A Four-day Pharmacy Course Schedule

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ABSTRACT

Objective: To discuss the results of implementing a 4-day student didactic course schedule.

Methods: The change from a 5-day to a 4-day course schedule was implemented in spring 2021. Students in the classes of 2023 and 2024 and faculty course coordinators were surveyed in fall 2021 regarding their experience with the new schedule format. Baseline data from fall 2020 were also collected for comparison. Quantitative data was described using frequencies, percentages, odds ratios, and 95% confidence intervals. Open-ended questions were evaluated using qualitative thematic analysis.

Results: Almost all students (n = 193, 97%) who responded to the course planning survey in fall 2021 wanted to continue the 4-day course schedule. Students perceived the benefits of the 4-day schedule, to include more time for studying/preparing for classes (69%), and for self-care and wellness activities (20%). Student survey responses showed increased odds of engagement outside of the class. Qualitative analysis found that students reported increased engagement and liked the improved course structure. Students disliked the longer time spent in class. Academic performance was reported as somewhat or significantly improved by 85% of respondents. Faculty (n = 31; response rate 80%) reported that the 4-day course schedule positively impacted (48%) or had no impact (42%) on their job responsibilities. Work-life balance (87%) was noted as the most positive effect from faculty respondents.

Conclusion: A 4-day course schedule was well received by both students and faculty. Institutions may consider a similar approach to allow students the flexibility of this novel schedule so as to have more time to prepare for class and wellness activities.

1. Introduction

The concept of a condensed school week or a 4-day work schedule is not new in the United States K-12 education system. A shortened school week has been reported as far back as in the 1930s during the Great Depression. In the 1970s, the condensed school schedule regained popularity in an effort to reduce the costs of heating and transportation during the 1973 oil embargo. In 2009, Hawaii officials followed a similar approach by cutting down the school week to 4 days statewide to reduce costs.¹ A recent report published in the Education Finance and Policy journal estimated that there was over 600% increase in the number of schools adopting the 4-day schedule over the past 2 decades. In 1999, there were about 257 schools in 108 school districts that operated on a 4-day schedule. However, these numbers increased to 1607 schools in 662 school districts by the spring of 2019.²

Historically, the 4-day schedule was primarily viewed as a cost-saving measure. However, the latest report from RAND Corporation of a 4-day course schedule in K-12 schools from multiple states suggests that a condensed school week might come with other benefits for students. Compared to schools with 5-day course schedules, schools with 4-day course schedules had both qualitative and quantitative data that support higher levels of satisfaction among students and teachers; and more time spent by students with family members. In terms of student attendance, behavioral and emotional well-being, and school climate and engagement, only the qualitative data supported the 4-day course schedule. Lastly, both qualitative and quantitative data revealed that the 4-day course schedule had neutral effect on sleep, fatigue, and academic achievement of the students.³

These positive effects of a 4-day course schedule, such as improved wellness without the expense of productivity or performance, may align...
with the goals of the American Association of Colleges of Pharmacy (AACP) to continuously improve the quality of pharmacy education. AACP has adopted 2 policy statements on well-being to demonstrate its commitment to this important topic in pharmacy education: “AACP encourages schools and colleges of pharmacy to proactively promote overall wellness and stress management techniques students, faculty, and staff” (2017) and “AACP believes that all administrators, faculty, staff, preceptors, student pharmacists, and alumni should contribute to a culture of wellness and resilience in pharmacy education” (2018). 

Colleges or schools of pharmacy may offer programs to help promote students’ well-being, but to our knowledge none have instituted a 4-day course schedule in order to allow time for these behaviors.

The aim of this paper is to discuss the results of implementing a 4-day student didactic course schedule at Virginia Commonwealth University School of Pharmacy. Even though the 4-day course schedule has been implemented and researched in many K-12 schools across the nation, to the best of our knowledge there is no previous research that discusses the implementation or outcomes of condensed school schedule in schools of pharmacy or any institutions of higher learning.

