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EDITORIAL

ORIGINAL ARTICLES

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LETTER TO THE EDITOR

Dear Readers,

In the first issue of 2024, we are pleased to be with you. In this issue, we will share with you original research articles, case reports and letters to the editor. We see from this journal statistics that our journal has a significant readership abroad. This increases our motivation to a great extent.

Recently, resistant scabies cases have challenged us in our daily practice. Scabies, a highly contagious infestation, can affect individuals of all ages and socioeconomic levels. Şahin et al. share with us their data on 1261 scabies cases treated between 2022 and 2023. One of the striking situations in the study is that 9% of the patients were diagnosed in cases hospitalized for a reason other than scabies, perhaps...

Although the COVID-19 pandemic has lost its grip, post-COVID syndrome has started to take place on our agenda. Post-COVID syndrome is defined as symptoms that persist or emerge after virus infection. The Turkish reliability and validity study of the COVID-19 Yorkshire Rehabilitation Scale (C-19 YRS), a scale developed for this purpose, is another study in this issue. In this study, Çelik et al. showed that the scale can be used in the Turkish population.

COVID-19 can lead to many neuropsychiatric consequences. Eray et al. investigated the relationship between risk factors for depression, anxiety, sleep quality, biological rhythms and taste and smell disorders in COVID-19 patients. As a result of the study, it was observed that COVID-19 patients had a higher risk of developing mood disorders, irregular biological rhythms and sleep disorders compared to healthy controls.

Another reliability and validity study was conducted by Kulak et al. In this study, the American Scale of Clinician Support for Patient Activation was validated for use in Turkey. The Turkish version of the scale was found to be a valid and reliable tool for assessing clinicians' views on patients' self-management.

I would like to thank all our authors, reviewers and editors who contributed to this issue.

Hope to meet you in the summer...

M. Reşat DABAK, M.D. Prof.

Chief Editor

ANATOL J FAMILY MED
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Original Article

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Clinicians' Beliefs and Attitudes about Patient Activation: Validation of the Turkish Clinician Support for Patient Activation Measure by Rasch Analysis

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ABSTRACT

Objectives: Patient self-management (PSM) and patient activation (PA) are essential for chronic disease management. There is not a trustworthy tool available in Turkey for clinicians' opinions regarding PSM. The objective of this study was to validate the Clinician Support for Patient Activation Measure (CS-PAM) for use in Turkey.

Methods: This study was carried out among 209 clinicians providing care to patients with chronic diseases. The World Health Organization's suggested that methodology was used to translate the CS-PAM into Turkish. Classical test theory methods and Rasch analysis were used for reliability and validity analysis.

Results: The correlation coefficient of the 2-week test–retest reliability was 0.79 ($p<0.001$), and the Cronbach's alpha reliability coefficient was 0.90. Rasch analysis indicated the person reliability, the person separation index, and the item reliability as 0.86, 2.45, and 0.99, respectively. Exploratory factor analysis yielded two subdimensions of the Turkish CS-PAM: "Patient Responsibility" and "Shared Decision Making." The eigenvalues of the subscales were 4.62 and 2.87, and the total variance explained was 57.59%.

Conclusion: The CS-PAM in Turkish is a legitimate and trustworthy instrument for assessing physicians' opinions regarding PSM. It may additionally be utilized for planning interventions that may support physicians.

Keywords: Chronic disease, patient activation, physicians' role, reliability and validity, self-management

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INTRODUCTION

The World Health Organization indicates that non-communicable diseases (NCDs) are the leading cause of mortality, contributing to 71% of annual deaths worldwide.[1] NCDs also have a deteriorating effect on patients' lives; the Global Burden of Disease Study 2017 determined that 62% of disability-adjusted life-years were attributed to NCDs.[2] Effective NCD control requires patients to have the necessary knowledge and abilities to manage their diseases. Thus, two alternative approaches for managing chronic diseases are beginning to emerge: Patient activation (PA) and patient self-management (PSM). PA is a behavioral concept defined as "knowledge, skill, and confidence in managing an individual's health."[3] PSM, as defined by Lorig, is "learning and practicing the necessary skills to maintain an active and emotionally satisfying life in a chronic condition."[4]

Compared to less active patients, active patients experience better health outcomes and cheaper health-care costs.[5] Active patients are also probably going to use medical services more efficiently. PSM requires changes in every aspect of daily life, such as the management of symptoms, treatments, diet, and physical activity. Many patients require learning new

abilities, learning how to control their emotions, and solving novel issues.[4] Since PSM is a key determinant of health outcomes, it is essential to measure PA and improve processes that support PSM.[6] PA Measure, developed by Hibbard et al. in 2004, is the most widely used tool to measure the PSM level of individuals with chronic diseases.[3]

Care for chronic illnesses must be planned and approached from a comprehensive approach.[7] Patient responsibility for self-care and self-management must rise, and this can only happen with regular medical follow-up and clinician support. During this process, clinicians are expected to provide individualized PSM support, taking into account the prognosis of the existing chronic diseases, sociodemographic factors, beliefs, thoughts, attitudes, and the patient's level of activity. To provide this support, physicians are expected to start by evaluating their patients' roles in self-management. The American Clinician Support for Patient Activation Measure (CS-PAM) is a practical tool developed to evaluate clinicians' current beliefs about PSM. At present, there is no trustworthy tool for assessing doctors' attitudes regarding patients' self-management. The objective of this study was to validate the CS-PAM for use in Turkey.

METHOD

Participants

This validation study was conducted among physicians working at a Research and Training Hospital in an Istanbul neighborhood as well as primary health care centers (PHCs). The participants consisted of primary care physicians working in PHCs and residents, specialists, and professors from family medicine, pulmonary medicine, and internal medicine clinics of the hospital. We chose a sample from PHCs and a university hospital to encompass a diverse population from both primary and tertiary health care.

To do factor analysis, it is advised that the sample size should be at least 5–10 times the total number of attributes in the scale.[8] Since the CS-PAM has 13 items, we needed at least 130 participants. But for ease of analysis, we recruited a total of 209 clinicians, 100 from PHCs and 109 from the hospital through convenient sampling. The test–retest analysis was carried out among 30 participants working in PHCs at a 2-week interval.

Data Collection

Data were gathered by the use of a questionnaire. The questionnaire included questions evaluating sociodemographic characteristics, the concept of PSM, and the CS-PAM. The original version of CS-PAM was developed by Hibbard et al. with an adaptation of the PA Measure.[9] PA Measure focuses on various competencies necessary for the successful management of a person's chronic disease.[10] The purpose of the CS-PAM is to assess doctors' opinions regarding the importance of self-management abilities for patients with chronic health conditions. It consists of 13 items, and it is shown to be a valid, reliable, and unidimensional instrument. Each item in CS-PAM is evaluated as 1=not important, 2=somewhat important, 3=important, and 4=very important. If the item does not apply, the clinician is asked to select the N/A option.[9] The CS-PAM score ranges from 0 to 100 and is based on Rasch analysis, which makes an interval measurement.[11] A high score shows that the physician is more likely to agree that self-management abilities are crucial for patients with chronic medical conditions. The level of clinician support in CS-PAM is categorized as low (Level 1), medium (Level 2), and high (Level 3).[12]

Translation and Adaptation Process

The World Health Organization's methodical approach, which included forward translation, expert panel meetings, back-translation, pre-testing, and cognitive interviewing, was followed in translating and adapting the CS-PAM to Turkish. Ultimately, a consensus was reached on the final version.[13] The forward translation was carried out by two independent translators who were advanced in English and were professors in the family medicine and public health departments. An expert panel composed of professors from family medicine, internal medicine, and the public health departments identified and resolved inadequate, or misleading expressions, or concepts in the translated version. Discrepancies between the English and Turkish versions were reviewed and resolved. The instrument was then translated back to English by two English-language lecturers from the School of Foreign Languages. The team that created the CS-PAM authorized the most recent version after a few small differences between the back-translation and the original tool were fixed. The final version was pre-tested, and cognitive interviewing was performed with 20 clinicians. The authors can access the instrument's final version (the Turkish CS-PAM) upon request.

