

Original Article

The Relationship Between Time Use Patterns and Health-Related Quality of Life Among Male Dormitory Students at Hamadan University of Medical Sciences, Iran

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Abstract

Introduction: Understanding individuals' patterns of time use enables them to allocate their time in a more purposeful and balanced manner, which may contribute to better health and well-being. This study aimed to investigate the relationship between time use patterns and health-related quality of life among male students residing in dormitories.

Methods: This cross-sectional study was conducted among 365 male dormitory students at Hamadan University of Medical Sciences who were recruited using the convenience sampling method. Participants completed the Time Use Diary for both a weekday and a holiday, along with the Short Form-36 Health-Related Quality of Life (SF-36) questionnaire. Data were analyzed using SPSS version 23. Spearman's correlation test was performed to examine associations between time use domains and health-related quality of life, with statistical significance set at $P \leq 0.05$.

Results: Significant associations were observed between physical functioning and role limitations due to physical health problems with activities of daily living, work, and leisure activities. General health was significantly associated with activities of daily living ($P < 0.001$), social participation ($P = 0.023$), education ($P < 0.001$), and leisure activities ($P = 0.008$). Social participation was also significantly associated with physical functioning ($P = 0.001$), emotional well-being ($P = 0.031$), and role limitations due to emotional problems ($P = 0.001$). Overall, the findings indicated that students' time use patterns were not well balanced across major life domains.

Conclusion: An imbalanced pattern of time use was associated with several dimensions of health-related quality of life among male dormitory students. Educational interventions aimed at improving time allocation across daily life domains may promote a more balanced lifestyle and enhance students' health-related quality of life.

Keywords: Life activities, Dorm, Student, Standard of living

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Introduction

Time functions as a finite personal and collective resource (1,2), the allocation of which structures daily social roles, interpersonal interactions, and institutional participation (2,3). Across the life course, individual time-budgeting, encompassing education, paid work, family care, and leisure, dynamically shifts, reflecting evolving personal and occupational identities as well as age-graded societal expectations (3,4).

The time and activities that a person engages in throughout the day are closely related (5), essentially referring to purposeful and meaningful activities that

occupy one's time. These activities encompass eight distinct domains, including activities of daily living (ADLs), instrumental activities of daily living (IADLs), rest and sleep, education, work, play, leisure and recreation, and social participation (6). Daily activities structure individual behavior over time, shaping the broader social patterns of time use (3). Exploring and understanding time use patterns empowers individuals to organize their daily activities in a more structured, purposeful, and health-enhancing manner (7). As young people enjoy greater autonomy in selecting their daily activities, their time use patterns directly influence their health and lifestyle choices



(8,9). Consequently, researchers believe that greater control over time leads to enhanced academic performance and improved overall quality of life among students (10).

Quality of life (QoL) represents a critical outcome influenced by these daily time allocation and health choices. The World Health Organization (WHO) defines quality of life as an individual's perception of their position in life within the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards, and concerns. It is a broad multidimensional concept influenced by various factors, including physical health, psychological well-being, level of independence, economic status, social relationships, and environmental characteristics. Specifically, health-related quality of life (HRQoL) focuses on the expected physical, mental, and social well-being domains directly tied to health and illness, while also encompassing broader contextual factors such as family, work, and environment (11,12).

Therefore, effective time management skills are essential for maintaining students' academic success, whereas a lack of structured planning can severely impair their academic outcomes. Family support plays a pivotal role in this dynamic by assisting with time-consuming non-academic responsibilities, thereby freeing up valuable time for study and facilitating more efficient time management. Consequently, dormitory students, who lack immediate family support, require tailored assistance to help them organize their study schedules effectively. Enhancing time management among resident students ultimately fosters superior academic performance (13), which is strongly linked to a higher quality of life. In this regard, Lumley et al (2015) reported a significant association between higher academic decile and higher self-reported quality of life among final-year UK medical students (12).

