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ORIGINAL ARTICLE

Exploring Student Pharmacists' Time Management and Career Planning Attitudes Through a Management Course: An Exploratory Sequential Mixed Methods Study

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ABSTRACT

Objectives: This study aimed to incorporate a pharmacy management course into pharmacy education and explore students' time management and career planning attitudes in relation to this course.

Materials and Methods: This research, conducted between October 2, 2023, and January 12, 2024, employed a mixed-methods design, integrating both qualitative and quantitative research methodologies within a single study framework. Quantitative data were collected using the Sociodemographic Form, Career Futures Inventory (CFI), and Time Management Questionnaire (TMQ). A semi-structured interview form was employed to gather qualitative data. This study included 60 fifth-year pharmacy students. The experimental group (n=30) comprised volunteers enrolled in the "Management in Pharmacy" elective course, while the control group (n=30) consisted of randomly selected volunteers not enrolled in the course.

Results: In the intervention group, pre-test TMQ scores ranged from 56 to 117, yielding a mean score of 80.50±16.12. Post-test scores ranged from 55 to 112, with an average of 86.83±14.09. There was a significant difference in the change in the TMQ scores and Time Attitude scores between the control and intervention groups (p=0.003 and p=0.001, respectively). For the intervention group, pre-test CFI scores ranged from 63 to 116, yielding a mean score of 85.93±15.34. Post-test scores ranged from 68 to 111, with an average of 89.40±12.56. No significant difference was observed in the change in the CFI scores between the control and intervention groups (p=0.311). Student feedback provided insight into the necessity or usefulness, impact, and future suggestions concerning the delivery of this course.

Conclusion: The implementation of educational resources and methodologies aimed at fostering time management abilities and encouraging career planning attitudes from the initial phases of pharmacy education may result in greater outcomes.

Keywords: Career planning attitude, pharmacy students, time management, Türkiye

INTRODUCTION

Pharmacy management skills typically focus on human, technical, and conceptual competencies.[1] One such competency is time management. Pharmacy students must possess effective time management skills to avoid issues when they start their profession.[2-4] Time management skills are crucial for achieving academic success.[5] The level of learning required for success in university is often more demanding and time-intensive than the academic tasks students encountered during high school.[6,7] Time management competencies include tasks such as creating schedules in advance, ranking tasks by priority, studying for exams, and adhering to timelines. Implementing effective study strategies to manage time efficiently can contribute to enhanced academic outcomes. The field of time management

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becomes important for students as the ability to balance leisure time and study hours becomes crucial in preparing for exams.[8] Research indicates that effective time management in education offers numerous benefits, serving as the foundation for many student advisory services. Conversely, poor time management is frequently cited as a major contributor to stress and suboptimal academic performance, often resulting in issues such as inadequate time allocation for tasks, last-minute exam preparation, and missed deadlines imposed by academic staff.[9,10]

Time management also enables students to effectively use their time and resources to achieve career goals. Career planning, an essential component of time management and professional development, constitutes an ongoing process of self-evaluation and goal-setting that supports students in achieving their career aspirations.[11] Planning is essential for effective time management in the context of career management. This process entails identifying the most critical tasks and allocating time accordingly, enabling individuals to concentrate on high-impact activities that directly support their career objectives while reducing time spent on less essential or time-consuming tasks.[12] Career management encompasses an individual planning, developing, and realizing their career path throughout their working life. This process involves making strategic decisions, taking steps to achieve professional goals, and maximizing an individual's potential. It also includes identifying the individual's talents, interests, and goals, followed by creating a plan to accomplish them. Since goals can change over time and conditions may evolve, career management requires continuous development.[13] Career management is a dynamic and multifaceted process that involves maintaining professional development and shaping one's career paths. This process encompasses a series of intentional actions, from self-assessment to setting career goals, improving skills, building networks, and making career decisions. Effective career management assists in making conscious choices, adapting to changing conditions, and sustaining long-term career goals.[14] Active participation in this process by students can enhance employability, job satisfaction, and overall well-being.[15] It equips individuals with the necessary tools and strategies to thrive in their chosen careers and adapt to the evolving demands of the business world. Therefore, providing career management education to university students is essential.[16,17]

With increasing competition in the field of pharmacy, extracurricular experiences have become increasingly important for students. Pharmacy faculties are working to enhance their curricula to aid students in cultivating these skills and guiding their professional trajectories.[18] This process requires students to recognize their areas of interest and integrate these interests into their post-graduation goals. Nonetheless, students might struggle to concentrate on these issues until they participate in advanced pharmacy practice. At this point, providing additional opportunities and experiences for professional development can help students build a solid foundation for their post-graduation career goals.[19,20]