Descriptive data were presented as frequency, percentage, mean, standard deviation, and median (25^{th}-75^{th} percentile). Continuous variables were compared through the Mann–Whitney U and Kruskal–Wallis tests since the data did not follow a normal distribution. For correlation analysis, Spearman's method was used. The accepted threshold for statistical significance was $p<0.05$. Reliability was evaluated using internal consistency analysis and the coefficient of invariance. Internal consistency was evaluated through Cronbach's alpha reliability coefficient, item-total correlation, and item analysis based on the lower-upper group averages. Reliability over time was evaluated with the 2-week test–retest method through Spearman's correlation and

the Wilcoxon test. The construct validity of the scale was evaluated with exploratory factor analysis. The Kaiser–Meyer–Olkin coefficient and Barlett's test were used to determine whether the data were appropriate for factor analysis. The eigenvalue coefficients obtained by the principal component analysis were used for the factor structure, and the factor loadings of each item and explained variance were also calculated. The varimax method was used for rotation. The associations between sociodemographic characteristics and CS-PAM scores were evaluated.

The reliability and validity of CS-PAM were also evaluated through the Rasch analysis. The Rasch model is widely used to examine the psychometric properties of measurement tools using individuals' abilities and the difficulty levels of the items together. Thus, it uses the interaction between individuals and items.[14] The person's ability is related to the difficulty level of the items and, accordingly, to what extent individuals find these items important. It is expected that items with a low level of difficulty will be evaluated as more critical than those with a higher difficulty. The difficulty level of the item is related to whether people find it important or not. The item that participants believe is least significant is the one with the highest difficulty level. In contrast, the one that they believe is most important is the one with the lowest difficulty level.[15]

Rasch analysis was used to assess reliability using person reliability, person separation index, and item reliability. The appropriateness of an individual's reaction to the items about the scale's difficulty structure is assessed using person reliability. The person-separation index is used to classify participants according to their scores. Item reliability is related to the extent to which the items in the measurement tool distinguish individuals. Item difficulty structure and item fit statistics (in-fit and out-fit) were used to evaluate validity by Rasch analysis. In-fit statistics are more sensitive to unexpected responses to items that have a similar difficulty level as the person's ability. Out-fit statistics are more sensitive to unexpected responses to items that are more difficult or easier than one's ability.[15]

RESULTS

Participant Characteristics and the CS-PAM Scores

Among the 209 participants, the median age was 33.0 (28.0–48.0) years, and the median duration of professional experience was 8.0 (3.0–22.0) years. The CS-PAM scores ranged between 26.6 and 100.0, with a median of 61.9 (56.4–68.2) and a mean of 63.1±12.5. Among all, 125 (59.8%) had low support levels, 50 (23.9%) had medium support levels, and 34 (16.3%) had high support levels. CS-PAM scores based on the characteristics of the participants are summarized in Table 1.

Table 1. CS-PAM scores by the characteristics of the participants

		CS-PAM Scores	p
Gender			
Female	107 (51.2)	61.9 (59.9–67.6)	0.544*
Male	102 (48.8)	60.2 (55.4–69.2)	
Place of work			
Primary health-care center	100 (47.9)	63.6 (56.9–69.9)	0.001†
Department of Internal Medicine	69 (33.0)	58.5 (53.9–65.5)	
Department of Family Medicine	32 (15.3)	64.3 (60.2–75.2)	
Department of Pulmonary Diseases	8 (3.8)	57.7 (52.4–64.6)	
Clinician type			
Primary care physician	85 (40.7)	61.9 (55.6–68.9)	0.035†
Resident	73 (34.9)	60.2 (54.6–65.5)	
Specialist	26 (12.4)	67.6 (56.9–72.4)	
Professor	25 (12.0)	61.9 (56.9–72.4)	
Years in practice			
≤10 years	116 (55.5)	60.2 (55.4–66.1)	0.012*
>10 years	93 (44.5)	63.6 (56.9–72.4)	

CS-PAM: Clinician Support for Patient Activation Measure.
Data is presented as n (%) and median (25.-75. percentile).
*Mann-Whitney U test, †Kruskal-Wallis test.

Among all, 58 (27.8%) (95% CI: 22.0–34.1) indicated that they had known the concept of PSM, and 12 (5.7%) (95% CI: 3.2–9.5) had been trained about PSM. All of the participants reported at least one barrier to support PSM in their clinical practice. The most frequent barriers stated were "Patients' inadequate knowledge and awareness" (84.2%), "Lack of time during consultation" (83.7%), "Patients' unhelpful attitudes and beliefs" (74.2%), "Unsupportive health policies" (67.9%), "Inconvenient electronic databases" (32.5%), "Inadequate clinician skills" (31.6%), and "Lack of motivation" (17.2%).

Reliability

The Turkish CS-PAM's test–retest reliability correlation coefficient was 0.79 ($p<0.001$). The correlation coefficients between the items and the total ranged from 0.45 to 0.71 ($p<0.001$, for all). The internal consistency reliability coefficient, measured by Cronbach's alpha, was 0.90. The items in the assessment instrument discriminated between 56 doctors with the highest total scores and 56 clinicians with the lowest total scores, according to the item analysis based on the lower-upper group averages ($p<0.001$).

The results of the Rasch analysis were 0.86, 2.45, and 0.99 for the person reliability, person separation index, and item reliability, respectively. The tool successfully divided the participants into three groups, and the findings showed that item and person reliability had been guaranteed.

Validity

The CS-PAM items and factor loadings for the sub-dimensions are summarized in Table 2. Bartlett's test was significant ($p<0.001$), and the Kaiser–Meyer–Olkin coefficient was 0.90. Two sub-dimensions were obtained using varimax rotation and principal component analysis. The sub-dimensions had eigenvalues of 2.87 and 4.62, and 57.59% of the variation was explained overall. For the first sub-dimension (items 1 through 8), the factor loadings were 0.88–0.48, and for the second sub-dimension (items 9 through 13), they were 0.79–0.60. For the first and second sub-dimensions, the Cronbach's alpha values were 0.88 and 0.80, respectively.

Table 2. The items of the CS-PAM and the Factor Loadings of the Sub-dimensions

As a clinician how important is it to you that your patients with chronic conditions	Factor Loading	Eigenvalue	Explained Variance (%)
Patient Responsibility			
1. Are able to take actions that will help prevent or minimize symptoms associated with their health condition(s).	0.82	4.62	35.53
2. Are able to figure out solutions when new situations or problems arise with their health condition(s).	0.61		
3. Bring a list of questions to their office visit.	0.48		
4. Are able to make and maintain lifestyle changes needed to manage their chronic condition.	0.88		
5. Can follow through on medical treatments you have told them they need to do at home.	0.84		
6. Know what each of their prescribed medications is for.	0.63		
7. Are able to determine when they need to go to a medical professional for care and when they can handle the problem on their own.	0.75		
8. Understand which of their behaviors make their chronic condition better and which ones make it worse.	0.66		
Shared Decision Making			
9. Understand the different medical treatment options available for their chronic condition(s).	0.72	2.87	22.06
10. Tell you the concerns they have about their health even when you do not ask.	0.68		
11. Want to be involved as a full partner with me in making decisions about their care.	0.60		
12. Look for trustworthy sources of information about their health and health choices, such as on the web, news stories, or books.	0.79		
13. Want to know what procedures or treatments they will receive and why before the treatments or procedures are performed.	0.68		
Total Explained Variance	57.59		

CS-PAM: Clinician Support for Patient Activation Measure.

The item difficulty structure and fit statistics derived from the Rasch analysis of the Turkish CS-PAM are summarized in Table 3. The values were calibrated using Rasch analysis on a theoretical 0–100 scale and provided as logit units. The item calibrations in our study ranged from 34 to 69, meaning that clinicians' agreement with that particular item was either easy (zero) or difficult (100). The item with the highest difficulty level was the 12th one, which the doctors considered to be the least important. The item with the lowest difficulty level was the fifth one, which the clinicians deemed to be the most crucial. With the exception of item 12, all of the in-fit and out-fit values fell into acceptable ranges (0.5–1.5). When an item's value falls between 1.5 and 2.0, it may not have an impact on the model fit when combined with other factors.[15]

DISCUSSION

Reliability

The 2-week test–retest correlation coefficient of the Turkish CS-PAM was 0.79, indicating a good consistency over time.[16] Furthermore, the item-total correlation coefficients were over 0.45 for each item (0.45–0.71), showing that the participants were distinguished well.[17,18] Thus, each item measured similar attitudes and contributed to the total score.

