

Evaluation of Academic Success of Ankara University Faculty of Medicine Students According to the Social Determinants of Health

Ankara Üniversitesi Tıp Fakültesi Öğrencilerinin Akademik Başarılarının Sağlık Sosyal Belirleyicilerine Göre İncelenmesi

İl Filiz Ak Azar¹, İl Elif Nur Çakınberk², İl Melda Doğan², İl Yiğit Yahya İkizler², İl Ece Korkut², İl Ceyda Ceren Dönder², İl Sezin Naz Yıldırım², İl Cevdet Arda Selvi², İl Beyza Doğanay Erdoğan³

¹Ankara University Faculty of Medicine, Department of Family Medicine, Ankara, Türkiye

²Ankara University Faculty of Medicine, Ankara, Türkiye

³Ankara University Faculty of Medicine, Department of Biostatistics, Ankara, Türkiye

Abstract

Objectives: The objective of this study is to investigate the association between social determinants of health (SDOH) and academic success among preclinical students at Ankara University Faculty of Medicine. We aim to provide insights for policies and practices that promote student well-being and ensure equitable support for academic achievement.

Materials and Methods: A cross-sectional survey design was employed over a period of 18 months, from October 2021 to March 2023. Data was collected through an online survey using Google Forms, including demographic and academic achievement information, and analyzed using statistical tests. Ethical approval was obtained, and a sample of 153 participants was used for analysis.

Results: This study was conducted with 153 preclinical students from Ankara University Faculty of Medicine and evaluated the SDOH. The participants, predominantly Turkish citizens (93.5%) and female (65.4%), had diverse accommodation arrangements, including living with parents (39.9%) or in a dormitory with roommates (32.0%). Factors such as access to healthcare, monthly income, safety, social support, and environmental conditions were assessed. Academic success, measured through a Likert scale, revealed that feeling non-discriminated and receiving psychological support significantly correlated with academic performance. However, other SDOH did not show a significant association with academic success.

Conclusion: While SDOH other than feeling non-discriminated and receiving psychological support did not show significant correlations in our study, further research is needed to explore their impact. Creating a supportive and non-discriminatory environment is essential for the academic success and well-being of medical students.

Keywords: Academic success, academic inventory scale, social determinants of health, medical students

Öz

Amaç: Bu çalışmanın amacı, Ankara Üniversitesi Tıp Fakültesi klinik öncesi öğrencileri arasında sosyal sağlık belirleyicileri (SDOH) ile akademik başarı arasındaki ilişkiyi araştırmak, öğrenci refahını destekleyen politika ve uygulamalara içgörü sağlamak ve akademik başarı için eşit destek sağlama konusunda farkındalıklar sunmaktır.

Gereç ve Yöntem: On sekiz aylık bir süre boyunca, Ekim 2021'den Mart 2023'e kadar kesitsel bir anket tasarımı kullanılmıştır. Veriler, Google Forms aracılığıyla çevrimiçi olarak toplanmıştır ve demografik ve akademik başarı bilgilerini içermektedir. Veriler istatistiksel testler kullanılarak analiz edilmiştir. Etik kurul onayı alınmıştır ve analiz için 153 katılımcı örneği kullanılmıştır.

Address for Correspondence/Yazışma Adresi: Elif Nur Çakınberk, MD

Ankara University Faculty of Medicine, Department of English Medicine, Ankara, Türkiye

E-mail: elifnurkanberk@gmail.com ORCID ID: orcid.org/0000-0003-1072-9068

Received/Geliş Tarihi: 11.06.2023 Accepted/Kabul Tarihi: 22.10.2024 Epub: 06.05.2025

Cite this article as/Atıf: Ak Azar F, Çakınberk EN, Doğan M, et al. Evaluation of academic success of Ankara University Faculty of Medicine students according to the social determinants of health. J Ankara Univ Fac Med.