2. Methods

The shift from a 5-day to a 4-day course schedule was an attempt by the school of pharmacy’s administration to provide students with a regular break from their scheduled classes when spring break was eliminated by the university in spring 2021. The 4-day course schedule was implemented when courses were delivered virtually, using Zoom (Zoom Video Communications, Inc. San Jose, CA), due to Covid-19 pandemic. Each cohort was assigned a different day when no courses were scheduled: Wednesday (P1 students), Friday (P2 students), or Monday (P3 students). Condensing class sessions into 4 days was made possible by taking advantage of gaps in the previous 5-day course schedule. Appendix 1 shows an example course schedule for the first year pharmacy cohort. Total instructional time with students remained unchanged although some class sessions were converted to an asynchronous format. With the 5-day course structure, depending on the cohort, students spent 4–6 h per day in classes or labs; whereas the 4-day course structure resulted in a similar time commitment of 4–6 h per day in classes or labs with approximately 1 more day per week exceeding 4 h of class time. Based on faculty and student survey feedback, the 4-day course schedule was continued for the 2021–2022 school year when classes resumed almost entirely in-person and have continued for 2022–2023.

Based on the feedback from students, the day where no classes are scheduled was changed to Mondays for all the cohorts. Based on the feedback from faculty, administration added clarification for the students about the use of this day without any classes being scheduled and termed it as a “flexible learning day” to indicate that it is not intended to be a day entirely free from school work. Faculty can use this “flexible learning day” to meet with student mentees, hold office hours (in-person or virtually), and schedule examination reviews. Students may use this day to hold student organizational meetings, attend co-curricular or service learning opportunities, and may be required to view asynchronous content. They may also use this “flexible learning day” to work, to study, or for self-care. It is important to note that while students have a 4-day course schedule, faculty are still required to work 5 days per week.

Students were surveyed at the end of fall 2020 semester to establish baseline comparison data as they were currently enrolled in a 5-day course schedule. At the end of the fall and spring 2021 semester, students in the classes of 2023 and 2024 were surveyed regarding their experience with the 4-day course schedule. Student survey questions were adapted from the National Survey of Student Engagement (NSSE) 2020 with additional items specific to the implementation of the 4-day course schedule. The 28-question student survey was administered using Qualtrics (Qualtrics, Provo, UT). Three open-ended questions were also included: what they liked, did not like, and how it was different from the virtual learning environment’s 4-day schedule. To aid in planning for the spring 2022 schedule, a brief Google Forms survey (Alphabet, Menlo Park, CA) was provided to all students in mid-semester fall 2021 asking them to identify the primary benefit of this type of schedule and if they would like to continue with the 4-day course schedule.

Faculty course coordinators in fall 2021 were asked to respond to a 3-question survey administered using Google Forms (Alphabet, Menlo Park, CA) which asked how faculty members were impacted by the 4-day course schedule (positively, negatively, or no impact), which areas were most affected (research, service, teaching, or work-life balance), and if they wanted to continue with the 4-day course schedule in the future.

Quantitative and qualitative survey data were analyzed. Descriptive statistics were used to analyze quantitative responses. Odds ratios and 95% confidence intervals to compare perceived student engagement in the 4-day and 5-day course schedules were calculated by multinomial logistic regression. An alpha value < 0.05 was used for statistical significance. Thematic analysis was used for the 3 open-response questions on student’s perception of the 4-day course schedule. Two independent coders analyzed themes and any differences were reconciled by another investigator.

All statistical analyses were conducted using SPSS (Version 28, IBM, Armonk, NY). This study was not classified as human subjects research by the Virginia Commonwealth University Institutional Review Board.

3. Results

At the end of the fall 2021 semester, the class of 2023 (n = 82) and class of 2024 (n = 92) were surveyed regarding their engagement and experience with the 4-day schedule. A total of 103 students completed the Qualtrics survey out of the 174 students (response rate of 59%). From the total number of respondents, 69% belonged to the class of 2024 and 31% belonged to the class of 2023. A total of 82% of students were aged 25 years or under, 13% were aged between 26 and 30 years, 3% were between 31 and 35 years, 1% were between 36 and 40 years, and 2% preferred to not respond.

Most students (85%, n = 87) reported that the 4-day schedule significantly or somewhat improved their academic performance. Only 15% responded that it had no effect on their academic performance, and 1 student noted that it significantly worsened their academic performance.