There is a limited number of management-related courses in pharmacy faculty education programs, and management issues are not given sufficient importance in undergraduate education in Türkiye. Karahan et al.'s[21] study revealed that 33.65% of pharmacists reported having taken courses related to management. However, only 8.33% of those who had received management training indicated that they had taken such courses during their undergraduate education. Moreover, to the best of our knowledge, there has been no previous research that specifically investigates the impact of a pharmacy management course on time management and career planning. Therefore, the aim was to incorporate a pharmacy management course into pharmacy education and explore students' time management and career planning attitudes in relation to this course.

MATERIALS AND METHODS

Study setting

This study was conducted at the Faculty of Pharmacy, Atatürk University. This faculty, located in eastern Türkiye with deep historical roots, offers a five-year undergraduate degree in pharmacy. At the time of this study, only one elective course in the pharmacy curriculum specifically addressed the development of management skills.

Study design

In this research, a mixed-method approach was utilized, characterized by the integration of qualitative and quantitative research methodologies.[22] Specifically, an exploratory sequential mixed-method[23] design was utilized. This methodological coherence allows for a broader interpretation of the results and a more nuanced evaluation of the impact of the management course on enhancing time management and career planning attitudes among pharmacy students.[24,25] The quantitative data collection comprised the use of surveys and measurement instruments to evaluate students' attitudes regarding time management and career planning, thus providing a wide-ranging perspective. Conversely, the qualitative data collection was carried out through semi-structured interviews, which offered in-depth insights, enabling a deeper comprehension of students' experiences, perceptions, and emotional reactions.

Participants

This study involved fifth-year pharmacy students enrolled in the Management in Pharmacy course during the fall semester of 2023-2024 at the Faculty of Pharmacy, a public university in Türkiye that provides a five-year undergraduate pharmacy education. This study was conducted between October 2, 2023, and January 12, 2024. The "Management in Pharmacy" course had 43 fifth-year pharmacy students enrolled. Among them, 30 students voluntarily participated in the study, forming the experimental group for management skills training. Subsequently, additional fifth-year pharmacy students who did not enroll in the course were invited to participate in the study as part of the control group. Among those who voluntarily agreed to participate, 30 students were randomly selected

using a simple lottery method to constitute the control group. Therefore, 60 participants were included in this study. The participant selection process is illustrated in Figure 1.

Study tools

Quantitative data collection comprised the Sociodemographic Form, Career Futures Inventory (CFI), and Time Management Questionnaire (TMQ). To gather qualitative data, a semi-structured interview format was used.

Sociodemographic form

The researchers developed the sociodemographic form used in this study. It included information on demographic characteristics, such as the students' age and gender.

CFI

The CFI, developed by Rottinghaus et al.,[27] is designed to assess positive career planning attitudes. Kalafat[28] established the validity and reliability of this scale in the Turkish context. The CFI consists of 25 items organized into three subdimensions: Career Adaptability (CA), Career Optimism (CO), and Perceived Knowledge of the Job Market (PK). Respondents rate each item using a five-point Likert-type scale. In the present study, the Cronbach's alpha values were found to be 0.82, 0.85, and 0.76 for the CA, CO, and PK subdimensions, respectively, and 0.90 for the overall scale. Higher scores on the CFI indicate more positive attitudes toward career planning.

TMQ

The TMQ, created by Britton and Tesser,[29] is utilized to evaluate time management practices among university students. The scale's validity and reliability for the Turkish population were established by Alay and Koçak.[30] The TMQ consists of 27 items categorized into three subdimensions: Time Planning (TP), Time Attitudes (TA), and Time Wasters (TW). Respondents are asked to rate their answers using a scale from Never (1) to Always (5). Higher scores on both the overall scale and its subdimensions signify more effective time management practices. In this study, the Cronbach's alpha values were 0.89, 0.72, and 0.71 for the TP, TA, and TW subdimensions, respectively, and the overall scale reliability was also 0.89.

Semi-structured interview form

A semi-structured interview guide (Appendix 1) was developed to collect information regarding the participants' experiences and suggestions concerning the impact of the pharmacy management course. This guide was formulated based on the study's objectives and the collective expertise of the research team.

