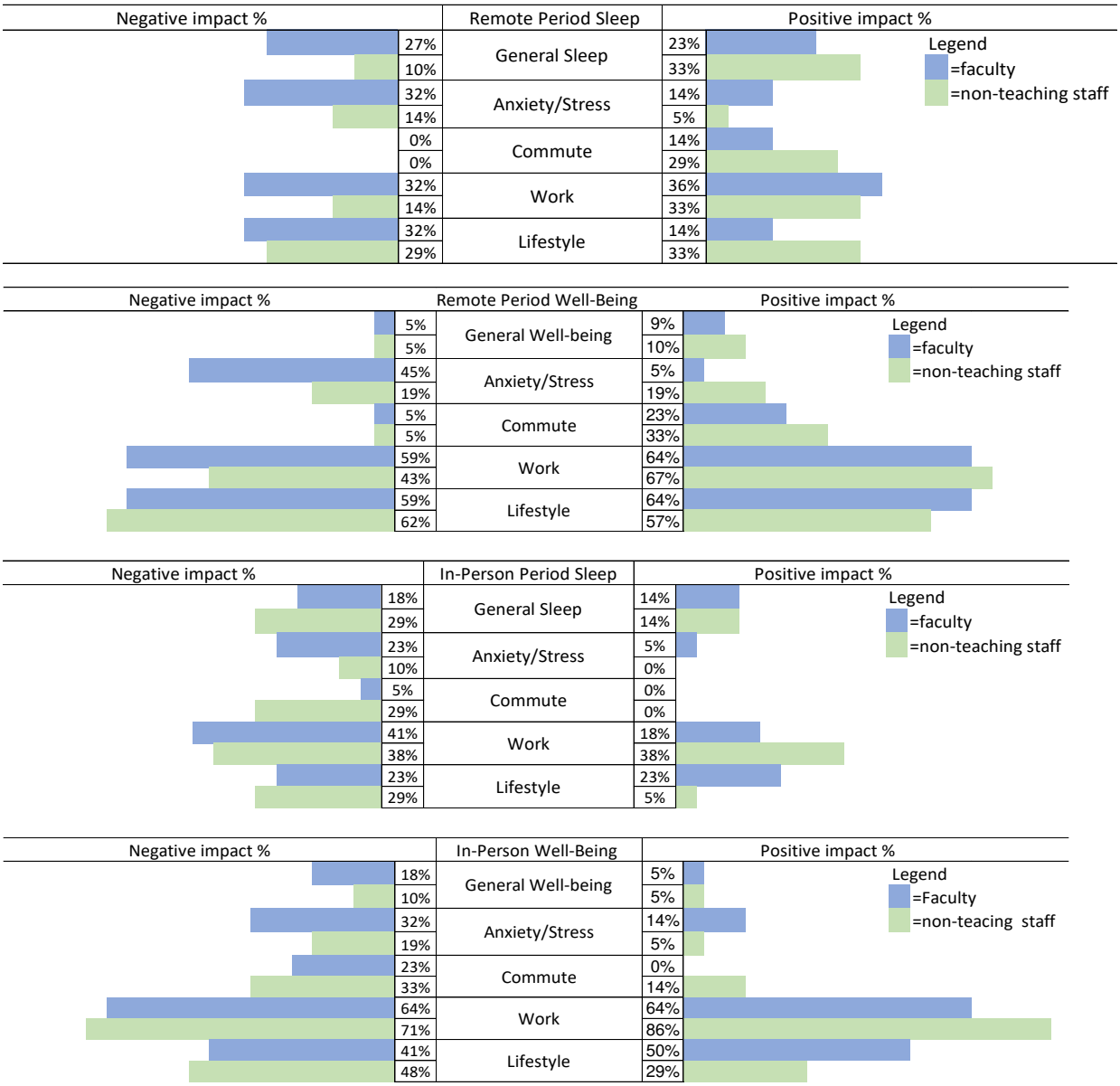

Figure 1. a. Remote period sleep variables. Percentages calculated are based on 22 faculty and 21 staff. b.. Percentages calculated are based on 22 faculty and 21 staff. c. Percentages calculated are based on 22 faculty and 21 staff. **Figure 1.** d. Percentages calculated are based on 22 faculty and 21 staff.