Bulgular: Ankara Üniversitesi Tıp Fakültesi'ndeki 153 klinik öncesi öğrenci üzerinde yaptığımız çalışmada SDOH incelenmiştir. Katılımcılar, çoğunlukla Türk vatandaşı (%93,5) ve kadın (%65,4) öğrencilerden oluşmaktadır ve aileleriyle birlikte yaşayanlar (%39,9) veya yurttan arkadaşlarıyla yaşayanlar (%32,0) gibi farklı konaklama düzenlemelerine sahip oldukları gözlemlenmiştir. Sağlık hizmetlerine erişim, aylık gelir, güvenlik, sosyal destek ve çevresel koşullar gibi faktörler de değerlendirilmiştir. Bir Likert ölçeği aracılığıyla ölçülen akademik başarının ayrımcılık hissetmeme ve psikolojik destek alma ile anlamlı bir şekilde ilişkili olduğu görülmüştür. Ancak diğer SDOH, akademik başarıyla anlamlı bir ilişki göstermemiştir.

Sonuç: Çalışmamızda ayrımcılık hissetmeme ve psikolojik destek alma dışındaki SDOH akademik başarıyla anlamlı bir ilişki göstermemesine rağmen, etkilerini araştırmak için daha fazla çalışmaya ihtiyaç vardır. Tıp öğrencilerinin akademik başarı ve refahını desteklemek için destekleyici ve ayrımcılık yapmayan bir ortamın oluşturulması önemlidir.

Anahtar Kelimeler: Akademik başarı, akademik envanter ölçeği, sağlığın sosyal belirleyicileri, tıp öğrencileri

Introduction

The field of medicine is very demanding both academically and personally. Medical students must balance rigorous coursework with the demands of clinical rotations, research, and other extracurricular activities (1). In order to continue to care about others, we, as students, also need to prioritize our own health and well-being. While the importance of individual health is widely recognized by medical schools and institutions (2), there is still much to be learned about how social determinants of health (SDOH) affect academic success in medical school.

Some academic groups in Türkiye conducted a study of the validity and reliability of Turkish adaptations of the Academic Success Inventory Scale in university students (3). Although not designed specifically for medical students, their study highlights the importance of measuring academic success and the factors that contribute to it. This study provides insights for evaluating and understanding the academic success of medical students.

Social Determinants of Health

SDOH are non-medical factors that contribute to an individual's overall health and well-being (4). Examples of these determinants are education, employment opportunities, housing and access to healthcare (5). These factors can play an important role in determining an individual's overall health. For medical students, SDOH can have a significant impact on academic success.

Studies show that SDOH can influence academic success in different ways. For example, low-income students may have limited access to resources such as textbooks, technology, and tutoring, making it more difficult for them to excel academically (6). Similarly, students without a permanent place to live may find it difficult to balance the search to find and maintain their housing with their studies (7). In addition, students without access to medical care may face health problems that make it difficult to concentrate on school work (8).

This study aims to provide useful insights for policies and practices aimed at promoting student well-being by

investigating the relationship between SDOH and academic success in medical students. For example, this research may identify specific areas that require additional support and resources to ensure students have the tools and opportunities they need to succeed academically. This study may also indicate a need for policies and programs that address broader SDOH, such as affordable housing and access to health care.

Medical schools should consider the social determinants of an applicant's health in admission decisions and provide additional resources and support to students who may face SDOH-related challenges. In this way, medical schools can promote student diversity and equity while ensuring that all students receive the support they need to succeed academically. In summary, the relationship between SDOH and medical students' academic success is a complex and multifaceted issue. By exploring this link, this research intends to provide useful insight into policies and practices aimed at promoting student well-being and ensuring that all students receive the support they need to succeed academically. The ultimate goal is to improve the overall health and well-being of medical students and promote equity and diversity in the health profession.

Materials and Methods

Study Design

This study employed a cross-sectional survey design to investigate the association between the SDOH and academic success levels among preclinical students at Ankara University Faculty of Medicine. The study was conducted over a period of 18 months, from October 2021 to March 2023.

Study Population

The present research focuses on the medical student population in Türkiye, with a study sample limited to preclinical students (semester 1, 2, and 3) enrolled in the Ankara University Faculty of Medicine. The study excluded students who were involved in organizing the survey administration, as well as clinical students (semesters 4, 5, and 6). As the clinical and preclinical periods of the medical faculty vary from a psychosocial point of view and should be evaluated separately, we included

only preclinical students in this study. A separate on clinical students is recommended. As a result of the power analysis, it was determined that 246 people should be reached. However, due to various limitations, 153 people were included in the study.