Intervention procedure and data collection

At the start of the semester, students were briefed on the study's purpose, emphasizing the voluntary nature of their participation and clarifying that personal data, such as school ID and names,

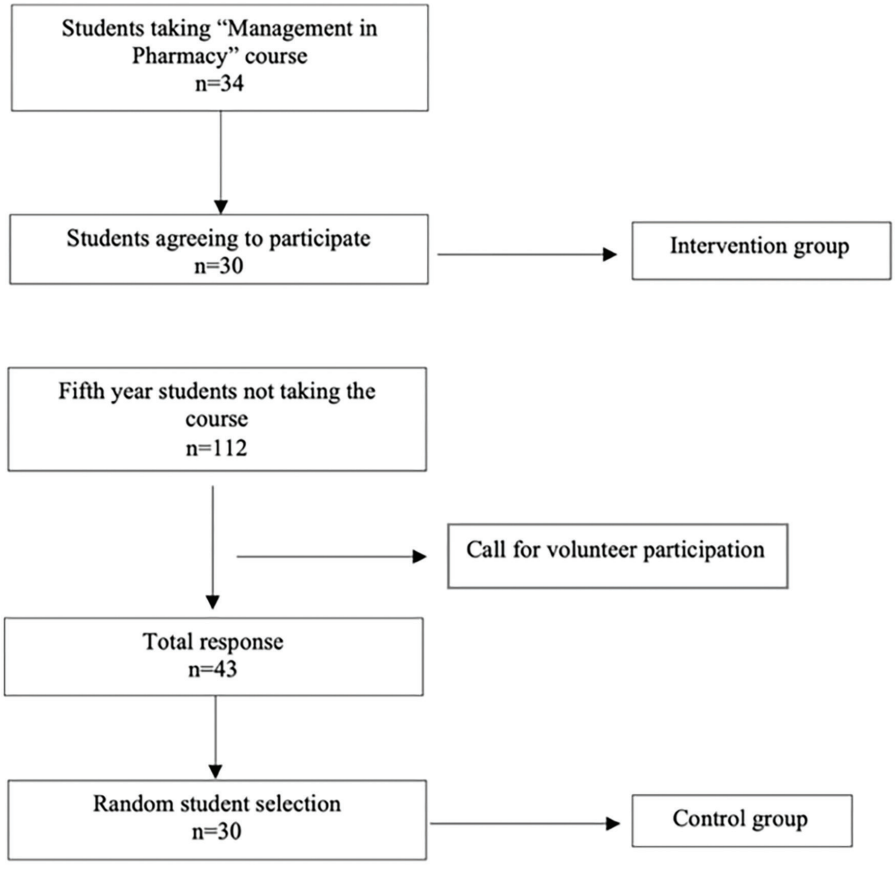

Figure 1. Flowchart of the participant recruitment process

was unnecessary. Each student was asked to write a nickname. All participants wrote their pseudonyms both in the pre-test and post-test, so that comparisons could be made. Importantly, they were assured that their decision to participate or not would not impact their course passing grades. Pre-test evaluations were administered before the commencement of the session, while post-test evaluations took place after the final week. Before the initiation of the intervention procedure, the scales (CFI and TMQ) designated for the research were administered as pre-tests to determine the baseline status of the students in both the experimental and control groups. The content of the Management in Pharmacy course was developed concerning a study conducted by Çingöl and Karakaş,[31] as it includes management skills training that can also be used in the field of pharmacy. It encompasses topics related to the management and leadership processes, functions, and tools. This course was integrated as an elective course into the fifth year of the pharmacy curriculum at the university where the study was conducted. The course was delivered by a single educator with expertise in social skills, ensuring that the content was effectively tailored to promote essential competencies such as time management and career planning among pharmacy students. Over the study period, the course was delivered in a classroom setting for two hours per week for 14 weeks. Appendix 2 provides an overview of the educational content covered in the course. After the conclusion of the semester, the intervention group undertook post-tests on the relevant scales. The control group, which did not receive any training, also engaged in the post-tests for the same scales. Data collection instruments were administered to students during the pre-test, mid-test, and post-test phases, requiring approximately 25 minutes for completion. Qualitative methods were employed following the collection of quantitative data, aligning with the constructivist-interpretive paradigm. Collecting the qualitative data involved in-depth interviews. The study team developed and approved the interview guide. The interviews were conducted after the completion of the course but prior to the assignment of grades. This timing allowed participants to fully experience the course while minimizing any potential bias related to academic evaluation. The interview questions aimed to understand how the students perceived the management course (Appendix 1). All interviews were conducted in person by the first author, lasting between 20 and 25 minutes each. With participants' permission, the sessions were recorded digitally and transcribed word-for-word. In addition, non-identifiable field notes were made to support the reflexivity of the experiences. To ensure confidentiality, each participant will be designated by the letter "S" followed by their unique identification number (S1-30).