Remote Period: Illustrative Examples of Positive and Negative Impacts on Sleep Responses per Category for Faculty and Staff

Negative aspects of sleep during the Remote period.

Anxiety/Stress category: I couldn't sleep – I experienced plenty of anxiety and lost sleep worrying about the long-term impacts of the pandemic in Canada and abroad; Concerns about Covid transmission affected my sleep

Work category: Feeling nervous about technology in the transition to online kept me up at night; I worried about technology- trying to get software installed - technicalities would wake me up in the middle of the night

Lifestyle category: Sleep-wise, Covid wasn't the factor - worrying about mom's health kept me up at night; I couldn't exercise the way I usually do; this negatively affected my sleep and mental health

 doi:10.20944/preprints202308.1552.v1

Positive aspects of sleep during the Remote period. There were similar positive sleep outcomes for faculty and non-teaching staff during the Remote period.

Anxiety/Stress category: I had less anxiety during Covid – slept well; I could sleep well knowing I was home

Work category: When working from home, I got extra sleep time; I experienced the luxury of waking up, rolling over and teaching directly after waking up

Lifestyle category: I could get up early enough that I could spend an hour with a cup of coffee and go for a walk outside; I could take a nap during the day – the Covid period provided for this flexibility

Illustrative Examples of Positive and Negative Impacts on Well-Being Responses per Category for Faculty and Staff.

As Figures 1b and 1d show, overall, there were a larger number of comments on well-being than on sleep during both the Remote and In-Person periods.

Remote Period: Illustrative Examples of Positive and Negative Impacts on Well-Being Responses Per Category.

Negative aspects of well-being during the Remote period. As Figure 1b suggests, there were somewhat fewer negative than positive comments. The one category with more negatives, especially by faculty, is Anxiety/Stress .

Anxiety/Stress category: Biggest factor was stress because we didn't know what was happening; Covid was a big factor in anxiety – all of the precautions etc.

Other negative comments are below.

Work category: I felt nervous about technology in the transition to online; Teaching to a bunch of black screens was like speaking into a void

Lifestyle category: I used to sit and worry for hours, and doom scroll on computers during the pandemic; I'm a social person - so being away from people felt isolating and difficult

Positive well-being experiences during the Remote period. As the SOM ratios and Figure 1b show, there were many positive comments as well. Other than the commute category, this was mainly true of the work and lifestyle categories. For example,

Lifestyle category: Going out for walks was positive - this became a habit; I have found more productive uses of my time

Work category: I appreciated the flexibility of being in control of my schedule; When I was in remote work, the house was cleaner

In-Person Period: Positive and Negative Impacts in 5 Categories on Sleep and Well-Being Reported by Faculty and Staff.

Sleep during the in-person period. Consistent with the SOM ratio results, Figure 1c also shows that the sleep experiences of our study population during the return to In-Person teaching/working were again more negative than positive.

Negative aspects of sleep during the In-Person period. As Figure 1c shows, more participants commented on negative aspects of sleep for every category compared to its corresponding positive category. Again most comments about sleep during the return to in-person were related to work.

In-Person Period: Illustrative Examples of Positive and Negative Impacts on Sleep Responses Per Category

Negative aspects of sleep during the In-Person period.

Work category: Being back in-person, my sleep was more disrupted overall; Teaching in-person comes with anxiety about waking up being late

Of course, there were negative comments about having to travel to work, mainly by non-teaching staff.

Commute category: Always travelling and getting up early can affect you - I had less sleep because of that; Elements of stress and problematic sleep because of commuting: one never knows if the metro will shut down etc.

Participants also indicated the negative impact of lifestyle and anxiety on sleep.