Over the past decades, assessing health-related quality of life (HRQoL) in higher education settings has gained increasing importance, as HRQoL has consistently been shown to be associated with a range of demographic, health-related, educational, and socioeconomic factors, including age, gender, place of residence, health status, educational environment, and socioeconomic status (14,15). Studies have consistently shown that students' perceptions of their university experience are closely associated with student attrition, retention, and academic progress (16,17). Furthermore, students with higher health-related quality of life and well-being tend to demonstrate better academic integration, greater engagement with university resources, increased participation in extracurricular activities, and improved outcomes across multiple domains (18,19).

The health-related quality of life (HRQoL) of medical students can be significantly affected by multiple stressors, including perfectionistic personality traits, high academic pressure, processing vast amounts of new information, limited time for social engagement, and frequent exposure to severe illness and death, all of which heighten susceptibility to depressive symptoms (11). Psychological distress, especially stress, anxiety, and depression, is highly prevalent among medical students and strongly associated

with impaired academic and professional performance. Furthermore, systematic evidence demonstrates that these mental health challenges substantially deteriorate students' overall quality of life (19). Therefore, assessing health-related quality of life (HRQoL), particularly among medical students, is of paramount importance.

Previous studies have demonstrated that quality of life and subjective well-being are closely linked to how individuals allocate their time and achieve balance across various daily activities, including employment, household responsibilities, personal care, and leisure (7,20). Furthermore, empirical evidence indicates that quality of life, particularly in its psychological domain, is strongly correlated and conceptually aligned with overall life satisfaction (21,22). Accordingly, enhancing awareness regarding effective time management may positively influence the quality of life, overall health, and ultimate life satisfaction among medical students. Therefore, this study aimed to investigate the relationship between time use patterns, quality of life, and health among male dormitory medical students.

Materials and Methods

Design and Setting(s)

This cross-sectional study targeted male dormitory students at Hamadan University of Medical Sciences in the year 2022.

Participants and Sampling

A non-random convenience sampling method was used to select male dormitory students at Hamadan University of Medical Sciences in 2022. The target population comprised an estimated total of 1200-1500 male undergraduate and professional doctorate/graduate students residing in the university dormitories during the study period.

The required sample size for correlation analysis (bivariate normal model) was estimated using G*Power software version 3.1.9.7. Assuming a small-to-medium effect size ($r = 0.15$), a significance level of 0.05, and a statistical power ($1 - \beta$) of 0.80, the calculation indicated a minimum required sample size of 343 participants. To account for potential incomplete responses or dropouts, 380 questionnaires were distributed, and ultimately, 365 complete and valid questionnaires were retained for the final analysis (response rate: 96%).

Inclusion criteria for participation were:

1. Male gender and current residence in the university dormitories (with at least two academic terms of residency),
2. Willingness and signed informed consent to participate in the study, and
3. Absence of severe physical, sensory, or cognitive impairments that would hinder the independent and accurate completion of the self-report Time Use Diary.

Exclusion criteria included:

1. Incomplete completion of questionnaires (e.g., missing key time-use diary slots or > 20% missing data), and
2. Withdrawal of consent at any stage prior to data

analysis.

Tools/Instruments

Two standardized questionnaires were utilized in this study:

Time Use Diary

The primary instrument was the Time Use Diary, a widely recognized and validated field tool for examining daily activity patterns (23,24). The participants of the current study specified the type and duration of activities they engaged in during a 24-hour period for two days of the week, one day in the middle of the week (working day) and another day at the end of the week (weekend day). The participants recorded their activities every half an hour throughout the day, and to ensure standard categorization in the Iranian context, all raw activities recorded by participants were independently classified by three expert occupational therapists into the 8 standardized domains of life/occupational therapy (i.e., daily life activities, instrumental daily activities, sleep and rest, education, work, leisure and recreation, and social participation). The amount of time allocated by individuals to each domain during the 24-hour period was determined in minutes.