Statistical analysis

Quantitative data

Statistical analyses were carried out using IBM SPSS Statistics 26 software. The results were analyzed using frequency tables and descriptive statistics. The normality of the data was assessed using the Shapiro-Wilk test. Given the normal distribution of the data, parametric methods were employed. The independent samples *t*-test was used for comparisons between two distinct groups, whereas the paired-sample *t*-test was used for comparisons within dependent groups. Additionally, Pearson's correlation coefficient was applied to evaluate the associations between variables.

Qualitative data analysis

Given that one of the study's objectives was to explore the perceptions regarding the enhancement of time management and career planning through the management course. The qualitative aspect of the research was conducted exclusively with students from the intervention group who had completed this course. The discussions that were recorded were transcribed word-for-word and then reviewed by participants to verify their accuracy. Two researchers independently examined the transcripts to develop a comprehensive understanding of the content and to establish initial codes using thematic analysis. Afterward, the researchers collaborated to compare the identified themes, revisited the data to reach a consensus, and confirmed thematic saturation through a strategy of code and recoding. Core themes were evaluated about students' views on the impact of the "Management in Pharmacy" course on their time management and career planning. Maxqda Analytics Pro, a qualitative software package, was used to manage qualitative data.

Ethical consideration

This study was carried out in alignment with the principles set forth in the Declaration of Helsinki. Ethical clearance was obtained from the Ethics Committee of the Atatürk University Faculty of Pharmacy (approval number: B.30.2.ATA.0.01.00/720, dated: 07.09.2023). Written authorization was received from the institution hosting the study, and informed consent was acquired from all participating students.

RESULTS

Demographics

All the students (n=60) in the study were in the pharmacy program, and all participated in the quantitative arm of the study. Among the participants in the control group (n=30), 21 (70%) and 16 (53.3%) of the participants in the experimental group (n=30) were female. The average age of the control group was 23.00 (0.79), while the average age of the intervention group participants was 23.67 (1.37). The experimental group participated in this qualitative study (Table 1).

Table 1. Student demographics

Demographic	Control	Intervention
Age, mean (SD) Range	23.00 (0.79) 22-25	23.67 (1.37) 22-27
Gender		
Female	21	16
Male	9	14

SD: Standard deviation

Quantitative

Comparison of CFI and TMQ pre- and post-test scores between control and intervention groups

In the pre-intervention assessment, the TMQ and CFI scores were compared between the control and intervention groups, revealing no significant differences. The baseline scores were comparable between the control group (84.07±11.95 for TMQ and 84.20±14.99 for CFI) and the intervention group (80.50±16.12 for TMQ and 85.93±15.34 for CFI). Furthermore, statistical analysis showed no significant differences between the control and intervention groups for both the TMQ and CFI scores (p=0.063 and p=0.408, respectively). These findings indicate a similar baseline level between the two groups.

In the control group, TMQ scores ranged from 66 to 106 in the pre-test, with a mean score of 84.07±11.95. In the post-test, scores varied between 57 and 111, with an average of 86.23±11.78. In the intervention group, pre-test TMQ scores ranged from 56 to 117, yielding a mean score of 80.50±16.12. Post-test scores ranged from 55 to 112, with an average of 86.83±14.09. There was a significant change in the TMQ and Time Attitude scores between the control and intervention groups (p=0.003 and p=0.001, respectively). In the control group, the CFI scores ranged from 56 to 110 in the pre-test, with a mean score of 84.20±14.99. In the post-test, scores varied between 61 and 115, with an average of 85.73±13.39. For the intervention group, pre-test CFI scores ranged from 63 to 116, yielding a mean score of 85.93±15.34. Post-test scores ranged from 68 to 111, with an average of 89.40±12.56. No significant difference was observed in the change in the CFI scores between the control and intervention groups (p=0.311). Following the completion of the "Management in Pharmacy" course, a significant increase was observed in CA, TP, TA, TW, and TMQ scores among the students in the intervention group (p<0.05) (Table 2).

Qualitative

Three main themes and their subsequent sub-themes emerged from the dataset (Table 3): development of career management skills, factors affecting career management skills, and development of time management skills.

Theme 1. Development of career management skills

Some students mentioned that they gained detailed information about their professions, while others stated that they began to shape their careers.

