

## Original Article

# Factors affecting the time management of graduate medical sciences students during the covid-19 pandemic

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## Article Info



### Article history:

Received 11 April 2022

Accepted 24 August 2022

Published 7 September 2022

### Keywords:

COVID-19

E-Learning

Medical Sciences Student

Social Media

Time Management

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## Abstract

**Background & Objective:** Graduate students, in addition to engaging with complex academic content in the university environment, mainly acquire new roles in society. Coordination between learning and performing social tasks requires high time management skills. This study was performed to determine the factors affecting the time management of Iranian graduate medical sciences students during the coronavirus disease 2019 (COVID-19) pandemic.

**Materials & Methods:** This web-based cross-sectional study was conducted across Iranian medical sciences universities in 2019, using web sampling through the official social networks of medical sciences universities in Iran. The data were collected using an online version of time management questionnaire by Trueman and Hartley (1996). Data were analyzed in SPSS software (version 22) through descriptive statistics and multiple linear regression analysis.

**Results:** In total, 362 graduate students in different majors of medical sciences participated in this study. The mean (SD) score of the total time management of students was obtained at 47.27(5.47). According to the results of multiple linear regression analysis, among 13 individual and academic variables of students, educational level ( $P=0.019$ ,  $\beta=-0.126$ ) and duration of study per day ( $P=0.002$ ,  $\beta=0.172$ ) were effective in predicting time management skills.

**Conclusion:** The time management skill of Iranian medical sciences students is relatively desirable. However, masters' students had better time management, compared to Ph.D. and residency students. Furthermore, the duration of study per day is a stronger factor in predicting the time management of graduate students.



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## Introduction

The contemporary area is encountering new complications, and education is also facing some challenges. These complications and concerns impose certain tensions on society, especially university students (1). Graduate students experience more tension since they play different social roles; accordingly, they require spending more time and energy to manage them (2). Instruction and learning are among the important tasks of students, which take up a lot of their time. These students are faced with a wider range of information due to the complexity of the curriculum and the increasing development of technology (3). Furthermore, they require learning philosophy of science, and therefore, they have to learn the foundations of science. It is worth mentioning that their academic materials and sources are not merely limited to the classroom and university (4). In addition, higher education students need appropriate

skills to determine and organize their goals and priorities. These competencies can be achieved through skills in time management; accordingly, educational researchers must conduct studies in this regard (5). Time management is also of significant importance for delivering projects and submitting manuscripts (6, 7). Moreover, students are required to master time management skills during the academic years in order to get the desired or required certificates and licenses to enter clinical environments and provide high-quality services in the future (8).

On the one hand, graduate students make efforts to improve social interactions and pursue satisfying careers during this period in their life. On the other hand, it is the time to get married or have a family. All these social actions require optimal allocation of time. Accordingly, time management strategies have been proposed to help people do more of the desired

and necessary activities (9). These strategies include stopping wasting time, setting a goal, making an activity list, doing difficult tasks first, and identifying individual-social factors affecting time management (10, 11). However, there are many factors influencing these strategies, and it is of utmost importance that graduate students identify them to better manage their time. It should be noted that there is a dearth of research conducted on the identification of these factors.

The beginning of Coronavirus Disease 2019 (COVID-19) pandemic, the spread of online education in universities, as well as personal, family, and social responsibilities of graduate students, make it more necessary to examine the factors affecting time management. After reviewing the medical education literature, especially during COVID-19 pandemic, limited studies were found conducted on this issue among graduate students. Graduate students of medical sciences mainly work in clinical and laboratory environments simultaneously. Carrying out such activities and at the same time adjusting to the changes in the instructional conditions is associated with serious challenges and tensions, which requires effective time management (12).

Considering the lack of studies in this regard and the importance of making a balance between social and academic roles among graduate students, this study aimed to determine the factors affecting the time management in this group of population in the Universities of Medical Sciences across Iran during the COVID-19 pandemic.