Van Puyvelde et al discussed the validity and reliability of the Time Use Diary for physical activities and sedentary behaviors, obtaining reliabilities of 0.74 and 0.73, respectively, for non-occupational sedentary behaviors and moderate to vigorous physical activities among participants with similar activity patterns during two daily periods (25). Regarding the psychometric properties of the Iranian version, Hosseini et al evaluated the content validity and reliability of this tool among Iranian university students (26). Content validity was confirmed through an expert panel of rehabilitation specialists to ensure cultural relevance and adaptability to Iranian student lifestyles. The reliability of activity duration recording was established using test-retest reliability over a two-week interval, demonstrating strong temporal stability ($ICC > 0.75$). Furthermore, inter-rater agreement among the expert coders classifying activities into the 8 occupational domains yielded a high Cohen's kappa coefficient ($kappa = 0.82$), confirming the consistency and robustness of the data categorization process in Iran (26).

36-Item Short Form Survey (SF-36)

Health-related quality of life was measured using the SF-36 questionnaire, a comprehensive instrument evaluating eight health concepts across 2 broad domains: physical health (physical functioning, role limitations due to physical health problems, bodily pain, and general health) and mental health (social functioning, role limitations due to emotional problems, emotional well-being, and energy/fatigue) (27,28). Items are scored on a Likert scale and transformed to a standard scale ranging from 0 (worst quality of life) to 100 (best quality of life).

The psychometric evaluation of the Persian version of the SF-36 by Montazeri et al demonstrated acceptable

internal consistency across most subscales (Cronbach's alpha coefficient ranging from 0.77 to 0.90, except for energy/fatigue at $\alpha = 0.65$) (29). Convergent validity testing yielded satisfactory results with all item-scale correlation coefficients exceeding the recommended threshold of 0.40 (range: 0.58 to 0.95), and exploratory factor analysis accounted for 65.9% of the total variance across subscales (29).

Data Collection Methods

Ethical considerations were taken into account in the present study. The purpose of the research and the research method were first explained to the participants and then it was stated that the personal information of each person will remain confidential until the end of the research. Informed consent was obtained from the participants, and the questionnaires were then completed by the students in the student dormitories of Hamadan University of Medical Sciences. Finally, the data were collected.

Data Analysis

The data were analyzed using SPSS software version 23. The normality of the distribution of the variables was assessed using the Kolmogorov-Smirnov test, and due to the non-normality of most of the research variables, Spearman's correlation test was used to investigate the relationship between the variables.

Results

A total of 365 research participants from different fields in 12 disciplines, including occupational therapy (21.4%), speech therapy (8.5%), physiotherapy (3.6%), nursing (23.3%), operating room (6%) 6.6%), intelligence (3.3%), dentistry (3.0%), medicine (4.1%), pharmacy (4.4%), audiology (6.3%), radiology (7.7%) 7%), and technical orthopedics (7.9%), were selected from university dormitories. The participants were in the age range of 18 to 27 years, with a mean age of 21.09 ± 1.742 years. Their overall academic average was in the range of 12 to 19 (mean 15.525 ± 1.4274). These students lived in 4- and 5-person rooms.

As can be seen in Table 1, the quality of life on a normal day has a significant relationship with daily life activities. In addition, according to the findings of this research, it is also related to job, but on holidays, the quality of life shows a significant relationship with daily life activities, education, and leisure time.

The findings of the study presented in Table 2 show that there is a significant relationship between daily life activities and 4 domains of health-related quality of life, including physical function domains, role limitations related to physical health, role limitations related to emotional health, and social function domains. However, the instrumental daily activities only have a meaningful relationship with the field of public health. Education has a significant relationship with the areas of general health and pain, and employment with the areas of physical performance, role limitations related to physical performance, emotional

well-being, and pain. Additionally, the field of leisure time is related to the fields of physical performance, role limitations related to physical health problems, and general health. No significant relationship has been found between the domain of sleep and rest and any of the domains of health-related quality of life. Moreover, social participation has a significant relationship with the field of physical performance, role limitations related to emotional health problems, emotional well-being, and general health ($P \leq 0.05$).

As can be seen in Table 3, the health-related quality of life has shown a significant relationship with the variables of age, grade point average, and field of study, but it did not have a significant relationship with the number of roommates. The number of roommates has shown a significant relationship with the areas of social participation, education, and instrumental daily life activities. Moreover, the field of study had a significant relationship with all areas of life except sleep and rest, leisure time, and daily instrumental activities, while GPA did not show such a relationship with any of the areas of life except social participation.