Subtheme 1.1. Learning the work areas of the profession

Some students mentioned that they learned about various work areas within their future professions, and some highlighted redirecting towards a new work area. The sample expressions are as follows:

"I am confident that the comprehensive career management I have seen within the scope of the course has positioned me a step or two ahead. I can see what exists not only in a single field, but also in other areas of my profession. I believe that being able to see these aspects is crucial for career planning." (S-3)

"From the day I started this programme, I knew that my career would continue in a community pharmacy. After taking this course, I realized that this profession consists of different work areas." (S-9)

Table 2. Comparison of pre- and post-test scores in CFI and TMQ between control and intervention groups

Variable	Control group		Intervention group		
	Pre-test (n=30)	Post-test (n=30)	Pre-test (n=30)	Post-test (n=30)	
	X ± SD	X ± SD	X ± SD	X ± SD	*p*
CA	40.17±8.51	40.80±6.49	40.27±6.45	42.77±6.10	0.185[a] 0.022[b]*
CO	39.67±6.77	39.30±6.09	36.43±9.52	36.83±8.53	0.660[a] 0.754[b]
Perceived knowledge of the job market	9.37±2.16	9.63±2.57	9.23±2.71	9.80±1.88	0.576[a] 0.156[b]
CFI	84.20±14.99	85.73±13.39	85.93±15.34	89.40±12.56	0.311[a] 0.107[b]
TP	53.00±9.31	52.57±8.76	48.10±11.77	51.23±10.96	0.062[a] 0.037[b]*
TA	22.37±3.72	21.83±3.21	20.73±4.47	23.13±3.32	0.001[a]* 0.002[b]*
TW	12.70±2.41	12.83±2.81	11.67±3.30	12.47±3.05	0.202[a] 0.047[b]*
TMQ	84.07±11.95	86.23±11.78	80.50±16.12	86.83±14.09	0.003[a]* 0.002[b]*

[a]An independent-samples *t*-test. [b]Paired sample test for intervention group. *p <0.05 indicates statistically significant differences. CA: Career Adaptability, CO: Career Optimism, CFI: Career Futures Inventory, TP: Time Perspective, TA: Trait Anxiety, TW: Tolerance for Workload, TMQ: Time Management Questionnaire

Table 3. Themes and sub-themes

Themes	Sub-themes	Categories	Description	Representative statement
1. Development of career management skills	1.1. Learning the work areas of the profession		Exploring the diverse work domains within the profession to gain a comprehensive understanding of its scope and opportunities	"I am confident that the comprehensive career management I have seen within the scope of the course has positioned me a step or two ahead. I could see what exists not only in a single field but also in other areas of my profession. I believe being able to see these aspects is crucial for career planning." (S-3)
	1.2. Planning for post-graduation		Developing strategic plans for life after graduation	"In this course, you opened up another field for me: Academia. And I have decided that right after graduation, I will prepare for the relevant exams." (S-10)
2. Factors affecting career management skills	2.1. Impact of time management		The influence and effectiveness of time management on career management skills.	"I have come to understand the connection between career management and time management, and I gained this awareness through this course. While I had separate thoughts on career management and time management before, I did not realize the depth of their connection as detailed in the course. Thanks to this course, I believe there is a significant correlation between career management and time management." (S-12)
	2.2. Impact of environmental factors		The influence of environmental factors on the development of career management skills	"I unfortunately do not see career management that way. Yes, we are talking about this issue, but it is not significant. Because it's not in our hands. If we are rich enough, it's one thing; if we are lucky enough, it's another. Luck resides wherever it smiles. Let's say luck didn't smile at me, or let me put it this way: if luck smiled at me from all sides (which is impossible), why would we even be talking about this? I don't get to choose." (S-14)
3. Development of time management skills	3.1. Understanding the importance of time management		Grasping the significance of effective time management	"Before this course, I didn't give much importance to time management; I used to plan the topics I needed periodically. However, I realized that a significant part of my life was wasted in terms of time." (S-16)
	3.2. Impact on social life	Keeping a planner	Embracing the practice of maintaining a planner	"I have benefited from time management in my social life as well, and I started keeping a planner because of its positive impact." (S-3)
		Enhancing stress management	Improving stress management	"I used to be generally stressed and anxious. I realized that the main reason for this was not making plans in my life and procrastinating on tasks until the last minute. Although I couldn't organize all my tasks after classes, I began doing urgent, important tasks on time. There has been a significant decrease in my stress issues." (S-13)