The original version of CS-PAM which had been developed with the participation of American and British clinicians working in primary care yielded a Cronbach's alpha coefficient of 0.86.[9] Cronbach's alpha of the Dutch version of CS-PAM was computed for the three different study samples and was 0.97 (Clinicians from the Dutch National Panel of People with Chronic Illness or Disability), 0.82 (Clinicians from the National Registration of General Practitioners), and 0.83 (Clinicians from the Diabetes Study).[19] Similarly, our study determined a Cronbach's alpha coefficient of 0.90 and indicated that the Turkish CS-PAM comprises consistent items measuring the components of the same concepts.

As in the original and Dutch versions of the CS-PAM, we used Rasch analysis to determine the scale's psychometric properties. The person reliability of the Turkish version was 0.86, indicating that the measurement tool classified the participants into three or four levels. The person reliability of the original and the Dutch versions were 0.80 and 0.82, respectively.[9,19] The person separation index was 2.45 which also showed that the measurement tool categorized the participants into at least three levels.[15] The item reliability is expected to be 0.9 or above. In our study, the item reliability coefficient was 0.99. This value shows that item reliability is ensured and item difficulty in the CS-PAM has a hierarchical structure.

Validity

For the validation of the original and Dutch versions, only Rasch analysis, a method that utilizes probabilities according to the item response theory, was used. We used classical test theory methods for reliability and validity in addition to Rasch analysis. The construct validity of the scale was evaluated by exploratory factor analysis through the

Table 3. Item Difficulty Structure and Fit Statistics by Rasch Analysis of the Turkish CS-PAM

Items	Item Difficulty Structure Values*	In-Fit	Out-Fit	Content of the Items
12	2.90 (69)	1.57	1.79	Patient should be an independent information seeker
10	1.69 (60)	1.19	1.17	Patient can take an active role during consultations
3	0.97 (55)	1.33	1.46	
9	0.95 (55)	0.97	0.94	
13	0.63 (53)	0.77	0.76	
11	0.13 (49)	0.87	0.84	Patient can make independent judgments and actions
2	-0.18 (47)	1.00	1.14	
6	-0.47 (45)	1.05	0.97	
8	-0.83 (42)	0.76	0.72	
7	-0.95 (41)	0.83	0.79	
1	-1.16 (40)	0.82	0.82	Patient should follow medical advice
4	-1.80 (35)	0.78	0.62	
5	-1.88 (34)	0.89	0.79	

CS-PAM: Clinician Support for Patient Activation Measure.

*Values were presented as Logit units (Logit units were calibrated on a theoretically 0-100 scale by Rasch analysis).

classical test theory. Barlett's test and the Kaiser–Meyer–Olkin coefficient showed that the data were appropriate for factor analysis. Exploratory factor analysis determined two sub-dimensions which explained 57.59% of the total variance. The eigenvalues were above one (4.62 and 2.87). While the factor loading of the third item was 0.48, medium size, the others were above 0.60. The two sub-dimensions had high internal consistency (0.88 and 0.80).

The original and Dutch versions of the CS-PAM are unidimensional.[9,19] However, considering the exploratory factor analysis results and the conceptual framework, we recommend that the Turkish version of the CS-PAM should be used with two dimensions. Upon conceptual evaluation, the first sub-dimension may be named "Patient Responsibility," while the second sub-dimension may be named "Shared Decision Making." "Patient Responsibility" is about taking action to reduce the symptoms, finding a solution when a new health situation arises, making lifestyle changes, maintaining the recommended medical treatments, and understanding the consequences of their behavior. "Shared Decision Making" refers to communicating health concerns to decision-makers, fully engaging as a participant in the process, and being informed about the procedures or treatments they will receive and the rationale behind them before the procedures or treatments are carried out.

The item difficulty structure of the Turkish CS-PAM (item calibrations were 34–69) was compatible with the original (34–68) and the Dutch versions (38–66).[9,19] The 12th item (look for trustworthy sources of information about their health and health choices, such as on the web, news stories, or books) was evaluated as less important compared to the previous studies. This might be because patients have negative experiences with accessing reliable sources of information, especially on the web, and interpreting this information. The 10th item (tell you the concerns they have about their health even when you do not ask) was also less important for the Turkish clinicians. Clinicians indicated that they had a lack of time during the consultations. Consequently, the 10th item might have been evaluated as less important since patients' concerns could lead to prolonged consultation time. The 3rd item (bring a list of questions to their office visit) was more important for the Turkish clinicians compared to the previous studies. In our study, clinicians mostly stated that patients often forgot some of the issues they wanted to ask; this might be why they thought this statement was more important.

Item fit statistics (in-fit and out-fit) provide information about the consistency of the responses and model compatibility. Item fit statistics between 0.5 and 1.5 show that the measurement is useful. Values between 1.5 and 2.0 indicate that the item may not affect the model fit if evaluated with other parameters.[15] In our study, all of the in-fit and out-fit values were within acceptable limits (0.5–1.5), except item 12 (in-fit=1.57 and out-fit=1.79). Item 12 also had the highest difficulty structure value. Item fit statistics are between 0.5 and 1.5 in the Dutch CS-PAM.[19] The out-fit value of the third item is 3.07, and the in-fit and out-fit values of all other items are between 0.5 and 1.5 in the original version of CS-PAM. Hibbard et al. stated that out-fit problems are less of a threat to measurement than in-fit ones.[9]

Previous studies using the CS-PAM have been applied not only to physicians but also to other healthcare professionals, such as nurses and others serving those with chronic conditions. Only physicians were included in our study since patients mostly communicate with physicians during examinations and consultations in Turkey. Therefore, an inference cannot be made for non-physician healthcare professionals based on this study. Besides, since we used a convenient sample, the results cannot be generalized to all clinical settings. Also, the data were collected based on self-reports. Therefore, we don't exactly know to what extent participants' statements about PSM reflect their actual behavior.

CONCLUSION

The CS-PAM is a measurement instrument that is both valid and reliable for assessing Turkish professionals' beliefs regarding the PSM of chronic health conditions. The structure of the Turkish CS-PAM must also be confirmed by confirmatory factor analysis in future studies. The validity of the Turkish CS-PAM can be evaluated with the participation of other health-care professionals. The CS-PAM can be used to plan appropriate interventions for supporting clinicians in PSM and activation and to evaluate the effectiveness of the interventions.

Disclosures

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Scabies: A Growing Concern for Public Health

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ABSTRACT

Objectives: Scabies, an infestation affecting individuals of all ages, poses significant public health implications due to its potential for epidemics and transmission within households. The aim of this study was to evaluate the demographic data of patients diagnosed with scabies between the years 2022 and 2023.

Methods: A retrospective analysis of patients admitted to the Infectious Diseases and Dermatology Outpatient Clinics between January 2022 and November 2023 was conducted, with symptoms of itching and rash, and was diagnosed with scabies during the first admission. The patients of all age groups were included in the study.

Results: A total of 1261 patients were included in this study, with a median age of 30.0 (0.0-93.0) years and 669 (53.0%) were male. In 2022, 521 (41.3%) patients were diagnosed with scabies, while in 2023, the number increased to 740 (58.7%). Among the total patients, 167 (13.2%) were admitted from outside the province, with 77 (6.1%) in 2022 and 90 (7.1%) in 2023. Interestingly, 114 (9.0%) patients were diagnosed with scabies while hospitalized for reasons unrelated to scabies itself. This includes 16 (1.3%) patients in 2022 and 98 (7.8%) patients in 2023.

Conclusion: Scabies are an escalating public health concern that has the potential to trigger epidemics. Primary health-care institutions, specialty associations, and the General Directorate of Public Health play vital roles in recognizing the disease, coordinating treatment strategies, and disseminating preventive measures to the public.

Keywords: Parasite infection, sarcoptic mange, scabies

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INTRODUCTION

Scabies is a highly contagious infestation caused by the infestation of the ectoparasite Sarcoptesscabiei var hominis on the skin.[1] It is a global phenomenon that can impact individuals of all ages and socioeconomic backgrounds. Although scabies are observed less frequently in adolescents and adults compared to children worldwide, their incidence rate in developing countries is estimated to range from 5 to 10%.[2,3] This infestation poses an escalating public health concern.