Research Hypothesis

The research hypothesis for this study is that a high level of SDOH in Ankara University Faculty of Medicine preclinical students has a positive effect on their academic achievement levels.

Variables of the Study

The independent variables of this study are social determinants affecting the health of Ankara University Medical Faculty students, including economic stability, access to health services and quality of healthcare that could be accessed neighborhood and built environment, and social and community context. The dependent variable is the success levels determined by the individual evaluations of the students according to items such as general academic skill, internal motivation/confidence, perceived instructor efficacy, concentration, external motivation/future, socializing, career decidedness, lack of anxiety, personal adjustment, and external motivation/current.

Survey Plan

The survey was administered using an online platform, specifically Google Forms, which was distributed to the student participants through various digital channels. Prior to accessing the survey, participants were required to provide their informed consent by agreeing to the terms outlined in a consent form. Only those who had given their explicit consent were able to proceed to the questionnaire, ensuring that all participants had provided informed consent to participate in the research.

In the initial segment of the survey, data pertaining to the students' demographic, social, behavioral, and economic backgrounds was gathered through the implementation of polar questions. The second segment of the study aimed to assess the academic achievement levels of the participants, utilizing the seven-point Likert-type "Academic Achievement Inventory Scale for University Students", originally developed by Prevatt et al. (9) and adapted into Turkish by Orçanlı et al (3). This instrument has demonstrated cross-cultural applicability and has undergone rigorous psychometric testing for validity and reliability in Türkiye. Prior to use in the present study, ethical approval and permissions for the utilization of the aforementioned scale were obtained from the owners through formal correspondence.

Statistical Analysis

Numerical data has been summarized using median (minimum-maximum) and mean \pm standard deviation, while frequency and percentage, n (%), was used for categorical data.

Mann-Whitney U test has been done during data analysis. SPSS v.15 was used for data analysis, and $p < 0.05$ was considered statistically significant. Due to various limitations, the data of 153 participants has been used.

Ethics Committee Approval

Ethical approval for the study was obtained from the Ankara University Faculty of Medicine Ethics Committee for Student Research (decision no.: E-72189195-050.03.04-775372, date: 02.01.2023).

Literature Review

The importance of understanding the relationship between SDOH and the academic success of medical students is widely recognized. Several studies have addressed this issue, revealing how SDOH influence academic performance.

The World Health Organization (WHO) recognizes the impact of social determinants on health in its charter and policy documents (10). They emphasize the need to address these determinants to improve overall health outcomes. WHO's comprehensive perspective provides a fundamental understanding of the influence of social determinants on the academic success of medical students (10).

WHO also emphasizes the importance of SDOH in its online resources (4). This resource provides an overview of various social determinants and their impact on health outcomes. Understanding these determinants is important for examining their impact on the academic success of medical students.

Survey of this study has been developed as an "Academic Success Inventory" for college students (9). This has practical implications for assessing and promoting academic success. Although this study did not specifically target medical students, it highlights the relevance of measuring academic success and the implications of supporting the student's educational journey. The development and practical implications of this scale are also applicable to the medical school environment. Some studies (11,12) emphasize the need to consider the underlying causes of SDOH. They argue that addressing these root causes is essential to promoting overall health and well-being. This perspective provides a basis for understanding the influence of social determinants on the academic success of medical students.

The relationship between unconscious bias and clinical judgment by medical students is well investigated (11). This research reveals the existence of racial and social class biases that can affect how students are evaluated and supported in their academic pursuits. Understanding these biases is critical to creating an equitable learning environment that promotes academic success for all students.

Insights into gender inequality in academia is also provided (13). This study highlights the gender gap in scientific research

and the importance of addressing this gap to promote academic success and gender equality. This research is important for medical students because it highlights the need for gender-responsive policies and support systems that promote equal opportunity.

In summary, the reviewed literature highlights the importance of understanding the SDOH and their impact on the academic success of medical students. These studies highlight the need to address root causes, adopt appropriate assessment tools, and consider the wider social context, including global health crises. By understanding and addressing these factors, medical schools can promote student well-being, diversity, equity, and overall academic success. WHO resources provide comprehensive information and perspectives on the SDOH and serve as valuable references for further research in this area.