## Material & Methods

### *Design and setting(s)*

This is a web-based cross-sectional study using the Google Forms platform.

### *Participants and sampling*

All graduate students studying in Public or Islamic Azad Universities of Medical Sciences across Iran were invited through such social networks as Telegram and WhatsApp. The inclusion criteria were willingness to participate in the study, as well as MSc, Ph.D. and residency students in various majors of medical sciences.

### *Tools/Instruments*

A two-part online questionnaire was used to collect the required data. The first section of this scale sought personal and academic information of the students (gender, age, marital status, degree, academic semester, grade point average, study duration per day, time spent on virtual networks, number of virtual networks used, nativeness, place

of residency, employment status, the amount of work per month, and the type of university) which was extracted from relevant sources and researchers' opinions (13, 14). The second section of the tool was a 14-item time management questionnaire developed by Britton and Tesser (1991) and modified by Trueman and Hartley (1996). This 14-item questionnaire included two subscales of short- (Questions 1-5) and long-term (Questions 6-14) planning. The total score of the questionnaire was between 14 and 70, and the short- and long-term planning scores were between 5 and 25, as well as 9 and 45, respectively. It should be mentioned that a higher score indicates better time management, and the scale is rated from 1 to 5 on a five-point Likert scale (never, rarely, sometimes, often, and always). Trueman and Hartley (1996) estimated Cronbach's alpha values at 0.77, 0.81, and 0.48 for the total questionnaire, as well as short- and long-term planning subscales, respectively. This tool was translated for the first time by Sawari and administered to the students of Payam Noor University of Ahvaz, Iran, with Cronbach's alpha value of 0.72 (15).

### *Data collection methods*

The required data were collected in January, February, and March 2019 through an online questionnaire. It took 10 minutes to complete the questionnaires, and the participants were required to answer all the questions once. Reminders were sent to the participants during the study. A total of 395 questionnaires were received; however, 33 questionnaires were incomplete and were excluded from the analysis process. Finally, 362 questionnaires were analyzed.

### *Data analysis*

The obtained data were analyzed in SPSS software (version 22). Frequency and mean (SD) were used to describe the personal and academic characteristics of the students. Since the distribution of the time management variable was normal using the Kolmogorov-Smirnov test ( $P=0.12$ ), parametric ANOVA and Pearson correlation tests were utilized for the primary analysis. Following that, the assumptions of the multiple linear regression analysis were investigated, and after obtaining confirmation, all of them were implemented. In this test, time management was regarded as the dependent variable, and 13 personal, educational, and occupational factors of students were considered independent or predictor variables and entered into the Stepwise model. A P-value of 0.05 was considered statistically significant.

## Results

A total of 395 questionnaires were received; however, 33 questionnaires were incomplete and were excluded from the analysis process. Finally, 362 complete questionnaires were analyzed in this study. The mean (SD) age of the participants was obtained at 32.52(4.59) with the same gender distribution (50%). The majority of the respondents

were married (56.1%), native (50.8%), and employed (69.9%). Regarding the place of residency, 42.3% of the participants were living in their private homes, and almost all of them were studying in public universities (75.4%) (Table 1). Table 2 tabulates the total score for time management 47.27(5.47); the score range:14-70.

**Table 1. Demographic characteristics of graduate students of Iranian medical sciences universities**

Variables		N (%)
Gender	Male	181 (50)
	Female	181 (50)
Marital status	Single	159 (43.9)
	Married	203 (56.1)
Educational level	MSc	180 (49.7)
	PhD	182 (50.3)
Nativity to the place of study	Yes	184 (50.8)
	No	178 (49.2)
Residential status	Private house	153 (42.3)
	University dormitory	107 (29.6)
	Non-university dormitory	102 (28.2)
Employment	No	109 (30.1)
	Yes	253 (69.9)
University type	Public	273 (75.4)
	Private	86 (23.8)

**Table 2. The mean score of time management and its dimensions and other quantitative variables of graduate students of Iranian medical sciences universities**