Discussion

The study aimed to investigate the correlation between time use patterns and health-related quality of life among male students living in the dormitories of Hamadan University of Medical Sciences. The findings revealed that daily life activities are strongly linked to various aspects of health-related quality of life, specifically in four areas of physical

performance, role disorder related to physical health, role limitations related to emotional health problems and social functioning, on week days and even on holidays. The findings align with the results of the study conducted by Kaptain et al in 2020 on the relationship between technology use, daily activities, and health-related quality of life in patients with chronic obstructive pulmonary disease (COPD) (30). The study by Kumar et al examined the connection between daily life activities and health-related quality of life among elderly individuals in an urban setting in India. It revealed that a decline in daily activities can negatively impact different aspects of their quality of life (31). The study revealed that this issue also applies to young students.

Based on the results of this study, instrumental daily life activities have a notable association with the field of public health. The study conducted by Lingyun Ran et al, which investigated the connection between daily activities, instrumental daily activities, and health-related quality of life in elderly individuals from ethnic minority backgrounds, revealed that the health-related quality of life and functional capacity of these elderly individuals differ from their peers. The number of cases in other provinces was lower. The study suggests that daily life activities, instrumental daily activities, and education level are positively related to health-related quality of life. Additionally, a low level of instrumental daily activities in the elderly indicates a high level of cognitive impairment. The findings of this study regarding daily life activities differ

Table 1. Correlation between Health-related Quality of Life and Life Domains on Normal Day and Holiday

Life areas	Holiday		Weekday	
	Correlation coefficient	Sig.	Correlation coefficient	Sig.
Activity of daily living	0.128	0.015	-0.174	0.001
Instrumental activity of daily living	0.050	0.336	0.031	0.549
Work	0.024	0.651	0.164	0.002
Education	-0.115	0.028	-0.006	0.914
Rest and sleep	0.001	0.985	0.078	0.139
Social participation	0.040	0.444	-0.081	0.124
Leisure	-0.158	0.002	-0.050	0.340

Table 2. Correlation between Time Use Variables and Health-related Quality of Life

Life areas		Leisure	Social participation	Rest and sleep	Work	Education	Instrumental activity of daily living	Activity of daily living
4 physical domains of health-related quality of life	Physical functioning	0.108	-0.177	0.079	0.153	-0.090	0.001	-0.159
	Role limitations due to physical problems	-0.125	-0.024	0.047	0.205	-0.063	0.044	-0.119
	Bodily pain	-0.077	-0.094	0.059	0.161	-0.107	-0.046	-0.090
	General health	-0.138	0.119	-0.093	-0.049	0.193	0.184	-0.005
4 psychological domains of health-related quality of life	Mental health	-0.002	0.113	-0.049	0.122	-0.029	-0.003	-0.050
	Social functioning	-0.058	0.034	0.092	0.023	-0.080	-0.077	-0.131
	Vitality	0.062	-0.005	0.092	-0.021	-0.027	-0.083	-0.013
	Role limitations due to emotional problems	0.087	-0.168	0.007	0.029	0.050	0.047	-0.271

Table 3. Correlation between Life Domains and Quality of Life and other Variables

Variables	Number of roommates	Grade point average	Field of study	Age
Quality of life				
Activity of daily living	0.417	0.574	0.000	0.400
Instrumental activity of daily living	0.034	0.996	0.065	0.881
Education	0.002	0.152	0.000	0.000
Work	0.201	0.987	0.022	0.040
Leisure	0.551	0.381	0.629	0.009
Social participation	0.000	0.026	0.000	0.058
Rest and sleep	0.253	0.367	0.876	0.124
Quality of life	0.131	0.033	0.015	0.000

from the findings of the present study. This discrepancy may be attributed to the difference in research samples, as the student population generally has better cognitive health compared to the elderly. Lingyun Ran et al found that age is negatively correlated with health-related quality of life, which aligns with the results of our study indicating a significant relationship between age and health-related quality of life (32).