Almost all students (97%, n = 193) who responded to the course planning questionnaire in Google Forms in fall 2021 reported wanting to continue with the 4-day course schedule, 1% had no preference, and 2% preferred a 5-day course schedule. The primary benefit selected for the 4-day course schedule was more time for studying/preparing for classes (69%), with the second highest response being more time for self-care and wellness activities (20%), and the third being more time to work (5%).

Students enrolled in the 4-day schedule (fall 2021) were more likely to report that they “sometimes, often, or very often” participated in positive engagement behaviors than students enrolled in the 5-day schedule (fall 2020, Table 1). The odds of submitting assignments on time, connecting with peers outside of class, attending student organizations, and attending school-sponsored activities were all significantly increased during the 4-day schedule in comparison to the 5-day schedule. Moreover, the odds of reviewing notes after class and engaging with the faculty outside of the classroom showed numerical improvements though they did not reach statistical significance.

Fall 2021, students reported typically spending 1–15 h per week socializing and relaxing. Outside classroom engagement included spending time working or completing an internship. Approximately 80% (82 students) worked a job or internship during the fall 2021 semester, whereas about 62% (63 students) worked during the fall 2020 semester. During fall of 2021, 51 students (62%) worked 8–16 h per...
Qualitative Response Analysis of What the Class of 2023 and Class of 2024 Liked about the 4-day Course Schedule from Fall 2021.

A total of 31 faculty course coordinators out of 39 (response rate: 80%) in fall 2021 completed a Google Form questionnaire rating their experience with the 4-day course schedule. Results from this survey show that 48% of faculty members reported being positively impacted by the 4-day schedule. Thirteen faculty members (42%) experienced no impact and only 3 faculty members reported the 4-day schedule negatively affected them. When asked for their preference of 4-day compared to the 5-day schedule, 48% (n = 15) preferred the 4-day schedule to the 5-day, while 42% (n = 13) with no preference for the type of schedule. Improved work-life balance was cited as the best benefit of a 4-day schedule. Additionally, respondents reported that the negative impact on class structure was due to a more condensed schedule and that students were responsible for asynchronous material on their flexible learning day.

A review of 40 studies examined the effects of a compressed working week on the health and work-life balance of shift workers and showed that compressed working has led to improvements in work-life balance with a low risk of adverse health or organizational effects. However, compressing the work schedule too much could lead to potential harm.

4. Discussion

Overall, these findings showed that both students and faculty had favorable perceptions of the conversion to a 4-day schedule at Virginia Commonwealth University School of Pharmacy. This included perceived improvement in student engagement, connectedness to peers, attendance at student organizations and school-sponsored activities, ability to balance work outside of the classroom, and improvement in academic performance based upon survey responses. From the faculty’s perspective, the 4-day schedule either had no impact or a positive impact on their workday, leading about half of faculty to state that they prefer the 4-day schedule.

One criticism received about the 4-day schedule was that our students may have unrealistic expectations when they go on Advanced Pharmacy Practice Experiences and into the workforce. However, within the pharmacy workforce, there are examples where pharmacists may work compressed work schedules that would involve longer working hours over a shorter number of days. While there is no data on the benefits of this balance, a review of 40 studies examined the effects of a compressed working week on the health and work-life balance of shift workers and showed that compressed working has led to improvements in work-life balance with a low risk of adverse health or organizational effects. However, compressing the work schedule too much could lead to potential harm.

One study showed that in nurses and aides, working 3 compressed 12-hour shifts in hospitals led to evidence of work-induced fatigue that was present both in muscle function and attention deficits, it was evident even after the first 12 h shift, and increased with more successive shifts.

Although the 4-day schedule was implemented in parallel with a return to in-person learning, it is worth noting that the majority of improvements in student-reported engagement occurred outside of the classroom. For example, no significant changes were observed in contributions to classroom discussions but the 4-day schedule was

Table 2
Qualitative Response Analysis of What the Class of 2023 and Class of 2024 Liked about the 4-day Course Schedule from Fall 2021.