Scabies are typically transmitted through direct and prolonged close contact with an infected person.[2,4,5] The characteristic lesions appear as itchy, red papular eruptions with tunnels measuring 1–10 mm in length. Itching tends to worsen at night and after hot showers. Scabies are more commonly found on the sides of the fingers, around the umbilicus, wrists, armpits, areola, and genital area. While intrafamilial transmission is significant, scabies can also result in outbreaks in settings such as hospitals, military barracks, nursing homes, prisons, and refugee camps.[6,7]

Classical scabies, whose incidence is declining, manifest in clinical forms such as crusty scabies and nodular scabies.[8] When diagnosing scabies, health-care providers should also consider other dermatologic diseases, parasitic infestations, syphilis, allergic reactions, fungal infections, urticaria-related syndromes, and erythema multiforme as potential differential diagnoses. Scabies is a disease that can be diagnosed and treated at various levels of the health-care system. Timely diagnosis, particularly in communal living environments, along with appropriate treatment and the implementation of proper hygiene measures and isolation conditions, plays a crucial role in public health. The point of the study was to increase awareness of scabies in patients administering from itching and rash.

The aim of this study was to evaluate the demographic data of patients diagnosed with scabies between the years 2022 and 2023.

METHOD

A retrospective analysis of patients admitted to the Infectious Diseases and Dermatology Outpatient Clinics between January 2022 and November 2023 with symptoms of itching and rash and diagnosed with scabies at the first admission was conducted. The patients of all age groups were included in the study. Medical records of patients were collected from our tertiary hospital's database. Age, gender, date of admission, and treatment protocols used for the complaint were evaluated as study variables.

The hospital's automation system identified a total of 1398 scabies diagnoses. Re-admissions were excluded and 137 (9.8%) patients were admitted at least twice. As re-admissions were excluded; a total of 1261 (90.2%) patients were included in the analysis.

All analyses were performed on SPSS version 21 (SPSS Inc., Chicago, IL, USA). Frequency, percentage, and mean were used for sociodemographic data.

RESULTS

In this study, 1261 patients were included and the median age of the patients was 30.0 (0.0-93.0) years. Demographic data of patients are summarized in Table 1.

Out of the total patients included in the study, 521 (41.3%) were admitted in 2022, whereas 740 (58.7%) were admitted by the end of November 2023. From outside the province, there were a total of 167 (13.2%) patients, with 77 (6.1%) admitted in 2022 and 90 (7.1%) admitted in 2023. Among the patients in the study, 114 (9.0%) were diagnosed with scabies during consultations specifically requested for pruritus and rash while they were already hospitalized. Of these, 16 (1.3%) were diagnosed in 2022 and 98 (7.8%) in 2023. When comparing the 2 years, it is observed that the number of scabies cases diagnosed in 2023 was higher than in the previous year. Except for August and September, the number of cases in all months of 2023 was higher than the number of cases in 2022. In addition, it is worth noting that the number of cases was higher during the fall and winter months in both years. The distribution of patients by months is shown in Figure 1.

Table 1. Demographic data of patients

	n (%)
Gender	
Female	592 (47.0)
Male	669 (53.0)
Age groups	
0–1 years	57 (4.5)
1–10 years	199 (15.8)
11–20 years	248 (19.7)
21–30 years	254 (20.1)
31–40 years	139 (11.0)
41–50 years	137 (10.9)
51–60 years	69 (5.5)
61–70 years	81 (6.4)
71–80 years	55 (4.4)
>81 years	22 (1.7)
Years	
2022	521 (41.3)
2023	740 (58.7)

Patients and closed contacts were treated with topical permethrin 763 (60.5%), benzyl benzoate 210 (16.6%), sulfur-containing compounds 172 (13.7%), and, in rare cases, oral ivermectin 116 (9.2%) for the management of scabies. Furthermore, in instances where scabies infections were additionally complicated by bacterial agents, oral 32 (2.5%) or topical 99 (7.8%) antibiotic regiments were prescribed. For patients who did not exhibit a satisfactory response to conventional topical treatment, treatment with ivermectin was pursued. The distribution of patients according to age groups is shown in Figure 2.

DISCUSSION

Scabies has emerged as a significant global public health concern, due to its contagious nature and the potential for outbreaks.[9] While a thorough patient history and clinical examination often suffice for diagnosis, it is important to note that scabies can sometimes go undetected in primary health-care settings. The primary symptom experienced by

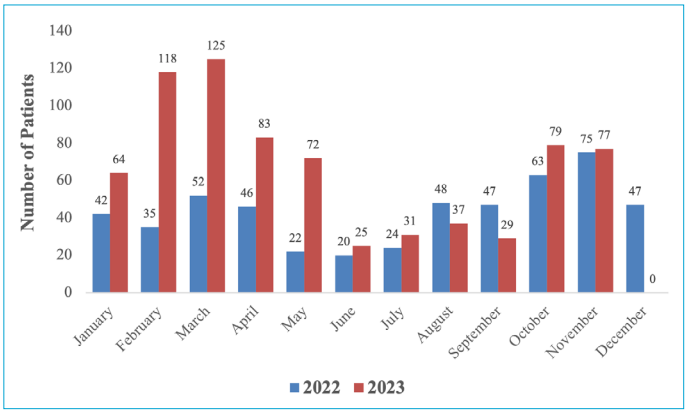

Figure 1. Distribution of patients by months.

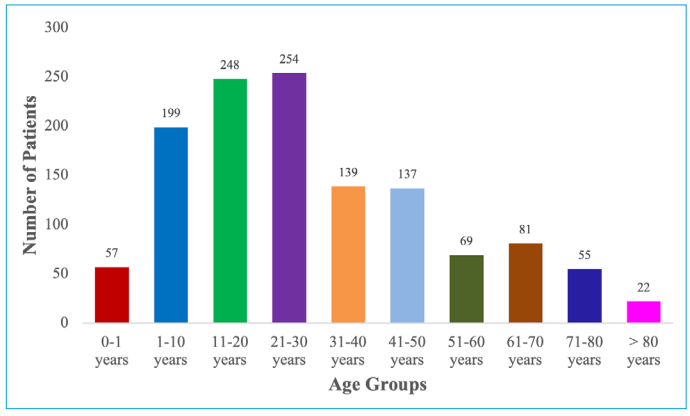

Figure 2. Distribution of patients according to age groups.

patients is intense itching that disrupts their sleep, particularly worsening in warm environments. Patients frequently describe the itching as very intense and satisfying, with scratching providing temporary relief that prompts them to continue scratching.[8] In addition, the presence of similar complaints among other family members further supports the diagnosis of scabies.[8,10] Among our patients, the most commonly reported symptoms were redness and itching on the skin, particularly between the fingers and on the trunk. The diagnosis was primarily based on clinical findings.

Scabies cases are prevalent year-round, but there is a notable surge in patient numbers during the fall and winter months.[11,12] Our study findings revealed a substantial increase in the incidence of scabies patients during both fall and winter, whereas comparatively fewer cases were observed during the summer months.

In addition to conventional topical treatments such as permethrin, benzyl benzoate, malathion, sulfur, lindane, and crotamiton, as well as orally administered ivermectin, some herbal agents have also shown promise in the treatment of scabies.[13,14] However, it is worth noting that there have been reports of cases becoming resistant to these treatments. In immunocompetent adult patients with scabies, our study found that a 5% permethrin cold cream, applied to the entire skin surface once a day for two days, was more effective than a single application. In cases that were crusty, persistent, resistant, or widespread, successful outcomes were achieved with a combination of topical benzyl benzoate and oral ivermectin.[13-16] In our patient cohort, we primarily used topical permethrin, benzyl benzoate, sulfur-containing compounds, and occasionally oral ivermectin for treatment. Among the patients, some experienced recurrent presentations, which were believed to be a result of inadequate isolation, particularly among nursing mothers and their infants, as well as patients with resistant scabies. For those who did not respond to conventional topical treatments, we opted for ivermectin therapy.