Education has a connection with public health and pain. This suggests that students may not attend classes or training if they have health or pain issues. The study conducted by Gil-Lacruz et al found that higher education levels are associated with better health-related quality of life in young people. According to the study, health-related quality of life is found to be more sensitive and effective than education in girls. Interestingly, the study also contradicts previous findings, as it suggests that education has a greater impact on mental health rather than physical health. This difference in results could be attributed to societal gender norms and the focus on physical well-being in the study rather than mental well-being in girls (33).

The findings of the present study are consistent with previous evidence indicating that work ability and engagement in productive daily activities are positively associated with health-related quality of life. Sørensen et al demonstrated a significant association between work ability and HRQoL among middle-aged men, while Matuska et al showed that achieving a balanced allocation of time across daily occupations is associated with better health, lower perceived stress, and improved quality of life (20,34).

Our findings are consistent with previous studies showing that greater participation in leisure activities, especially those involving social and cognitively engaging components, is associated with better quality of life. Cheung et al (2009) reported similar findings among community-dwelling older adults in Hong Kong (35), while a recent systematic review further supports the role of meaningful and purposeful activities in promoting well-being and quality of life in older adults (36).

The study conducted by Mikula et al found a strong connection between social participation and various aspects of health-related quality of life in patients with multiple sclerosis. Specifically, they discovered that social participation was significantly related to physical performance, role limitations due to emotional problems, emotional well-being, and overall general health. However, their study did not show a significant relationship between the psychological domains of health-related quality of life and social participation. This difference may result from other variables such as the level of depression, appropriate coping strategies, lower levels of indifference, and higher levels of cognition and self-efficacy in participants (37).

Conclusion

The findings of the present study showed that the pattern of time use among male dormitory students did not have a proper balance between different areas of work, and this imbalance could have profound negative effects on

the health-related quality of life of these people. In line with this conclusion, it can also affect the education of these people. Since more understanding of the pattern of time use enables people to use their time in a purposeful and structured way, by informing and educating students about the correct way of allocating time between different areas of daily life, the health-related quality of life can be improved in the student population. The limitation of this study can be attributed to the fact that the time use pattern questionnaire is self-reported, and the desire to report all daily activities by students is low, which has made it difficult to find a study sample. It is suggested that appropriate intervention methods should be used in other studies in order to allocate time in dormitory students.

Authors' Contribution

Conceptualization: Seyed Mohammad Sadegh Hosseini, Sahar Nurani Gharaborghe

Data Curation: Seyed Mohammad Sadegh Hosseini, Taleb Khodaveisi
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Competing Interests

The authors declare that they have no competing interests in this study. The authors had no financial or non-financial relationships with the manufacturers or suppliers of the instruments or questionnaires used in the study, and no external funding was received for this research.

Ethical Approval

This study was approved by the Ethics Committee of Hamadan University of Medical Sciences (IR.UMSHA.REC.1398.153).

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References

1. Gurge LM, Whillans AV, West C. Why time poverty matters for individuals, organisations and nations. *Nat Hum Behav* 2020;4(10):993-1003. doi:10.1038/s41562-020-0920-z
2. Feldman E, Reid EM, Mazmanian M. Signs of our time: time-use as dedication, performance, identity, and power in contemporary workplaces. *Acad Manag Ann* 2020;14(2):598-626. doi:10.5465/annals.2018.0148
3. Cornwell B, Gershuny J, Sullivan O. The social structure of time: emerging trends and new directions. *Annu Rev Sociol* 2019;45(1):301-20. doi:10.1146/annurev-soc-073018-022416
4. Zacher H, Froidevaux A. Life stage, lifespan, and life course perspectives on vocational behavior and development: a theoretical framework, review, and research agenda. *J Vocat Behav* 2021;126:103476. doi:10.1016/j.jvb.2020.103476
5. Christiansen CH, Bass J, Baum CM. *Occupational Therapy: Performance, Participation, and Well-Being*. Taylor & Francis; 2015.
6. Amini DA, Kannenberg K, Bodison S, Chang P, Colaianne D, Goodrich B, et al. *Occupational therapy practice framework:*