Lifestyle category: My priority on the weekend is sleep! But that takes away from other personal and household things – I have not found the balance; I would often find myself staying awake late into the night, and as such I frequently felt sleep-deprived

Anxiety/Stress category: The increased stress and anxiety from being back in-person makes me lose sleep; I would wake up with the feeling I had in a dream; this was anxiety and fear

Positive impacts on sleep of return to In-Person work. The return to in-person work also had positive impacts on sleep related mainly to work and lifestyle:

Work category: Sleep is easier when I am working in-person – getting out of the house; I am sleeping better now than during remote work

Lifestyle category: I have no trouble falling asleep because I am exhausted from the day: Sleeping less allows for peaceful activities like reading or tidying in the morning before my children wake up

Well-being during the in-person period. As was the case with sleep experiences and consistent with the SOM ANOVA results, Figure 1d shows that participants reported more negative than positive well-being outcomes during the return to In-Person work.

Negative well-being experiences during the In-Person period. Again, participants, especially faculty, had more negative than positive anxiety/stress related impacts. They also had many negative, as well as positive, work and lifestyle related impacts on their well-being.

Remote Period: Illustrative Examples of Positive and Negative Impacts on Well-Being Responses Per Category.

Anxiety/stress category: More anxiety coming in-person - I had a lot of unexpected meetings with policies changing and people getting Covid, etc.; Concerns about Covid transmission.

Work: Concerns about breathing, never mind teaching, with the mask; Oh, the social anxiety going back to In-Person teaching!

Lifestyle: Socially tiring – I got used to being more of an introvert in Covid: I have to push back personal priorities to the weekend now that we're In-Person

Positive well-being experiences during the In-Person period. Thirty-two of the 43 participants commented on positive well-being outcomes related to work during the return to In-Person, making it the most talked about category of the whole study.

Work category: I was able to see the students' direct feedback – I was jumping up and down, it was fabulous; Once back at work, job was much easier to do on site than remotely

Lifestyle: Being able to socialize with colleagues and actually get to know them was very much appreciated; Ability to do other things outside of school with Covid restrictions lifting is very important

5. Discussion

It is evident that there were both positive and negative impacts on sleep and well-being during both the Covid-19 remote teaching/working period, as well as during the return to in-person period. Both sleep and well-being were better during the remote than the in-person period. This disconfirms part of Hypothesis 1, as we expected overall worse sleep and well-being during the remote period.

Our sample consisted of 50% faculty and staff with disabilities. In general, our results suggest that faculty with disabilities had somewhat worse experiences than their nondisabled counterparts when it came to sleep and well-being both during the remote and in-person periods. Findings related to staff are less clear since their sleep and well-being results were not consistent.

Remote Period

As noted earlier, there were several differences between the tasks of faculty and staff and those seem to be reflected in their sleep and well-being. Staff generally had a "9 to 5" type of schedule, whereas faculty, who generally taught 12 to 15 hours spread across the timetable, always had more flexibility. Also, faculty, most of whom had no previous experience with online or remote teaching, had to pivot to remote teaching during a two-week period. Although staff also needed to adapt to the remote environment, the nature of their tasks may have made this transition less onerous.

Although sleep of participants was significantly better during the remote than the in-person period, this is not to say that their sleep was good. Only that it was better than during the in-person period, where it was much worse. This was also true of well-being, where, in spite of the plethora of negative well-being findings reported in the literature for both faculty (e.g., Arrona-Palacios et al., 2022; Casacchia et al., 2021) and office workers (Gibbs et al., 2021), the well-being of our participants was also significantly more favorable during the remote than the in-person period (cf. Peacock).

Consistent with Hypothesis 2, overall, during the remote period the sleep of faculty was worse than that of staff. Also, consistent with Al Miskry et al. (2021), in many instances the well-being of faculty was also worse than that of staff. Surprisingly, and disconfirming Hypothesis 3, the sleep and well-being of faculty with disabilities were especially poor during the remote period.