Scabies is a highly contagious condition that can affect individuals of any age, gender, or socioeconomic status and can often go unnoticed.[7] Consequently, it is imperative to prioritize early diagnosis and implement prompt control measures. Once diagnosed, patients should be placed in isolation to mitigate the risk of transmission. To ensure effective decontamination, clothing, sheets, and towels should be thoroughly washed, whereas items that cannot be washed must be ironed or entrusted to dry cleaners. In addition, beds, quilts, and blankets should be adequately ventilated for 3–5 days.[8] It is crucial to acknowledge that items such as floors, furniture, children's toys, and belongings of school-aged children such as bags and pencil cases can also serve as potential sources of infestation, and as such should be diligently cleaned. In cases where contaminated laundry is conveyed to hospital laundry rooms, it should be cautiously packaged and labeled. These packages should not be opened before washing and should be subjected to a thorough washing cycle at 50°C for 10 min.[8,17] It is equally vital to emphasize the ironing of all materials, paying particular attention to seams.[17] Furthermore, in inpatient rooms, comprehensive cleaning should be conducted using a vacuum cleaner on all floors and furniture, including curtains. Finally, an acaricide appropriate for the room should be employed to ensure optimal sanitation.[4,17]

In instances of scabies outbreaks within closed communities, such as high-movement endemic areas, nursing homes, prisons, and military barracks, mass treatment is recommended for effective control.[18-20] It is crucial to administer treatment to all individuals, irrespective of whether they display symptoms or not. In larger communities, oral ivermectin treatment is often preferred over topical treatment due to its ease of administration. During the outpatient clinic visits, similar skin lesions were observed

in the mothers of the patients, particularly in children aged between 0 and 1 year. As a result, treatment was provided to the affected family members. In the case of patients diagnosed with scabies while hospitalized, appropriate measures were taken to isolate them to prevent transmission to other patients and health-care personnel. In addition, the materials used by the infected patient, such as bed sheets, pillows, and blankets, were collected separately and washed separately from materials used by uninfected patients. All items that were able to be ironed were properly treated. Once the room of the discharged patient was thoroughly cleaned with an appropriate acaricide, new patients were then allowed to be admitted to the room.

Our study has several limitations. It was performed at a single center. All cases were identified with dermatoscopic examination. Diagnostic tests such as histopathological diagnosis, molecular-based techniques, or serological assays could not be performed at our facility. The duration of the clinical symptoms was not recorded in the patient's medical record. Decontamination measures could not follow-up for close contacts and asymptomatic contacts of patients.

CONCLUSION

Early diagnosis, treatment, hygiene practices, and effective prevention and control measures play a crucial role in preventing outbreaks of scabies. Given that the disease can spread more easily in areas with high population mobility, health-care institutions at all levels need to fulfill their responsibilities in ensuring that the public is well informed in this regard. The Ministry of Health, the General Directorate of Public Health, and specialized associations carry out diverse initiatives aimed at educating the population about the transmission routes and preventive measures of scabies. Sustained efforts in these activities are of utmost importance.

Disclosures

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Validity and Reliability of the Turkish Version of the Modified COVID-19 Yorkshire Rehabilitation Scale

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ABSTRACT

Objectives: Post-COVID syndrome (PCS) is defined as persistent or emerging symptoms after infection with the virus. The COVID-19 Yorkshire Rehabilitation Scale was developed to identify and measure the severity of PCS symptoms and was later modified. This study aimed to evaluate the validity and reliability of the modified COVID-19 Yorkshire Rehabilitation Scale.

Methods: Language validity, content validity, exploratory factor analysis, and confirmatory factor analysis were performed for construct validity of the scale. Guttman split-half coefficients obtained by the split-half method, Cronbach alpha values, and intraclass correlation coefficients (ICC) examined the reliability of the fit.

Results: The study included 202 patients with a mean age of 57.6±13.4 years. Construct validity results showed that factorial findings demonstrated the factorable structure (Bartlett's test of sphericity (χ^2=1554.8; p<0.001) and good model fit (NFI=0.88, GFI=0.85, root mean square error of approximation=0.10, root mean square residual=0.03) for the present data. For criterion validity, correlation coefficients were found to range from –0.22 to 0.57 (p<0.05, for all), indicating moderate relationships between sub-dimensions. In addition, a high level of reliability was found for the adaptation, as suggested by Guttman's split-half coefficients (0.90, 0.83, and 0.88 for symptom severity, functional ability, and the full scale, respectively), Cronbach's alpha (0.89, 0.83, 0.92), and ICC coefficients (0.88, 0.81, 0.90).

Conclusion: The Turkish version of C19-YRSm has 2 sub-dimensions such as symptom severity and functional ability and is a valid and reliable instrument for measuring patient assessment and monitoring in PCS in Turks.

Keywords: COVID19, post-COVID conditions, rehabilitation, reliability and validity

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INTRODUCTION

The SARS-CoV-2 virus first appeared in December 2019, in Wuhan, China. It spreads rapidly throughout the world, triggering a pandemic.[1] It is a disease that affects many systems besides the respiratory system. During the process, some persistent or recurrent symptoms were noted in patients who had COVID-19. Post-COVID syndrome (PCS) was first defined in March 2020; various terms such as prolonged COVID and post-acute COVID were used.[2] The National Institute for Health and Care Excellence defined ongoing COVID for symptoms that persist 4–12 weeks after infection and post-COVID for symptoms that persist or reappear 12 weeks or longer after infection, and no other diagnosis can be made.[3] The Centers For Disease Control and Prevention defines post-COVID as a set of new or persistent symptoms lasting weeks or months after infection with COVID-19.[4] The most frequent symptom is fatigue.[1] In addition, symptoms such as musculo-articular pain, mental complaints, loss of smell, cough, palpitations, and anxiety may also be observed.[5-7]

The incidence of prolonged symptoms in people who have had COVID-19 ranges from 31% to 69%.[5] While prolonged COVID symptoms can occur in any COVID-19 patient, the literature reports that they are more common in the elderly, female patients, patients with severe infec-

tions, and patients with underlying diseases.[8]

There is a need for comprehensive screening and multidisciplinary assessment to diagnose people being affected by PCS and to ensure their follow-up and aftercare.[9] The COVID-19 Yorkshire Rehabilitation Scale was the first known scale to detect symptoms of PCS and rate the severity of both PCS symptoms and functional disability.[10] The COVID-19 Yorkshire Rehabilitation Scale was then modified for additional symptoms (C-19 YRSm).[11] In Turkey, there is no screening or measurement method for post-COVID symptoms. The aim of this study is to determine the validity and reliability of the Turkish version of the C-19 YRSm.

METHOD

The study was initiated after we obtained permission from the researchers who developed the C-19 YRSm. This study was conducted between November 2022 and February 2023 in individuals who applied to the family medicine outpatient clinic and had COVID-19. The scale consisted of 17 questions. In validity and reliability studies, it is recommended that the number of participants is 5–10 times the number of items on the scale.[12,13] Increasing the sample size increases the convenience of factor analysis and the reliability of the scale.[14] Therefore, 202 people were included in the study.

Turkish individuals who were over 18 years of age were enrolled in the study. Individuals who had communication problems, did not have COVID, did not have symptoms that lasted longer than 4 weeks, were new or otherwise diagnosed, and were unvolunteered to participate in the study were excluded. A summary scheme for the first steps of the adaptation process is shown in Figure 1.

The scale was first translated into Turkish by two different translators. The researchers compared the translations and prepared the Turkish text. Two faculty members (lecturers in the Department of English Language and Literature) whose native language is Turkish translated the scale back into English. The English scale was reviewed by another linguist and found to be similar. The original and translated scales were checked for linguistic equivalence, and the final form of the scale has been achieved.

To determine the content validity of the Turkish version of the scale, the opinions of 6 experts were obtained. They were asked to score each item regarding comprehensibility and understandability on a three-point scale (1=appropriate, 2=useful but inadequate, 3=inappropriate) to evaluate the content validity. The content validity index (CVI) was calculated for each item, based on the scoring of experts. The assessment's content validity was confirmed as all the items received CVIs ranging from 0.90 to 1.00.