- domain & process, 3rd edition. *Am J Occup Ther* 2014;68(Suppl 1): S1-48.
7. Fossey E, Doroud N, Harvey CA, Dun C, Hitch D, Farnworth L, et al. Contributions of a time use perspective in community mental health practice: a scoping review. *Front Psychiatry* 2024;15:1461705. doi:10.3389/fpsy.2024.1461705
8. Atkin AJ, Dainty JR, Dumuid D, Kontostoli E, Shephstone L, Tyler R, et al. Adolescent time use and mental health: a cross-sectional, compositional analysis in the Millennium Cohort Study. *BMJ Open* 2021;11(10): e047189. doi:10.1136/bmjopen-2020-047189
9. Wong M, Lycett K, Olds T, Gold L, Wake M. Use of time and adolescent health-related quality of life/well-being: a scoping review. *Acta Paediatr* 2017;106(8):1239-45. doi:10.1111/apa.13929
10. Griggs K, Morgan SD. What are the administrative tasks and priorities for continuing education administrators? *J Contin High Educ* 1988;36(2):6-10. doi:10.1080/07377366.1988.10401138
11. Lins L, Carvalho FM, Menezes MS, Porto-Silva L, Damasceno H. Health-related quality of life of students from a private medical school in Brazil. *Int J Med Educ* 2015;6:149-54. doi:10.5116/ijme.563a.5dec
12. Lumley S, Ward P, Roberts L, Mann JP. Self-reported extracurricular activity, academic success, and quality of life in UK medical students. *Int J Med Educ* 2015;6:111-7. doi:10.5116/ijme.55f8.5f04
13. Abdulghani HM, Al-Drees AA, Khalil MS, Ahmad F, Ponnampuruma GG, Amin Z. What factors determine academic achievement in high achieving undergraduate medical students? A qualitative study. *Med Teach* 2014;36 Suppl 1: S43-8. doi:10.3109/0142159x.2014.886011
14. Solis AC, Lotufo-Neto F. Predictors of quality of life in Brazilian medical students: a systematic review and meta-analysis. *Braz J Psychiatry* 2019;41(6):556-67. doi:10.1590/1516-4446-2018-0116
15. Bíró É, Kovács S, Veres-Balajti I, Ádány R, Kósa K. Modelling health in university students: are young women more complicated than men? *Int J Environ Res Public Health* 2021;18(14):7310. doi:10.3390/ijerph18147310
16. Matus N, Rusu C, Cano S. Student experience: a systematic literature review. *Appl Sci* 2021;11(20):9543. doi:10.3390/app11209543
17. Eather N, Mavilidi MF, Sharp H, Parkes R. Programmes targeting student retention/success and satisfaction/experience in higher education: a systematic review. *J High Educ Policy Manag* 2022;44(3):223-39. doi:10.1080/1360080x.2021.2021600
18. Dodd AL, Priestley M, Tyrrell K, Cygan S, Newell C, Byrom NC. University student well-being in the United Kingdom: a scoping review of its conceptualisation and measurement. *J Ment Health* 2021;30(3):375-87. doi:10.1080/09638237.2021.1875419
19. Ribeiro ÍJ, Pereira R, Freire IV, de Oliveira BG, Casotti CA, Boery EN. Stress and quality of life among university students: a systematic literature review. *Health Prof Educ* 2018;4(2):70-7. doi:10.1016/j.hpe.2017.03.002
20. Matuska K, Bass J, Schmitt JS. Life balance and perceived stress: predictors and demographic profile. *OTJR (Thorofare NJ)* 2013;33(3):146-58. doi:10.3928/15394492-20130614-03
21. Diener E, Oishi S, Tay L. Advances in subjective well-being research. *Nat Hum Behav* 2018;2(4):253-60. doi:10.1038/s41562-018-0307-6
22. Medvedev ON, Landhuis CE. Exploring constructs of well-being, happiness and quality of life. *PeerJ* 2018;6: e4903. doi:10.7717/peerj.4903