Results

A total of 153 students studying at Ankara University Faculty of Medicine in the preclinical years took part in our questionnaire. Out of the participants 34.6% (n=53) were male and 65.4% (n=100) were female. The mean age of the participants was 19.87. 93.5% were Turkish citizens and 6.5% were foreign citizens. The distribution of the participants' accommodation conditions are demonstrated in Table 1.

The SDOH of the participants were asked through 11 questions that aimed to evaluate their conditions in a precise and effective manner after thorough research on the topic.

It was found that, 148 of the 153 students were able to access basic healthcare services when they were ill. One hundred fifteen of them believed their monthly income was sufficient for access to healthy food, appropriate clothing, transportation, educational materials, and accommodation and 85 students believed their monthly income did not hinder them from having a social life and hobbies. One hundred and twenty nine students were not required to work part-time because their income was sufficient for them. One hundred forty-five of the students could provide appropriate heating for the place where they accommodated and 143 felt safe in the place where they

accommodated. One hundred twenty-four of them said that they had a sufficient internet connection and 102 were not bothered by noise in the place where they accommodated. One hundred and nine students were satisfied with the size of the space they had in the place where they accommodated and 136 did not feel discriminated in their environment. One hundred thirty eight students had people in their environment (family, friends, etc.) who provided them the necessary psychological support.

For the calculation of the academic success of the participants, which were measured through the likert scale mentioned above, we used the sum of the numerical values after recoding the reverse coded questions. The points were given from 1 to 7, 1 being "I completely disagree" and 7 being "I completely agree".

After the given answers by each participant were added up, those who had a higher score were considered more successful. Out of these results, the minimum was 115 points, the maximum was 248 points, and the mean was 180 points.

For the comparison of the SDOH and academic success, the Mann-Whitney U test was used, in order to compare the two independent variables. In this paper, all of the SDOH were individually compared with the academic success, and out of those, it was found that the following SDOH had a statistically significant correlation with academic success: "I do not feel discriminated in my environment" ($p=0.32$). The median of the students' achievements who did not feel discriminated in their environment was higher than the median of those who felt discriminated. This shows us that there is a positive relationship with the "I don't feel discriminated in my environment" statement and students' total score of success which can be seen in Figure 1.

For the statement "There are people in my environment (family, friends, etc.) who will provide me the necessary psychological support" ($p=0.14$), the median of the achievements of students who received sufficient psychosocial support from their environment was higher than the median of those who did not receive this support. This shows us that there is a positive relationship with the "There are people in my environment (family, friends, etc.) who will provide me with the necessary psychological support" statement and students' total score of success which can be seen in Figure 2.

The other SDOH that we compared with the academic success were not found to have a significant correlation. The statement "I can access basic healthcare services when I am ill" had a p-value of 0.648. "I believe my monthly income is sufficient for healthy food, appropriate clothing, transportation, educational materials, and accommodation" had a p-value of 0.097. "I believe my monthly income does not hinder me from having a social life and hobbies" had a p-value of 0.155 "I am not required to work part-time because my income is sufficient for me" had a p-value of 0.390 "I can heat the place where I

Table 1: Distribution of the participants' accommodation conditions

Variables	n (%)
With a relative	4 (2.6)
At home (with my parents)	61 (39.9)
At home [with flatmate (s)]	21 (13.7)
At home (by myself)	11 (7.2)
Dormitory [with roommate (s)]	49 (32.0)
Dormitory (by myself)	7 (4.6)
Total	153 (100)