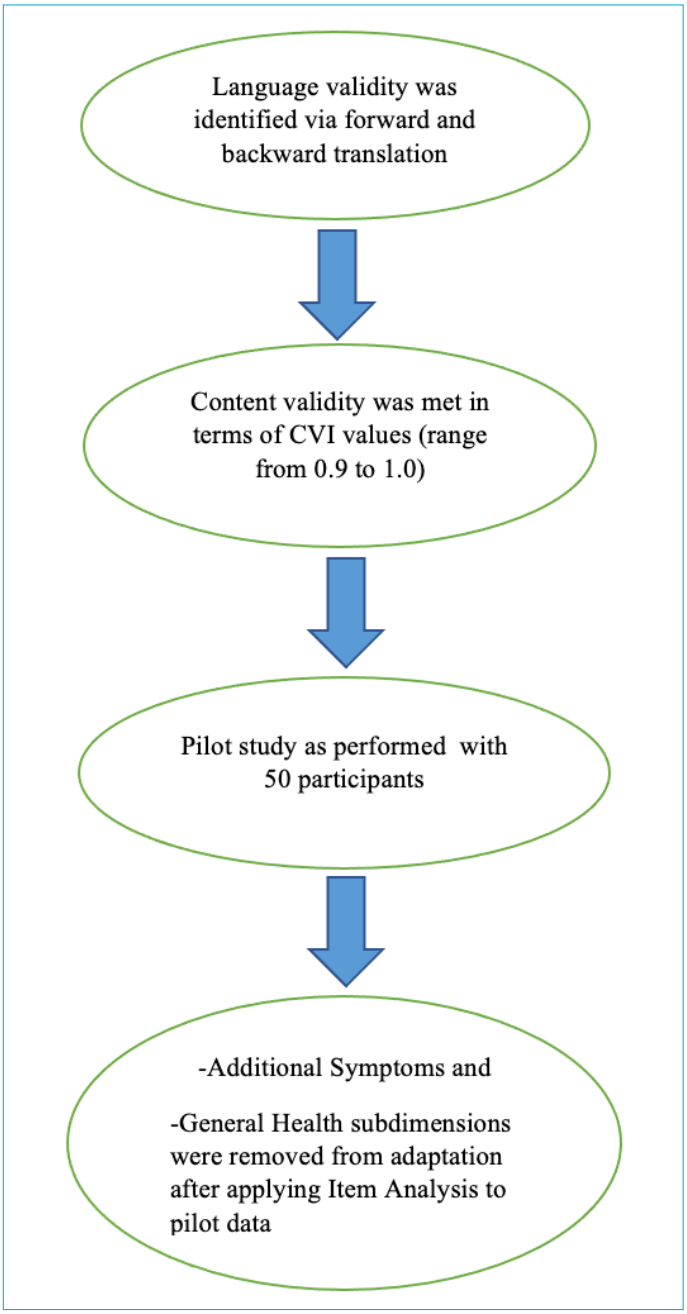

Figure 1. Summary scheme of the first steps of the adaptation process.

A pilot study was performed for the application of the adapted scale to 50 participants to assess the comprehensibility of the questions. For the analysis of the pilot study data, an item analysis was performed to detect the items that caused inconsistencies with the whole adaptation. Item-total correlation coefficients and Cronbach alpha coefficients (if an item was deleted) were used, and some items with higher inconsistencies were excluded from the adapted version.

The forms we used in this study were created online (Google Docs forms) and in hard copy. This form was sent to the participants online. For those who did not have on-

line access, the form was used during an in-person interview. "Descriptive Information Form" was prepared by the researchers and the Turkish version of the C19-YRSm was used. Validated versions of the Depression Anxiety Stress Scale-21 (DASS-21) and Short Form 36 Health Survey (SF-36) scales were used to assess criterion validity.

Descriptive Information Form

This form includes six questions about the individual characteristics of the participants (age, gender, education level, etc.).

DASS-21

DASS developed by Lovibond consists of a 42-item long form.[15] The Turkish adaptation of the DASS short form, which is called DASS-21 and consists of 21 items, was conducted by Yılmaz et al.[16] The scale is a 4-point Likert self-report form. There were no reversed items on the scale. The internal consistency coefficients of Cronbach's alpha of the 3 subdimensions of the scale were tested as 0.84 for anxiety, 0.91 for depression, and 0.90 for stress.

SF-36

The SF-36 quality of life scale was created by Ware in 1987.[17] Its adaptation into Turkish and validity-reliability study was performed by Acaray in 1995 in diabetes mellitus, hemodialysis, and cardiology patient groups.[18] The scale containing thirty-six statements is analyzed under 10 subdimensions. It is evaluated considering the last 4 weeks. Cronbach's alpha value for internal consistency was 0.91.

C-19 YRSm

The COVID-19 Yorkshire Rehabilitation Scale was the first patient-reported outcome measure developed and validated in the UK. The psychometric analyses of the original scale revealed high internal consistency (Cronbach's alpha=0.89).[10] The COVID-19 Yorkshire Rehabilitation Scale is divided into four subscales: Symptom severity, functional disability, additional symptoms, and general health with a total of 22 items. Each item is assigned a score between 0 and 10, both before and after infection (0=no symptoms, 10=extremely severe or life-threatening symptoms).[10,19] C-19 YRSm based on new evidence and feedback from patients and health-care professionals. The C-19 YRSm includes 17 items, each scored between 0 and 3, maintaining the same subscales as the original version (0=no symptoms, 1=mild, 2=moderate, and 3=severe).[11]

All the analyses were performed using R (v.4.2.2) statistical Programming Language (R Core Team, 2022, Vienna, Austria) and AMOS v.26.0. Mean, standard deviation, median, minimum, and maximum values were reported as basic descriptive statistics for numerical variables, while frequency (n) and percentage (%) were recorded for categorical ones. The Wilcoxon test was used to compare the pre-COVID and the current status of the participants. Language adaptation and content validity were investigated and determined to be valid in these fields. Cronbach's alpha coefficients along with intra-class coefficients (ICCs) were reported for each sub-dimension and the total scale within the context of reliability analysis. The split-half reliability method was used to assess the reliability of the Turkish version of the scale. The split-half reliability method was used to assess the reliability of the Turkish version of the scale. Questions were divided by half, as odd-numbered vs. even-numbered ones, and Guttman split-half coefficients were calculated to test the reliability. Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were performed to identify the construct validity. Spearman correlation coefficients were recorded in assessing criterion validity. The sampling adequacy was determined using the Kaiser–Meyer Olkin (KMO) statistic, while the Bartlett Sphericity Test and determinant of the correlation matrix were used for evaluation of whether items in the dataset are correlated and the dataset is in factorial structure, respectively. CFA was applied to confirm the original structure of the scale to the dataset of interest, and several goodness-of-fit indices including Root Mean Square Error of Approximation (RMSEA), Root Mean Square Residual (RMR), relative fit index (RFI), Comparative Fit Index (CFI), etc., were assessed for this aim. A path diagram was plotted to visualize the confirmation and factor loadings, error variances, and covariance between dimensions reported through this diagram. Statistical significance was determined using a two-sided $p<0.05$.

RESULTS

A total of 202 people were included in the study. Baseline characteristics of participants are summarized in Table 1.

Table 1. Baseline characteristics of participants

	Mean±SD
Age (years)	57.6±13.4
	n (%)
Gender	
Female	101 (50.0)
Male	101 (50.0)
Education level	
Primary	12 (5.9)
Secondary	38 (18.9)
High-School	60 (29.7)
University/College	92 (45.5)

SD: Standard deviation.