Others (e.g., Gibbs et al., 2021) found a worsening of sleep quality, increased mood disturbance and lower quality of life among office workers during the remote period in comparison to the "pre-Covid" experience. Our comparison of remote and "post-Covid" (i.e., in-person) work showed that staff appeared to fare slightly better than faculty during the remote period, specifically in the form of fewer negative impacts on sleep.

It is possible that the challenging nature of remote teaching, the sudden transition to an online platform such as Zoom and having to learn how to use the technology accounts for some of the anxiety and stress which likely had a negative effect on the sleep and well-being of faculty members. Issues around technology use were especially problematic for faculty who had not done any online teaching. Faculty also complained about the demoralizing feeling of teaching to "a bunch of black screens". Another important category of negative comments by faculty was related to the need to be available to students at all times, not allowing for work-life separation. For both faculty and staff the remote period had serious impacts on lifestyle, often linked to the social isolation.

Although much of the literature discusses negative sleep and well-being- related impact during the remote period, as noted by our participants, there were certainly some positives (e.g., Arrona-Palacios et al., 2022),. This includes having more time to sleep, feeling safer because of reduced exposure to the virus, and having a more flexible schedule. Positive impacts on lifestyle and work associated with flexibility included: control of one's schedule, having more free time because there was no need to travel to work, being able to engage in personal activities, such as exercising, walking and gardening. For lifestyle, there appeared to be very similar numbers of negative and positive impacts for both faculty and staff. On the negative side was social isolation while on the positive was more leisure time.

Whereas faculty experienced mainly negative impacts on their sleep during the remote period, non-teaching staff had somewhat more favorable experiences. In particular, they commented on the positive impact of not having to travel to work and having more favorable lifestyle experiences. Indeed, for non-teaching staff, particularly those without disabilities, the remote period had the most favorable impact on their sleep.

Return to In-Person Period

The return to in-person teaching and work contributed significantly more negative sleep and well-being outcomes for both faculty and staff than did the remote period. The well-being of staff with disabilities appeared to be particularly poor during the in-person period. The cause of this latter finding is unclear although several participants mentioned that the college refused their request for remote work some of the time.

Sleep. In fact, there were almost no positive impacts of the return to in-person teaching and work on sleep. As for well-being, consistent with Hypothesis 4, the main positives of the return to in-person

 doi:10.20944/preprints202308.1552.v1

were in the realm of work and lifestyle. Faculty were pleased to see their students and enjoyed getting feedback from students in-person. However,, somewhat more staff members reported positive impacts of work on their well-being compared to faculty. Positive work experiences included it being easier to do ones' job in-person than remotely. Also, the ability to socialize with colleagues was especially important. A relatively large number of non-teaching staff commented on positive sleep outcomes related to work, highlighting the mixed experiences during this period.

As suggested in Hypothesis 5, there were also numerous negative well-being outcomes related to work and lifestyle. For example, faculty frequently reported performance anxiety upon returning to in-person teaching. In addition, the return to congested classrooms increased concern among faculty about catching Covid-19, regardless of wearing masks (Labbe, 2021; Radio Canada, 2021), as it was impossible to maintain social distancing. Non-teaching staff also had negative experiences. They were especially concerned about the negative impact of the commute on crowded buses and subways during rush hour. The commute time and the anxiety related to the possibility of Covid-19 transmission led to less and worse sleep and poorer well-being.

6. Limitations

Our sample size was relatively small and did not constitute a random sample. Also, as in many other studies, (e.g., Al Miskry et al., 2021), our sample consisted mainly of female participants. The order of sleep quality questions was constant and responses concerning the remote period were retrospective. Both the remote and the return to in-person periods were long and there were likely differences throughout each period (Salfi et al., 2022).

7. Implications

Our findings are consistent with those of Abston and Soter (2023) who explored the residual negative effects of the remote period on the return to in-person teaching. In a paper provocatively titled "Managing Expectations in a Pandemic and 'Getting Back to Normal'" they concluded that the "new normal" is not the old normal as faculty continue to experience negative stress and well-being outcomes. What lessons can be learned from our findings that can be used to enhance the sleep and wellbeing of both faculty and non-teaching staff in this "new normal" period? What stakeholders need to become involved for change to occur?