Variables	Mean (SD)
Time Management (total)	47.27 (5.47)
Time Management (Short term)	29.64 (3.24)
Time Management (Long term)	17.58 (3.24)
Age (Year)	32.52 (4.59)
Educational semester	3.52 (1.82)
Total grade point average	17.89 (1.20)
Point average of last semester	18.28 (1.16)
Duration of study (Hours/day)	7.34 (2.77)
Duration of internet use (Hours/day)	2.27 (1.52)
The number of memberships in virtual networks	3.30 (1.25)
Amount of work (hours/months)	166.52 (126.14)

After comparing the time management mean values, there was no significant difference in any of the students' qualitative variables (Table 3). According to the results of the correlation analysis between the total score of time management and quantitative variables of students, this variable showed a positive and significant correlation only with the study duration per day. Furthermore, the mean score for short-term time management correlated positively with the study duration per day ( $P=0.001$ ,  $r=0.17$ ) and the amount of work per month ( $P=0.006$ ,  $r=0.15$ ); however, it was correlated negatively with the academic semester ( $P=0.049$ ,  $r=-0.1$ ) (Table 4).

According to the results of the multiple linear regression analysis with the stepwise model (Stepwise) in the final step, out of 13 personal and academic variables, educational level ( $P=0.019$ ,  $\beta=-0.126$ ) and study duration per day ( $P=0.002$ ,  $\beta=0.172$ ) were found to be effective in the time management of graduate students (Table 5). In other words, MSc students had better time management skills, compared to Ph.D. and residency students. Furthermore, study duration per day was a stronger factor in predicting the time management skill of graduate students.

**Table 3. The mean score of time management of graduate students of Iranian medical sciences universities by demographic variables**

Demographic Variables		Mean (SD)	* P-Value
Gender	Male	47.04 (4.88)	P = 0.51
	Female	41.47 (6.01)	F = 0.42
Marital status	Single	46.63 (5.94)	P = 0.07
	Married	47.69 (5.04)	F = 3.40
Educational level	MSc	47.69 (5.64)	P = 0.11
	PhD/residency	46.77 (5.27)	F = 2.57
Nativity to the place of study	Yes	46.92 (4.94)	P = 0.28
	No	47.54 (5.97)	F = 1.14
Residential status	Private house	46.66 (6.07)	P = 0.24
	University dormitory	47.63 (5.87)	F = 1.42
	Non-university dormitory	47.67 (3.83)	
Employment	No	46.66 (6.72)	P = 0.197
	Yes	47.47 (4.83)	F = 1.67
University type	Public	47.33 (5.85)	P = 0.54
	Private	46.91 (4.03)	F = 0.38

\* ANOVA, a significance level, 0.05 is considered

**Table 4. Relationship between time management and demographic variables of graduate students of Iranian medical sciences universities**

Characteristics Mean (SD)	Total TM score		Short-term TM		Long-term TM	
	r	P	r	P	r	P
Age	0.026	0.62	0.081	0.13	-0.034	0.52
Educational semester	-0.095	0.071	-0.10	0.049	-0.06	0.26
Total grade point average	0.08	0.14	0.06	0.27	0.08	0.16
Duration of daily study (Hours)	0.14	0.006	0.17	0.001	0.08	0.15
Duration of daily internet use (Hours)	-0.06	0.27	-0.03	0.56	-0.07	0.20
Duration of monthly work (Hours)	0.07	0.19	0.15	0.006	-0.025	0.63

\* Pearson Correlation, a significance level of 0.05 is considered

**Table 5. Variables predicting time management of demographic variables based on multiple linear regression\***

Independent variables	B	S. E a	Beta	t	P-value	95.0% CI	
						Lower	Upper
Educational level	-1.37	0.584	-0.126	-2.35	0.019	-2.52	-0.22
Duration of daily study (Hours)	0.341	0.107	0.172	3.19	0.002	0.13	0.55
Result of model	R = 0.192; R <sup>2</sup> = 0.037; Adjusted R <sup>2</sup> = 0.031; F = 6.61; P-Value = 0.002						