Table 2. Item analysis results of the questionnaire

Sub-dimension	Corrected item-total score correlation	Scale variance if item deleted	Cronbach's alpha if item deleted
Breathlessness	0.53	67.3	0.71
Cough/throat sensitivity/voice change	0.57	66.7	0.71
Fatigue	0.28	68.9	0.73
Smell/taste	0.42	68.6	0.72
Pain/discomfort	0.66	66.6	0.71
Cognition	0.55	68.1	0.71
Palpitations/dizziness	0.40	69.0	0.72
Post-exertional malaise (worsening of symptoms)	0.52	65.2	0.71
Anxiety/mood	0.66	66.2	0.71
Sleep	0.60	64.0	0.70
Communication	0.43	67.6	0.72
Walking or moving around	0.52	65.7	0.71
Social role	0.60	66.5	0.71
Personal care	0.52	70.1	0.72
Other activities of daily living	0.39	68.9	0.72
Additional symptoms	0.59	49.3	0.69
General Health	−0.25	78.9	0.87
**Cronbach's alpha for 17 items=0.74.*			
Breathlessness	0.52	71.8	0.86
Cough/throat sensitivity/voice change	0.56	71.3	0.86
Fatigue	0.44	70.96	0.86
Smell/taste	0.42	73.0	0.86
Pain/discomfort	0.66	71.0	0.86
Cognition	0.59	72.1	0.86
Palpitations/dizziness	0.49	72.4	0.86
Post-exertional malaise (worsening of symptoms)	0.58	68.7	0.86
Anxiety/mood	0.68	70.4	0.85
Sleep	0.66	67.4	0.85
Communication	0.42	72.3	0.86
Walking or moving around	0.59	69.1	0.86
Social role	0.58	71.0	0.86
Personal care	0.55	74.3	0.86
Other activities of daily living	0.50	72.0	0.86
Additional symptoms	0.63	52.0	0.88
**Cronbach's alpha for 17 items = 0.87.*			
Breathlessness	0.52	71.8	0.86
Cough/throat sensitivity/voice change	0.56	71.3	0.86
Fatigue	0.44	70.9	0.86
Smell/taste	0.42	73.0	0.86
Pain/discomfort	0.66	71.0	0.86
Cognition	0.59	72.2	0.86
Palpitations/dizziness	0.49	72.4	0.86
Post-exertional malaise (worsening of symptoms)	0.58	68.7	0.86
Anxiety/mood	0.68	70.4	0.85
Sleep	0.66	67.4	0.85
Communication	0.42	72.3	0.86
Walking or moving around	0.59	69.1	0.86
Social role	0.58	71.0	0.86
Personal care	0.55	74.3	0.86
Other activities of daily living	0.50	72.0	0.86
**Cronbach's alpha for 15 items = 0.88.*			

Item Analyzes

Based on the item analysis, it has been found that Cronbach's alpha value for the entire scale was 0.74. It was observed to increase to 0.87 (item-total correlation coefficient=−0.25 for the General Health subdimension) and 0.88 (item-total correlation coefficient=0.63 for the Additional Symptoms subdimension), respectively, after the General Health and Additional Symptoms subdimensions were removed. Therefore, these two dimensions were excluded from the Turkish adaptation as they produced inconsistent results with the full scale. Item analysis results of the questionnaire are summarized in Table 2.

Validity Analysis

The EFA results showed that the sample was adequate (KMO statistic of sampling adequacy=0.92, which is above the widely accepted threshold of 0.7), that the items of the scale were related with respect to Bartlett's test for sphericity (χ^2=1554.8, df=105; p<0.001) and that the dataset is compatible with factor analysis (determinant<0.00001).

The original scale structure was confirmed with the current data set, as suggested by the CFA. The model fit indices showed a reasonable level of agreement (maximum likelihood ratio χ^2=267.2 (p<0.001), NFI=0.88, GFI=0.85, RFI=0.80, IFI=0.88, CFI=0.88, RMSEA=0.10, RMR=0.04). The error variances could be considered tolerable, as they ranged from 0.19 to 1.45 for symptom severity, while they ranged from 0.19 to 0.36 for functional ability subdimensions. The path diagram for CFA is shown in Figure 2. The EFA and CFA results confirmed that construct validity was met for the Turkish adaptation.

Criterion Validity Assessment

Validated versions of the DASS-21 and SF36 scales were used to assess criterion validity. The coefficients ranged

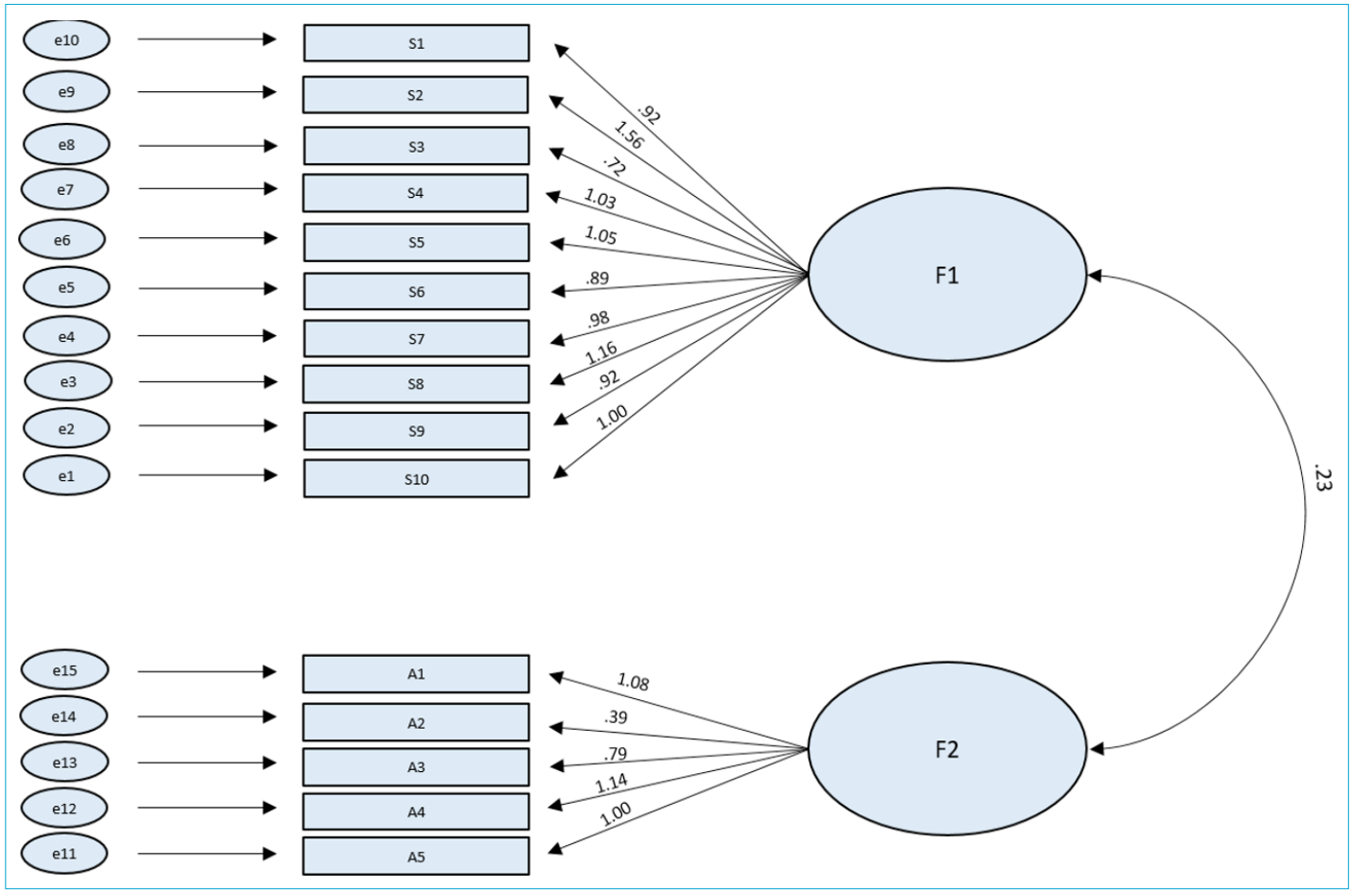

Figure 2. Path diagram for confirmatory factor analysis. A: Abilities (respectively)=Communication, walking or moving around, personal care, other daily activities, social role, e: Residual covariance matrix; F1: Symptom severity; F2: Functional ability; S: Symptoms (respectively)=Breathlessness, cough/throat sensitivity/voice change, smell/taste, pain/discomfort, cognition, palpitations/dizziness, post-exertional malaise (worsening of symptoms), fatigue (tiredness not improved by rest), anxiety/mood, sleep.

from −0.22 to 0.57, indicating moderate relationships among the subdimensions and demonstrating the criterion validity of the adaptation. Correlation coefficients for concurrent validity of the questionnaire are summarized in Table 3.