<table>
<thead>
<tr>
<th>Question coding</th>
<th>Student comments</th>
<th>Exemplars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engagement</td>
<td>44</td>
<td>&quot;This gives me much-needed downtime or time to finish/work on classwork (studying, projects, homework, etc.).&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;It gave me more time to study for exams and prepare compared to a 5-day course schedule that caused easy burnout.&quot;</td>
</tr>
<tr>
<td>Improved structure</td>
<td>43</td>
<td>&quot;I like planning out my week on Mondays, and having a firm grasp on what is going to happen. I feel like I was in more control of this semester than any other semester in pharmacy school.&quot;</td>
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<tr>
<td></td>
<td></td>
<td>&quot;Less commuting to school, saving gas, and time. Having the extra day to do school work and stay ahead. Have some time for self care. Actually get some sleep. Have time for doctor's appointments and PT without missing class. Having more time to do service learning.&quot;</td>
</tr>
<tr>
<td>Wellbeing</td>
<td>34</td>
<td>&quot;I LOVE IT!!! I can dedicate a day to self care, doctors appointments, and extracurricular obligations, and it makes it easier to make occasional weekend visits to my immediate family about 2.5 h drive away.&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;Having Monday off helps me with taking care of school and catch up with my personal life, exercise, and recharge for the coming week. All these helped me with getting better grades.&quot;</td>
</tr>
<tr>
<td>Connectedness</td>
<td>4</td>
<td>&quot;It has given me more time to study and connect with classmates.&quot;</td>
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<tr>
<td></td>
<td></td>
<td>&quot;I like that it is more structured and there is accountability to show up for the 4 days and then having that flex day to make appointments, work, see friends, extend a weekend long trip etc.&quot;</td>
</tr>
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* p < 0.05

Wellbeing 34 "I LOVE IT!!! I can dedicate a day to self care, doctors appointments, and extracurricular obligations, and it makes it easier to make occasional weekend visits to my immediate family about 2.5 h drive away." "Having Monday off helps me with taking care of school and catch up with my personal life, exercise, and recharge for the coming week. All these helped me with getting better grades."
associated with more than 2-fold increase in the odds of connecting with peers outside of class, attending student organizations, and attending school-sponsored activities. Increased student engagement—whether with other students, faculty, or the institution may lead to improved performance. A survey from the University of Texas at Austin College of Pharmacy found that barriers to classroom attendance included students’ work schedules, mental health, uncompleted class assignments, and lack of sleep. Implementation of a 4-day schedule may allow students more uninterrupted time to help manage these barriers, therefore allowing them to be more engaged while in class.

Implementation of the 4-day schedule has required ongoing feedback to incorporate student and faculty experiences, and navigate the logistics of a new scheduling paradigm. This includes attempts to schedule all in-person classes together (vs intermingling those courses meeting online) as it is difficult for students to be in the class 1 h and virtually the next. It is also important to note that transitioning to the 4-day schedule did not decrease any number of overall curricular hours.

The creation of “flexible learning days” in fall 2021 has also been crucial to implementing the 4-day schedule, in order to provide time for individual meetings between faculty and students and to hold review sessions after examinations. Students have also expressed a strong preference to place the “flexible learning day” at either the end or the beginning of the week, with Mondays as the preferred day and Wednesday as the least favorite day. Course scheduling remains a significant challenge with the 4-day course schedule due to limited room availability.

There are several limitations to this current study. Response rates were limited to approximately 60% due to the voluntary nature of the survey participation. Another limitation is that fall 2020 was a 5-day virtual schedule compared to fall 2021 as an in-person, 4-day schedule. It would have been preferable to compare similar modes of instruction with each other; however, we did not survey the students on these items prior to fall 2020. This also means we were unable to match our cohorts, which would have been optimal to have students compare between their individual experiences. Another limitation is that we did not verify academic course grades to look for improvement, but asked students about their perceptions.

We plan to continue the 4-day schedule for the foreseeable future. As more and more companies and educational institutions move in the direction of 4-day work weeks, this scheduling framework may also be considered for our faculty and staff.

5. Conclusion

A 4-day course schedule was well received by students and faculty alike. Other institutions may want to consider a similar approach to this novel scheduling for didactic coursework as it allows students added flexibility to their student work-life balance.

Funding/Support

None.

Declaration of Competing Interest

None declared.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at 10.1016/j.ajpe.2023.01.004.

References