Our results indicate that both sleep and well-being were better during the remote than the in-person period. This was true for both staff and faculty, even though staff generally have a "9 to 5" type of schedule, whereas faculty have always had more flexibility. Furthermore, according to Their (2023), non-teaching staff can experience frustration when they must sit in their offices and field questions from students and teachers who are working remotely.

This suggests that hybrid arrangements, especially for non-teaching staff but also for faculty, may be an excellent option, since it would incorporate the best aspects of both worlds. Well-being of staff with disabilities was especially poor during the return to in-person work. Noting that several participants mentioned that the college refused requests to work remotely some of the time, a hybrid work schedule might be a reasonable solution for them as well. It is important to consider the reasons behind the finding that faculty with disabilities also had worse experiences than their nondisabled counterparts when it came to sleep and well-being, both during the remote and in-person periods. As the number of educated individuals who self-identify as having a disability continues to increase in our society (Conseil fédéral de la FNEEQ, 2022) and as efforts are being made to ensure a more inclusive work environment (e.g., Equity Diversity Inclusion (EDI): Wolbring, & Lillywhite, 2021; Byrd & Scott, 2023), barriers still appear to exist, and these should be further studied.

Faculty, most of whom had no previous experience with remote teaching, had to familiarize themselves with platforms such as Zoom and pedagogy suitable for online teaching. This steep learning curve resulted in anxiety and stress which had a negative effect on sleep and well-being. Although great efforts were made to support faculty during the crisis period, training to keep faculty abreast with the latest technological innovations must be continuous. Technology advances rapidly and one cannot predict when the next critical situation will occur.

Both faculty and staff reported that the remote period provided more time to engage in personal tasks, exercising and other leisure activities. On the other hand, they also indicated that it did not allow for sufficient work-life separation. Perhaps human resources could play a role in developing policy to address these aspects of work-life balance: promoting more flexible work schedules; facilitating health-promoting activities like exercise within the workplace; setting limits for work-related communication outside of work hours.

Faculty anxiety upon return to in-person work heightened as it meant a return to congested classrooms and increased concern about catching Covid-19. Overcrowding of classrooms and poor air quality is not new, but it took on much greater significance during the remote Covid period. There is no quick remedy for problematic classroom size and building ventilation, however, our findings highlight the need for a plan to be developed *now* and steps to ameliorate this situation should begin as soon as possible.

Acknowledgements: This study was funded by a grant from the Fonds de recherche du Quebec - Santé (FRQS). We wish to thank Christine Vo, Daniel Ereshchenko, and Abi Vasseur for their help with various aspects of this study.

References

Abston, K. A., & Soter, H. A. (2023). Managing expectations in a pandemic and "getting back to normal." *Developments in Business Simulation and Experiential Learning, 50*, 211-216.

AHEAD. (2012, April). *Supporting accommodation requests: Guidance on documentation practices.* Association on Higher Education and Disability. https://ahead.org/uploads/docs/resources/Final_AHEAD_Supporting%20Accommodation%20Requests%20with%20Q&A%2009_12.pdf

Al Miskry, A. S., Hamid, A. A., & Darweesh, A. H. (2021). The impact of Covid-19 pandemic on university faculty, staff, and students and coping strategies used during the lockdown in the United Arab Emirates. *Frontiers in Psychology, 12*, Article 682757. https://doi.org/10.3389/fpsyg.2021.682757

Amicucci, G., Salfi, F., D'Atri, A., Viselli, L., & Ferrara, M. (2021). The differential impact of Covid-19 lockdown on sleep quality, insomnia, depression, stress, and anxiety among late adolescents and elderly in Italy. *Brain Sciences, 11*(10), Article 1336. https://doi.org/10.3390/brainsci11101336