23. Kelly P, Thomas E, Doherty A, Harms T, Burke Ó, Gershuny J, et al. Developing a method to test the validity of 24-hour time use diaries using wearable cameras: a feasibility pilot. *PLoS One* 2015;10(12): e0142198. doi:10.1371/journal.pone.0142198
24. Robinson JP. The validity and reliability of diaries versus alternative time measures. In: Juster FT, Stafford FP, eds. *Time, Goods, and Well-Being*. Survey Research Center, Institute for Social Research, University of Michigan; 1985.
25. van der Ploeg HP, Merom D, Chau JY, Bittman M, Trost SG, Bauman AE. Advances in population surveillance for physical activity and sedentary behavior: reliability and validity of time use surveys. *Am J Epidemiol* 2010;172(10):1199-206. doi:10.1093/aje/kwq265
26. Hosseini SM, Sarhady M, Nurani Gharaborghe S. Correlation of time use with health-related quality of life in dormitory students. *Journal of Health Promotion Management* 2019;8(3):46-52.
27. Farivar SS, Cunningham WE, Hays RD. Correlated physical and mental health summary scores for the SF-36 and SF-12 Health Survey, V.1. *Health Qual Life Outcomes* 2007;5(1):54. doi:10.1186/1477-7525-5-54
28. Paro HB, Morales NM, Silva CH, Rezende CH, Pinto RM, Morales RR, et al. Health-related quality of life of medical students. *Med Educ* 2010;44(3):227-35. doi:10.1111/j.1365-2923.2009.03587.x
29. Montazeri A, Goshtasebi A, Vahdaninia M, Gandek B. The Short Form Health Survey (SF-36): translation and validation study of the Iranian version. *Qual Life Res* 2005;14(3):875-82. doi:10.1007/s11136-004-1014-5
30. Kaptain RJ, Helle T, Patomella AH, Weinreich UM, Kottorp A. Association between everyday technology use, activities of daily living and health-related quality of life in chronic obstructive pulmonary disease. *Int J Chron Obstruct Pulmon Dis* 2020;15:89-98. doi:10.2147/copd.S229630
31. Medhi GK, Sarma J, Pala S, Bhattacharya H, Bora PJ, Visi V. Association between health-related quality of life (HRQOL) and activity of daily living (ADL) among elderly in an urban setting of Assam, India. *J Family Med Prim Care* 2019;8(5):1760-4. doi:10.4103/jfmpc.jfmpc_270_19
32. Ran L, Jiang X, Li B, Kong H, Du M, Wang X, et al. Association among activities of daily living, instrumental activities of daily living and health-related quality of life in elderly Yi ethnic minority. *BMC Geriatr* 2017;17(1):74. doi:10.1186/s12877-017-0455-y
33. Gil-Lacruz M, Gil-Lacruz AI, Gracia-Pérez ML. Health-related quality of life in young people: the importance of education. *Health Qual Life Outcomes* 2020;18(1):187. doi:10.1186/s12955-020-01446-5
34. Sörensen LE, Pekkonen MM, Männikkö KH, Louhevaara VA, Smolander J, Alén MJ. Associations between work ability, health-related quality of life, physical activity and fitness among middle-aged men. *Appl Ergon* 2008;39(6):786-91. doi:10.1016/j.apergo.2007.11.001
35. Cheung MC, Ting W, Chan LY, Ho KS, Chan WM. Leisure participation and health-related quality of life of community dwelling elders in Hong Kong. *Asian J Gerontol Geriatr* 2009;4(1):15-23.
36. Owen R, Berry K, Brown LJ. Enhancing older adults' well-being and quality of life through purposeful activity: a systematic review of intervention studies. *Gerontologist* 2022;62(6): e317-27. doi:10.1093/geront/gnab017
37. Mikula P, Nagyova I, Krokavcova M, Vitkova M, Rosenberger J, Szilasiova J, et al. Social participation and health-related quality of life in people with multiple sclerosis. *Disabil Health J* 2015;8(1):29-34. doi:10.1016/j.dhjo.2014.07.002