Table 3. Continued

Themes	Sub-themes	Categories	Description	Representative statement
3. Development of time management skills	3.2. Impact on social life	Utilizing leisure time effectively	Making the most of leisure time by using it effectively	"Before the course, I used to spend my free time by myself after taking care of daily tasks. However, now I have filled that free time more productively." (S-9)
		Coping with procrastination	Developing strategies to overcome procrastination	"Before this course, I had a habit of constantly procrastinating. Regardless of how important something was, I always waited until the last minute. Thanks to this course, I have gained the ability to manage my responsibilities more comfortably by spreading them over time and avoiding last-minute rushes." (S-24)
		The ability to say "no"	Mastering the art of saying "no" for better time management	"For instance, I have learned to say "no" to offers or activities that arise unexpectedly or that I do not want to engage in, especially when they deviate from my plans." (S-1)
	3.3. Enhancing academic success		Optimizing academic success through the effective implementation of time management strategies	"In the 5th grade, many classes involved presentation assignments and group work. With the knowledge gained from this course, I tried to use my time more efficiently by incorporating progress plans. I learned that dividing responsibilities into days and weeks according to the final submission date of assignments could be beneficial." (S-5)

1.2. Planning for post-graduation

Some students mentioned that they had made decisions and plans regarding what they would do after graduation. The sample expressions are as follows:

"In this course, you introduced another field for me: Academia. I have decided that right after graduation, I will prepare for the relevant exams." (S-10)

Theme 2. Factors affecting career management skills

Most students expressed that their career management was influenced by time and environmental factors.

Subtheme 2.1. Impact of time management

Some students suggested that time and career management were interconnected. They pointed out that effective time management had positive contributions to career management. The sample expression is as follows:

"Through this course, I have come to understand the connection between career management and time management." While I had separate thoughts on career management and time management before, I did not realize the depth of their connection, as detailed in the course. Thanks to this course, I believe there is a significant correlation between career management and time management (S-12).

Subtheme 2.2. Impact of environmental factors

Despite their desire to be successful in career management, most students expressed concerns about effectively managing their careers due to external factors such as luck and money. The sample expression is as follows:

"I do not see career management that way, unfortunately. Yes, we are discussing this issue, but it is of limited significance. This is beyond our control. If we are rich enough, it is one circumstance. If we are lucky enough, it is another. Wherever luck smiles, that is, where. Well, let us say luck did not smile at me, or let me put it this way: if luck were to smile at me from all sides (which is impossible), why are we even talking about this? I don't get to choose." (S-14)

Theme 3. Development of time management skills

Almost all students mentioned that after their educational experiences, they realized the importance of time management and talked about its positive impacts on both their social and academic lives.

Subtheme 3.1. Understanding the importance of time management

Most of the students realized they were wasting time and accepted their shortcomings in this regard. The sample expressions are as follows:

"Before this course, I didn't give much importance to time management; I planned the topics periodically." However, I realized that a significant part of my life was wasted." (S-16)

"Before taking this course, I was unaware that I was using my time inefficiently. In the course, I realized how to manage my time and became aware that social media was consuming it." (S-23)

Subtheme 3.2. Impact on social life

Most students mentioned that they had started effectively managing their time. They also discussed its positive contributions to their social lives, such as better stress management, effective use of free time, and coping with procrastination more efficiently.

Most students stated that they are trying to live a more planned life than before and have started keeping a planner, using digital or physical planners. The sample expression is as follows:

"I have benefited from time management in my social life as well, as a result, I started keeping a planner because of its positive impact." (S-3)

Enhancing stress management: Some students claimed that they did not manage their time well, and this led to time-related stress. However, after starting to live more planned lives, they asserted that their stress levels had decreased. The sample expression is as follows:

"I used to be stressed and anxious. I realized that the main reason for this was my lack of planning and procrastination on tasks until the last minute. Although I could not organize all my tasks after class, I started to perform important and urgent tasks on time. There has been a significant decrease in my stress levels." (S-13)

Utilizing leisure time effectively: Some students mentioned that they spent their free time more effectively. The sample expression is as follows:

"Before the course, I used to spend my free time on myself after taking care of daily tasks. However, now I have filled my free time more productively." (S-9)

Coping with procrastination: A few students mentioned that they had started doing things they used to procrastinate on, and no longer left their tasks to the last minute. The sample expression is as follows:

"Before this course, I had the habit of constantly procrastinating. Regardless of how important something was, I waited until the last minute. Thanks to this course, I have gained the ability to manage my responsibilities more comfortably by spreading them over time and avoiding last-minute rushes." (S-24)

The ability to say "No": Some students mentioned that they can now say "No" to accomplish the tasks they planned. The sample expression is as follows:

"For instance, I have learned to say "No" to offers or activities that arise unexpectedly or that I do not want to engage in, especially when they deviate from my plans." (S-1)

Subtheme 3.3. Enhancing academic success

Some students emphasized the positive effects of effective time management on their academic lives. The sample expression is as follows:

"In the 5th grade, many classes involved presentation assignments and group work. With the knowledge gained from this course, I tried to use my time more efficiently by implementing structured progress plans. I learned that dividing responsibilities into days and weeks based on the final submission date of assignments could be beneficial." (S-5)

DISCUSSION

This study represents the first investigation in Türkiye focusing on the effects of the time management and career planning components of the pharmacy management course. The students exhibited significant improvements in their overall scores for TP, time attitude, and TW and overall in the TMQ. This finding indicates that the Management in Pharmacy course played a role in enhancing the time management skills of pharmacy students. Although there was a notable increase in the scores related to CA, no significant changes were observed in CO, perceived knowledge of the job market, or CFI scores. The nature of this study, focusing on 5th-year pharmacy students who were a few months away from graduation and experienced high job anxiety, might have influenced the study's findings. Student feedback provided insight into the need/utility, impact, and future suggestions concerning the delivery of this course.

Rather than teaching job-specific skills, time management training aims to enhance cognitive skills, enabling individuals to assess situations and develop the cognitive processes needed to address various topics or issues. The findings reported in this article suggest that time management training programs can lead to an understanding of fundamental principles and, as evaluated by the majority of participants, can result in improvements in relevant skill areas.

The results of a study conducted with healthcare service students, in which management training was provided, indicate the necessity of incorporating time management education into future stages of the health sciences curriculum.[32] Considering this finding, the current study was conducted with pharmacy students in the final year of their undergraduate education.

In the intervention group of this study, statistically significant differences were found between the pre-test and post-test scores in time management and all its subdimensions. In a similar investigation by Çingöl and Karakaş,[31] involving nursing students, significant variations were noted in the 'TP' subdimension and the overall time management scores between the pre-test and post-test assessments, with post-test scores showing considerable improvement. Conversely, no significant differences were found between pre-test and post-test scores for the 'TA' and 'TW' subdimensions.[31]

In this study, students recognized the significance of effective time management. In a similar qualitative investigation carried out with pharmacy students in 2017, some students perceived time management as a prerequisite for holding a position, whereas others viewed it as a skill to be developed for future use in their roles as pharmacists.[33]

In this study, students have also asserted that time management significantly impacts their academic lives. The literature also indicates that the time pharmacy students allocate to their studies affects learning. A significant relationship has been demonstrated between the overall grade point average and

short-term planning skills, as well as attitudes toward time management.[4] This suggests that teaching time management skills to students may be advantageous.

In the qualitative segment of the research, the students conveyed that their stress and anxiety levels decreased as they managed their time well. In support of this finding, a study by Zhang et al.[34] indicated that healthcare students subjected to a structured time management training program experienced significant enhancements in their time management abilities, along with a decrease in anxiety levels.

The literature supports the idea that college students can derive positive results from intervention programs designed to increase their career awareness.[35-41] In a study carried out with nursing students, significant variations were identified between the pre-test and post-test scores regarding the sub-dimensions of "CA" and "CO," along with the overall scores. The post-test assessments reflected markedly higher values.[31] In this study, within the intervention group, a significant increase was observed in the "CA" sub-dimension between the pre-test and post-test scores. This suggests that the management course enhances students' confidence in dealing with developmental challenges, making them more optimistic about their professional future in the face of tasks and unexpected changes in their professional life.

This study presents several limitations. Firstly, data were collected using self-report scales, which may introduce the of expectation bias. However, steps were taken to mitigate this bias by ensuring the anonymity of respondents. Secondly, this research was restricted to one institution and a specific group of students, which may influence the generalizability of the outcomes. Furthermore, the sample size was relatively small, given that elective courses at the institution typically involve about 35 students. Thus, it is recommended that this study be repeated with a larger sample size to achieve more substantial findings. Finally, there was a 14-week interval between the pre- and post-assessments. This study did not assess the long-term effects on time and career management, warranting further investigation into the sustainability of these skills beyond course duration.