Arrona-Palacios, A., Rebolledo-Mendez, G., Escamilla, J., Hosseini, S., & Duffy, J. (2022). Effects of Covid-19 lockdown on sleep duration, sleep quality and burnout in faculty members of higher education in Mexico. *Ciência & Saúde Coletiva, 27*(8), 2985–2993. https://doi.org/10.1590/1413-81232022278.04322021

Banerjee, M., Lalor, A. R., Madaus, J. W., & Brinckerhoff, L. C. (2020). A survey of postsecondary disability service websites post ADA AA: Recommendations for practitioners. *Journal of Postsecondary Education and Disability, 33*(3), 301-310.

Barbieri, P. N., Giuntella, O., Saccardo, S., & Sadoff, S. (2021). Lifestyle and mental health 1 year into Covid-19. *Scientific Reports, 11*(1), Article 23349. https://doi.org/10.1038/s41598-021-02702-4

Beckel. J. L. O., & Fisher, G. G. (2022). Telework and worker health and well-being: A review and recommendations for research and practice. *International Journal of Environment Research and Public Health, 19*(7), Article 3879. https://doi.org/10.3390/ijerph19073879

Brandau, M., Vogt, M., & Garey, M. L. (2022). The impact of the Covid-19 pandemic and transition to distance learning on university faculty in the United States. *International Education Studies, 15*(3), 14-25. https://doi.org/10.5539/ies.v15n3p14

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Byrd, M.Y. & Scott, C.L (2023). Diversity in the workforce: Whose interests are being served? Human Resource Development Quarterly. 34, 123–125. https://onlinelibrary.wiley.com/doi/10.1002/hrdq.21510

Casacchia, M., Cifone, M. G., Giusti, L., Fabiani, L., Gatto, R., Lancia, L., Cinque, B., Petrucci, C., Giannoni, M., Ippoliti, R., Frattaroli, A. R., Macchiarelli, G., & Roncone, R. (2021). Distance education during Covid 19: An Italian survey on the university teachers' perspectives and their emotional conditions. *BMC Medical Education, 21*(1), Article 335. https://doi.org/10.1186/s12909-021-02780-y

Çiftçi, B., & Demirhan, F. (2022). Investigating the impacts of working at home among office workers with neck pain on health status, depression and sleep quality during the Covid-19 pandemic. *International Journal of Occupational Safety and Ergonomics.* Advance online publication. https://doi.org/10.1080/10803548.2022.2090132

Conseil fédéral de la FNEEQ. (2022). *Augmentation du nombre d'étudiantes et d'étudiants en situation de handicap, diversification des profils étudiants et impacts sur la tâche enseignante.* Rapport du Comité École et Société. https://fneeq.qc.ca/wp-content/uploads/2022-04-21_-Impact-EESH_ta%CC%82che-enseignante.pdf

Das, K. V., Jones-Harrell, C., Fan, Y., Ramaswami, A., Orlove, B., & Botchwey, N. (2020). Understanding subjective well-being: Perspectives from psychology and public health. *Public Health Reviews, 41*, Article 25. https://doi.org/10.1186/s40985-020-00142-5

Gabet, S., Thierry, B., Wasfi, R., De Groh, M., Simonelli, G., Hudon, C., Lessard, L., Dubé, E., Nasri, B., Kestens, Y., & Moullec, G. (2022). *How is the Covid-19 pandemic impacting life, mental health, and well-being? Design and preliminary findings of the pan-Canadian longitudinal COHESION study.* medRXiv. https://doi.org/10.1101/2022.05.26.22275645

Gibbs, B. B., Kline, C. E., Huber, K. A., Paley, J. L., & Perera, S. (2021). Covid-19 shelter-at-home and work, lifestyle and well-being in desk workers. *Occupational Medicine, 71*(2), 86–94. https://doi.org/10.1093/occmed/kqab011