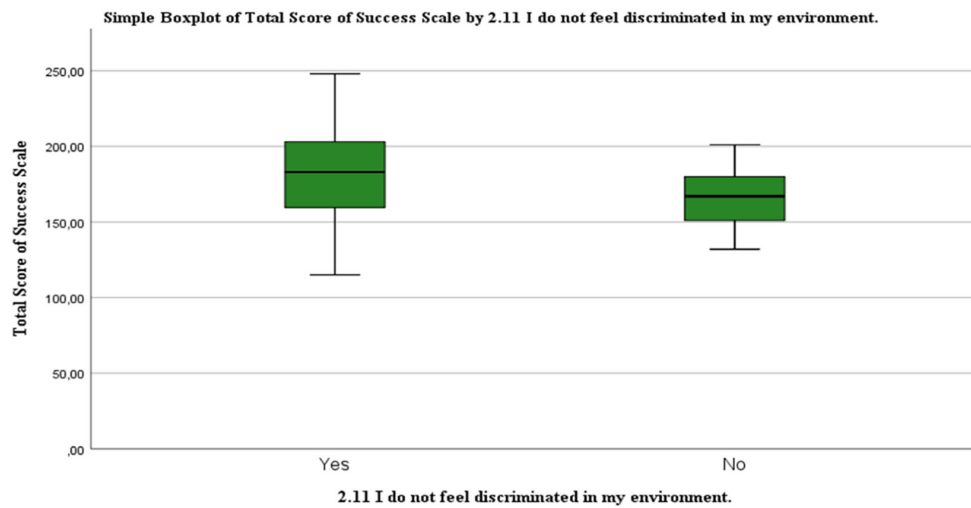


Figure 1: Simple boxplot of "Total Score of Success Scale" by "I do not feel discriminated in my environment"

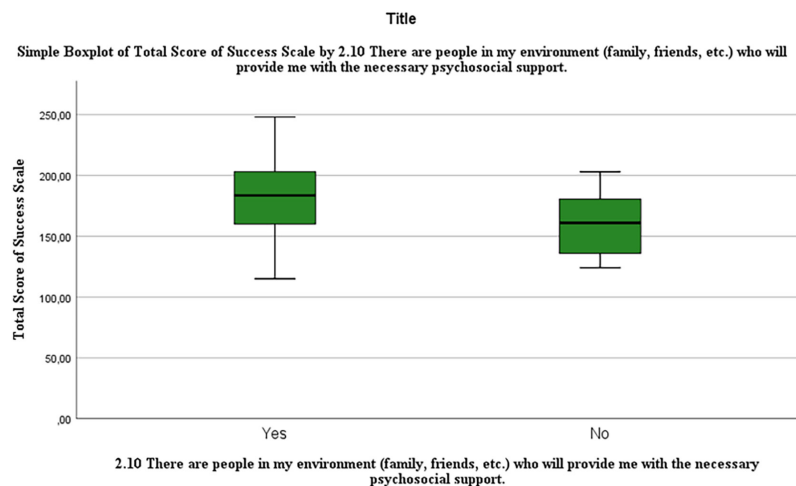


Figure 2: Simple boxplot of "Total Score of Success Scale" by "There are people in my environment (family, friends, etc.) who will provide me with the necessary psychological support"

accommodate" had a p-value of 0.167 "I feel safe in the place where I accommodate" had a p-value of 0.229 "The internet connection in the place where I accommodate is sufficient" had a p-value of 0.125 "I am not bothered by noise in the place where I accommodate" 0.197 "I am satisfied with the size of the space I have in the place where I accommodate" had a p-value of 0.074. As all of these were not lower than $p=0.05$, they were accepted as not statistically significant correlations.

Discussion

The results of our research on investigating the "relationship between the academic achievement of Ankara University Faculty of Medicine preclinical students and the SDOH" show that students who are not discriminated by their environment and that have people around them who provide them with all

kinds of psychological support, have a positive affect on their academic success.

We see that it is very important for medical students to have someone around them who provides them with all kinds of psychological support, especially during stressful periods of their intensive education life. Another factor that also has an important place is discrimination. Of course, just as every individual is different, so is every medical school student. And the duty of a human being is to ignore these differences and treat each person equally under equal conditions. As we can see in our results, non-discrimination and equal behavior of each student positively affects their academic success.

On the other hand, we see that we cannot reach any significant value about the relationship between academic success and other factors in the SDOH. However, the fact that

we could not reach a significant value does not mean that the academic success of any student is not affected by these factors. For example, it is especially important for a student to feel safe where they live. Because the safer a person feels in their environment, the more comfortable they feel mentally. Feeling mentally comfortable also makes it easier to focus on the lessons. This indirectly affects academic success positively. However, since our study is limited to a certain group of students, the significance that we could not achieve may be obtained in other studies.