In the contemporary world, characterized by rapid changes, time is a crucial resource. Given that adults dedicate nearly one-third of their time to professional life, the significance of effective time management and career planning is paramount. In this context, pharmacy education has the potential to play a pivotal role in nurturing time management and career adaptation skills among pharmacy students.[30] It can function as a key element in their ability to navigate the diverse changes and progressions that may occur in their personal and professional lives. Given the dynamic nature of the job market and the increasing necessity for guidance and information about career pathways and employment possibilities, it is crucial to enhance the current educational framework.[9] Enriching the curriculum to encompass global changes and contemporary health policies can better equip pharmacy students to meet the challenges and seize the opportunities of an ever-evolving professional landscape.

CONCLUSION

The results of this study suggest that the Management in Pharmacy course improves the time management skills of fifth-year pharmacy students, while significantly enhancing their adaptability regarding career-planning attitudes. Additionally, a positive correlation was observed between time management and career planning, with the Management in Pharmacy course strengthening this relationship. The intervention also highlighted the positive impact on students' learning experiences, fostering a rich environment for discussions and group learning. These results provide insights for further exploration of these pivotal concepts for pharmacists in future research. The incorporation and continuous implementation of educational resources and methodologies aimed at fostering time management abilities and encouraging career planning attitudes from the initial phases of pharmacy education may result in more profound outcomes. Numerous factors may affect both time management and career planning. Consequently, further comprehensive research is necessary to explore these factors and evaluate their influence.

Ethics

Ethics Committee Approval: This study was carried out in alignment with the principles set forth in the Declaration of Helsinki. Ethical clearance was obtained from the Ethics Committee of the Atatürk University Faculty of Pharmacy (approval number: B.30.2.ATA.0.01.00/720, dated: 07.09.2023).

Informed Consent: Written authorization was received from the institution hosting the study, and informed consent was acquired from all participating students.

Footnotes

Authorship Contributions

Concept: E.U.D., Design: E.U.D., Data Collection or Processing: E.U.D., R.E., Analysis or Interpretation: E.U.D., R.E., Literature Search: E.U.D., R.E., Writing: E.U.D., R.E.

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Appendix 1. Interview questions

1. How would you define time management?
2. How would you define career management?
3. Did the course deliver what you were expecting it to?
4. What has been the benefit of this training program?
5. How did the course impact your time management skills?
6. How did the course impact your career management skills?
7. Is there anything else you would like to share or add on these topics?

Appendix 2. Content of the management in pharmacy course

Sessions	Session content	Methods used in the session
Week 1	Management Concepts and Theories	Theoretical lecture, Brainstorming, and Questions and Answers
Week 2	Management Process and Management of Pharmacy Services	Theoretical lecture, Brainstorming, and Questions and Answers
Week 3	Healthcare System, Health Policies, and Legal and Ethical Regulations Regarding Pharmacy	Theoretical lecture, Brainstorming, and Questions and Answers
Week 4	Time Management	Theoretical lecture, Brainstorming, and Questions and Answers Case study discussion and Individual Study (individual time analysis and time matrix creation)
Week 5	Problem-Solving and Decision Making	Theoretical lecture, Brainstorming, and Questions and Answers Case study discussion and Group work (identifying problems related to clinical processes, coming up with options, and deciding the solutions)
Week 6	Career Planning and Development	Theoretical lecture, Brainstorming, and Questions and Answers Case study and discussion, Individual study (self-strengths, weaknesses, opportunities, and threats analysis, goal setting and action plan creation, CV preparation, and researching career options)
Week 7	Communication Management Conflict Management	Theoretical lecture, watching a movie, and Questions and Answers Document review (official forms, meeting report, etc.), case study, and discussion
Week 8	Leadership (Power, Authority, and Influence) -Motivation and Job Satisfaction	Theoretical lecture, watching a movie, and Questions and Answers
Week 9	Human Resources Management	Theoretical lecture, Brainstorming, Questions and Answers, Case study and discussion, Group work (determining workload on nurses and creating a shift schedule), and document review (job definitions and job requirements forms)
Week 10	-Care Delivery Methods in Nursing -Team Work	Theoretical lecture, Brainstorming, Questions and Answers, Case study and discussion, and Group work (identifying problems and coming up with solutions)
Week 11	Change Management	Theoretical lecture, Brainstorming, Questions and Answers, Case study and discussion, Group work (change in the plans)
Week 12	Crisis Management	Theoretical lecture, Brainstorming, Questions and Answers, Case study and discussion, and Document review (hospital emergency action plan)
Week 13	Quality Management	Theoretical lecture, Brainstorming, Questions and Answers, Case study and discussion, Document review (quality documents, error reports)
Week 14	Managerial Ethics	Theoretical lecture, Brainstorming, Questions and Answers, Case study and discussion, and Literature review