Jahrami, H. A., Alhaj, O. A., Humood, A. M., Alenezi, A. F., Fekih-Romdhane, F., AlRasheed, M. M., Saif, Z. Q., Bragazzi, N. L., Pandi-Perumal, S. R., BaHammam, A. S., & Vitiello, M. V. (2022). Sleep disturbances during the Covid-19 pandemic: A systematic review, meta-analysis, and meta-regression. *Sleep Medicine Reviews, 62*, Article 101591. https://doi.org/10.1016/j.smrv.2022.101591

Kamp, K., Murphy, T., Shulman, R. J., Van Tilburg, M. A., Romano, J. M., & Levy, R. L. (2022). Impact of the Covid-19 pandemic on abdominal pain, emotional distress, quality of life, sleep, and disability in children with functional abdominal pain disorders. *Gastroenterology, 162*(7), S-57-S-58. https://doi.org/10.1016%2FS0016-5085(22)60142-2

Kita, Y., Yasuda, S., & Gherghel, C. (2022). Online education and the mental health of faculty during the Covid-19 pandemic in Japan. *Scientific Reports, 12*, Article 8990. https://doi.org/10.1038/s41598-022-12841-x

Labbé, J. (2021, August 17). *Les travailleurs de la santé du Quebec seront obligés de se faire vacciner.* Radio- Canada. https://ici.radio-canada.ca/nouvelle/1817256/vaccination-obligatoire-covid-reseau-public-prive-commission

Marelli, S., Castelnuovo, A., Somma, A., Castronovo, V., Mombelli, S., Bottoni, D., Leitner, C., Fossati, A., & Ferini-Strambi, L. (2020). Impact of Covid-19 lockdown on sleep quality in university students and administration staff. *Journal of Neurology, 268*(1), 8–15. https://doi.org/10.1007/s00415-020-10056-6

Massar, S. A., Ng, A. S., Soon, C. S., Ong, J. L., Chua, X. Y., Chee, N. I., Lee, T. S., & Chee, M. W. (2021). Reopening after lockdown: The influence of working-from-home and digital device use on sleep, physical activity, and well-being following Covid-19 lockdown and reopening. *SLEEP, 45*(1), Article zsab250. https://doi.org/10.1093/sleep/zsab250

Metzler, M., Esmat, T. A., Langdon, J., Edwards, O. V., Carruth, L., Crowther, K., Shrikhande, M., Bhattacharya, S., Strong-Green, A., Gurvitch, R., Kluge, S., Smitherman, M., & Spinks, M. (2022). The impact of transitioning to emergency remote instruction on perceptions of preparation, institutional support and teaching effectiveness. *College Teaching, 70*(3), 368-379. https://doi.org/10.1080/87567555.2021.1954870

Minihan, E., Adamis, D., Dunleavy, M., Martin, A., Gavin, B., & McNicholas, F. (2022). Covid-19 related occupational stress in teachers in Ireland. *International Journal of Educational Research Open, 3*, Article 100114. https://doi.org/10.1016/j.ijedro.2021.100114

Osiogo, F., Shalaby, R., Adegboyega, S., Hrabok, M., Gusnowski, A., Vuong, W., Surood, S., Greenshaw, A. J., & Agyapong, V. I. O. (2021). Covid-19 pandemic: Demographic and clinical correlates of disturbed sleep among 6,041 Canadians. *International Journal of Psychiatry in Clinical Practice, 25*(2), 164-171. https://doi.org/10.1080/13651501.2021.1881127

Ozamiz-Etxebarria, N., Santxo, N. B., Mondragon, N. I., & Santamaría, M. D. (2021). The psychological state of teachers during the Covid-19 crisis: The challenge of returning to face-to-face teaching. *Frontiers in Psychology, 11*, Article 620718. https://doi.org/10.3389/fpsyg.2020.620718

Perreaux, L. (2020, March 14). Quebec to close all schools, daycares for at least two weeks in bid to contain coronavirus. *The Globe and Mail*. https://www.theglobeandmail.com/canada/article-Quebec-to-close-all-schools-daycares-for-at-least-two-weeks-in-bid-to-2/