Study Limitations

As the surveys are based on individuals' opinions, may contain bias and results can vary.

Conclusion

In order for medical students to have good academic success and at the same time to be healthy both in their educational life and in the future, they should be given psychological support by the people around them and all kinds of discrimination should be prevented. Other factors among the SDOH should also be investigated to show whether they have an impact on academic success.

Ethics

Ethics Committee Approval: Ethical approval was obtained from the Ankara University Faculty of Medicine Ethics Committee for Student Research (decision no.: E-72189195-050.03.04-775372, date: 02.01.2023).

Informed Consent: The participants were informed about the anonymisation of the data and voluntary participation, and their written consent was taken.

Acknowledgements

We would like to thank our biostatistics consultant, Associate Professor Beyza Doğanay Erdoğan, for her precious contributions to the study.

Footnotes

Authorship Contributions

Surgical and Medical Practices: F.A.A., E.N.Ç., M.D., Y.Y.İ., E.K., C.C.D., S.N.Y., C.A.S., Concept: F.A.A., E.N.Ç., M.D., Y.Y.İ., E.K.,

C.C.D., S.N.Y., C.A.S., B.D.E., Design: F.A.A., E.N.Ç., M.D., Y.Y.İ., E.K., C.C.D., S.N.Y., C.A.S., B.D.E., Data Collection or Processing: E.N.Ç., M.D., Y.Y.İ., E.K., C.C.D., S.N.Y., C.A.S., Analysis or Interpretation: E.N.Ç., M.D., E.K., B.D.E., Literature Search: Y.Y.İ., C.A.S., Writing: E.N.Ç., M.D., Y.Y.İ., E.K., C.C.D., S.N.Y., C.A.S.

Conflict of Interest: The authors declare no conflict of interest.

Financial Disclosure: This study received no financial support.

References

1. Al-Halabi B, Marwan Y, Hasan M, et al. Extracurricular research activities among senior medical students in Kuwait: experiences, attitudes, and barriers. *Adv Med Educ Pract*. 2014;5:95-101.
2. Izadnegahdar R, Correia S, Ohata B, et al. Global health in Canadian medical education: current practices and opportunities. *Acad Med*. 2008;83:192-198.
3. Orçanlı K, Bekmezci M, Boztoprak H. Adaptation of Academic Success Inventory Scale for College Students to Turkish: validity and reliability study. *OPUS International Journal of Society Researches*, 2021;17:3999-4026.
4. World Health Organization. Social determinants of health. [Internet]. 2022. Available from: https://www.who.int/health-topics/social-determinants-of-health#tab=tab_1
5. Gnanapragasam SN, Astill Wright L, Pemberton M, et al. Outside/inside: social determinants of mental health. *Ir J Psychol Med*. 2023;40:63-73.
6. Kurmanova A, Kozhayeva S, Ayupova G, et al. University students' relationship with technology: psychological effects on students. *World Journal on Educational Technology: Current Issues*. 2022;14:1225-1233.
7. Nelson D, Misra K, Sype G. et al. An analysis of the relationship between distance from campus and GPA of commuter students. *Journal of International Education Research*. 2016;12:37-46
8. Strolin-Goltzman J. The relationship between school-based health centers and the learning environment. *J Sch Health*. 2010;80:153-159.
9. Prevatt F, Li H, Welles T, et al. The academic success inventory for college students: scale development and practical implications for use with students. *Journal of College Admission*. 2011;26-31.
10. World Health Organization. Constitution of the World Health Organization. Basic Documents. Forty. [Internet]. 2006. Available from: <https://www.who.int/docs/default-source/documents/publications/basic-documents-constitution-of-who.pdf>
11. Haider AH, Sexton J, Sriram N, et al. Association of unconscious race and social class bias with vignette-based clinical assessments by medical students. *JAMA*. 2011;306:942-951.
12. Shen H. Inequality quantified: Mind the gender gap. *Nature*. 2013;495:22-24.
13. Braveman P, Gottlieb L. The social determinants of health: it's time to consider the causes of the causes. *Public Health Rep*. 2014;129(Suppl 2):19-31.