\* Stepwise Model a Standard Error, a significance level, 0.05 is considered

## Discussion

According to the findings of the study, the total score of time management skill, as well as its short- and long-term dimensions, was relatively desirable among Iranian medical students in different stages of higher education. Moreover, educational level and the study duration per day were found to be effective in managing their time. The results of this study revealed a higher level of education as a negative factor in time management among students since it is usually accompanied by many social actions for adult students (16), which appear in people by accepting roles in society (17). Those who seek higher levels of education are more involved in these actions since they face other special social challenges in addition to their education. Many

students get married or make efforts to have a family, which requires more time (18). Porter et al. (2018) reported that graduate students experienced various time constraints due to working full-time while studying, caring for children or other family members, and doing socially valuable activities (19). Graduate medical and paramedical students are also working mainly in medical centers, and Goicochea et al. (2021) found that medical students, especially residents, are under pressure and stress at work (12). According to Richelle et al. (2019), it is difficult for many students to make a balance between their studies and their daily lives. This issue causes anxiety and affects their time management skill (20). James et al. (2018) mentioned social responsibilities

as one of the future roles of higher education students (21). In fact, faculties are supposed to develop educational planning considering this issue and adopt appropriate policies in this regard. One of the main skills of time management is the optimal allocation of time for social roles. In addition to macro policies in the context of education, it is also important to focus on individual skills (22).

According to the findings of the present study, students who devoted more time to study per day obtained better time management skill. The ability to increase the time allocated to study is considered an individual skill for learners (8) since adult students need to manage other life challenges in order to allocate more time to study (3). Baker et al. (2019) found that allocating more time to study is due to students' proper time management skill, which is in line with the findings of the present study (23). In the same line, Razali et al. (2019) considered the ability to allocate time for studying and not wasting time as a time management skill, which is also consistent with the results of the present study (24). It is worth mentioning that allocating time to study should be accompanied by time optimization, and merely flicking through the books and installing

software do not mean proper time management, despite the time spent in this regard (25). Murray et al. (2019) found that optimal allocation of time is an important and effective factor in time management (26). The improvement of time management skill requires proper planning of educational systems (27). The instruction of time management skills during the COVID-19 pandemic requires special attention like other majors and skills (28). With the advent of online education, students do not attend the academic environment anymore, and traditional education is replaced by virtual instructions (29). In addition, with the beginning of virtual education, students had to acquire special skills in managing their time that they had not experienced so far (30). Tseng et al. (2019) reported that motivation, self-regulation, and social skills are the basic skills in time management (31). Most of these skills require short-term time management (32). The findings of the present study also showed that factors, such as the academic semester, study duration per day, and employment status are correlated with short-term time management. In fact, people in these circumstances should have better short-term time management skill (33). Due to the lack of studies regarding the improvement of personal skills of time management and optimal allocation of time to social actions among graduate students, it is suggested to conduct more research in this regard in the future.

## Conclusion

Time management skill of graduate students of Iranian medical sciences universities is in a relatively desirable status. Educational level and study duration per day were recognized as effective factors in time management. The effective use of these two components requires high personal skills among these students; therefore, educational policymakers are recommended to develop effective programs for students to strengthen their personal time management skills and allocate optimal time to study and life.

## Ethical considerations

The study protocol was approved by the Research Ethics Committee (IR.ZUMS.REC.1399.310) of Zanzan University of Medical Sciences, Zanzan, Iran. It should be noted that participation in the study was voluntary, and informed consent was obtained from all participants. Moreover, no personal information was collected from the participants, and the data were completely anonymous during the study.

## Conflict of Interests

The authors declare no conflict of interest.

## Acknowledgment

The authors express their gratitude to all students who participated in this study.

## Contribution

Dinmohammadi: research idea generation, data analysis, article writing, project management, revision and revision of the text.

Abdi: generating research ideas, writing articles, and revising the text.

Naghilo: generating research ideas, collecting data

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