Radio Canada. (2021, August 24). *Return of the mask in class in nine regions in Quebec*. https://ici.radio-canada.ca/nouvelle/1818812/Quebec-plan-rentree-scolaire-Covid-delta- masque

Salfi, F., Amicucci, G., Corigliano, D., D'Atri, A., Viselli, L., Tempesta, D., & Ferrara, M. (2021). Changes of evening exposure to electronic devices during the Covid-19 lockdown affect the time course of sleep disturbances. *Sleep, 44*(9), Article 13767. https://doi.org/10.1093/sleep/zsab080

Salfi, F., Amicucci, G., Corigliano, D., Viselli, L., D'Atri, A., Tempesta, D., Gorgoni, M., Scarpelli, S., Alfonsi, V., & Ferrara, M. (2022). Two years after lockdown: Longitudinal trajectories of sleep disturbances and mental health over the Covid-19 pandemic, and the effects of age, gender and chronotype. *Journal of Sleep Research, 32*(3), Article 13767. https://doi.org/10.1111/jsr.13767

Smith, B. J., & Lim, M. H. (2020). How the Covid-19 pandemic is focusing attention on loneliness and social isolation. *Public Health Research & Practice, 30*(2), Article e3022008. https://doi.org/10.17061/phrp3022008

Statistics Canada. (2023, March 9). *Research to insights: A look at Canada's economy and society three years after the start of the Covid-19 pandemic.* https://www150.statcan.gc.ca/n1/pub/11-631-x/11-631-x2023004-eng.htm

Their, J. (2023, June 14). Bosses are fed up with remote work for 4 main reasons. Some of them are undeniable. *Fortune*. https://fortune.com/2023/06/14/is-remote-work-era-ending-doomed-4-reasons-why-productivity/

Thiria, E., Pellegrini, C., Kase, B. E., DeVivo, K., & Steck, S. E. (2022). Health behavior and anxiety changes during the Covid-19 pandemic among students, faculty, and staff at a US university. *Journal of American College Health*. Advance online publication. https://doi.org/10.1080/07448481.2022.2104615

Timkova, V., Mikula, P., Fedicova, M., Szilasiova, J., & Nagyova, I. (2021). Psychological well-being in people with multiple sclerosis and its association with illness perception and self-esteem. *Multiple Sclerosis and Related Disorders, 54,* Article 103114. https://doi.org/10.1016/j.msard.2021.103114

Trakada, A., Nikolaidis, P.T., Economou, N.-T, Kallianos, A., Nena, E., Steiropoulos, P., Knechtle, B., & Trakada, G. (2022). Comparison of sleep characteristics during the first and second period of restrictive measures due to Covid-19 pandemic in Greece. *European Review for Medical and Pharmacological Sciences. 26*(4), 1382-1387. http://dx.doi.org/10.26355/eurrev_202202_28131

Wing, S., Jorgensen, M., Fichten, C., Havel, A., & Wileman, S. (2023, March 27). *Sleep and well-being in academe during the recent pandemic remote/online period and the return to face-to-face classes: Faculty and non-teaching staff* [Coding manual]. Adaptech Research Network. https://adaptech.org/publications/sleep-and-well-being-in-academe-during-the-recent-p andemic-remote-online-period-and-the-return-to-face-to-face-classes-faculty-and-non-teaching-staff-coding-manual/

Wolbring, G., & Lillywhite, A. (2021). Equity/equality, diversity, and inclusion (EDI) in universities: the case of disabled people. *Societies, 11*(2), 49. https://www.mdpi.com/2075-4698/11/2/49

Wright Jr., K. P., Linton, S. K., Withrow, D., Casiraghi, L., Lanza, S. M., de la Iglesia, H., Vetter, C., & Depner, C. M. (2020). Sleep in university students prior to and during Covid-19 stay-at-home orders. *Current Biology, 30*(14), R797-R798. https://doi.org/10.1016/j.cub.2020.06.022