Reliability Analysis

The Guttman split-half coefficients obtained by the split-half method were 0.90, 0.83, and 0.88 for symptom severity, functional ability, and total scale, respectively. On the other hand, Cronbach's alpha and ICC coefficients of 0.89, 0.83, 0.92, 0.88, 0.81, and 0.90, respectively, were obtained for these subdimensions and the total scale. The high coefficients indicate that the responses are consistent (for ICC) and the adapted scale is reliable. The reliability analyses of the questionnaire are summarized in Table 4.

The dependent measure analysis revealed that participants scored significantly higher on all items, sub-dimensions, and total values compared to their pre-COVID status ($p<0.001$).

DISCUSSION

This study was conducted to determine the validity and reliability of C19-YRSm in Turkish. After assessing language adaptation and content validity, EFA and CFA were used to determine construct validity. Bartlett's test demonstrated the factorable structure of the data set.[20] In addition, the KMO statistic of 0.96 proved the adequacy of the sample size for factor analysis.[21] The EFA results that the total variance explained by the 2-factor solution is 56% supports the literature that states that the total variance accounted for by the model should be at least 50%.[22]

The model fit indices from the CFA results indicate acceptable model fit to the dataset, as they were found as <0.9; they are 0.88, 0.85, 0.803, 0.88, and 0.88 for NFI, GFI, RFI, IFI, and CFI respectively.[23-25] In addition, the RMSEA and RMR values were on the borderline of acceptable model fit. Overall, the model fit indices showed a good level of model fit for the dataset of interest. In addition, the psychometric analysis showed that the Turkish adaptation has a good to excellent level of reliability as the Cronbach alpha values ranged from 0.83 to 0.92.[26] and the ICC values ranged from 0.81 to 0.90.[27]

Table 3. Correlation coefficients for concurrent validity of the questionnaire

	Symptom severity	Functional ability	p
Physical functioning	−0.50	−0.36	<0.001
Role limitations due to physical problems	−0.36	−0.27	<0.001
Role limitations due to emotional problems	−0.31	−0.29	<0.001
Vitality	−0.33	−0.22	<0.001
Mental health	−0.27	−0.31	<0.001
Social functioning	−0.38	−0.26	<0.001
Bodily pain	−0.39	−0.27	<0.001
General health perceptions	−0.44	−0.43	<0.001
SF36 total score	−0.54	−0.43	<0.001
Depression	0.48	0.43	<0.001
Anxiety	0.52	0.49	<0.001
Stress	0.57	0.52	<0.001

SF-36: Short Form 36 Health Survey.

Table 4. The reliability analyses of the questionnaire

	Cronbach alpha	ICC	Guttman split-half coefficient*
Total scale	0.92	0.90	0.88
Symptom severity	0.89	0.88	0.90
Functional ability	0.83	0.81	0.83

ICC: Intraclass correlation coefficients. *Odds versus Even.

To the best of our knowledge, this is the first study to develop the validity and reliability of the Turkish version of the C19-YRSm. The psychometric properties of the original C19- YRS revealed high internal consistency (Cronbach's alpha=0.89) and acceptable levels of reliability (0.79 for symptom severity, 0.79 for functional disability, and 0.70 for additional symptoms).[10] In addition, the symptom severity and functional ability subscales of the C19-YRSm had good target accuracy and reliability.[11]

A limitation of this study is that we could not increase the sample size due to low patient admissions in the post-COVID outpatient clinic. Another limitation is that a valid Turkish scale for comparison with the C19-YRSm was not available. DASS 21 and SF-36 were used to assess criterion validity.

CONCLUSION

The current study shows that the Turkish version of the modified C19-YRSm has 2 subdimensions, symptom severity, and functional ability, and it can be used as a valid and reliable scale for the evaluation of patients with PCS in the Turks population. It is anticipated that the validity and reliability of the scale will be supported by future studies using this scale.

Disclosures

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Depression, Anxiety, Sleep Quality, and Biological Rhythms between Patients with COVID-19

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ABSTRACT

Objectives: This study aimed to explore depression, anxiety, sleep quality, biological rhythms, and risk factors related to taste and smell loss in COVID-19 patients.

Methods: This case-control study was conducted as a single-center study between January 1 and May 15, 2021. The study included COVID-19 patients and healthy adults as the control group. Depression Anxiety Stress Scale Short form (DASS-21), Biological Rhythms Assessment Interview in Neuropsychiatry, and Pittsburgh Sleep Quality Index (PSQI) were administered to the patients and control group.

Results: A total of 247 individuals (123 [49.7%] patients with COVID-19 and 124 [50.3%] control group) were included in the study. A total of patients with COVID-19 include 60 (48.7%) hospitalized-treated groups (HTG) and 63 (51.3%) home-treated groups (HOG). DASS-21 score, BRAIN score, and PSQI score in the patient group were higher than the control group (20.0±11.5 vs. 8.8±4.8, p<0.001 for DASS-21 score, 40.1±8.6 vs. 33.4±6.3, p<0.001 for BRAIN score, 5.2±3.0 vs. 2.9±1.5, p<0.001 for PSQI score). Anxiety score and PSQI score in the HTG were significantly higher than the HOG (7.4±3.7 vs. 5.1±4.2, p<0.001 for anxiety score, 5.8±2.9 vs. 4.6±3.0, p=0.013 for PSQI score). Age (Odds Radio [OR]=1.038, 95% confidence interval [CI]=1.010–10.67, p=0.007) and gender (OR=6.012, 95% CI=2.533–14.271, p<0.001) were determined as risk factors for developing taste/smell loss in COVID-19.

Conclusion: It can be stated that patients with COVID-19 have a higher risk of developing mood disorders, irregularity in biological rhythms, and sleep disorders compared to the control group. In addition, age and gender variables are directly related to taste and smell disorders in COVID-19.

Keywords: Anosmia, biological rhythms, COVID-19, depression, loss of taste

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INTRODUCTION

Coronavirus infections have played a role in neuropsychiatric disorders during and after Severe Acute Respiratory Syndrome (SARS) and Middle-East Respiratory Syndrome (MERS) pandemics.[1] In a study carried out after SARS in the 1st month, about 35% of the patients had medium or severe levels of anxiety or depressive symptoms. As for longer-term studies, the prevalence of psychiatric disorders was determined as 33.3% in a survey carried out on the 30th month with 90 patients with SARS disease.[2]

There are over 79% structural and genetic similarities between SARS-CoV-2 and SARS-CoV and over 50% between SARS-CoV-2 and MERS-CoV.[3] During the coronavirus disease 2019

(COVID-19) pandemic, the third biggest coronavirus epidemic in the last two decades, relatively high anxiety, depression, post-traumatic stress disorder (PTSD), psychological distress, and stress frequency have been reported in the general public in eight countries.[4] In a survey of patients with COVID-19, the frequency of patients who have received psychopathological scores as follows: 28% of the patients in terms of PTSD, 31% in terms of depression, 42% in terms of anxiety, 20% in terms of obsessive-compulsive disorder, and 40% in terms of insomnia on the 1st month. In general, 56% of the patients received scores in the pathological range in at least one clinical dimension.[5] In COVID-19, psychiatric effects emerge due to potential reasons such as the virus' direct impact on the central nervous system, the neuropsychiatric effects of systemic and central nervous system inflammation, contact isolation, and being stigmatized due to the contagious disease and function disorder related to having a severe illness.[6]

The psychiatric results of infectious diseases vary.[7] Some contagious diseases are related to sleep disorders. Infectious agents such as viruses and bacteria infect the central nervous system with the immune response developed against the infection or the direct effects of the pathogen and cause sleep disorders. Biological rhythms, also known as the circadian rhythm, express the cyclical variations in physiological and behavioral functions and consist of the daily sleep-wake cycle, hormonal metabolism, diet patterns, social anxiety, and ultradian and seasonal rhythms.[8] Biological rhythm disorders mediated by lifestyle cause individuals to be more susceptible to various psychiatric disorders, including mood disorders such as unipolar and bipolar disorders. Anxiety and mood disorders are among the most common mental health problems in the general population of countries throughout the world.[1] The number of studies on many complex connections between common anxiety and mood disorders and contagious viral diseases has increased in recent years.

In this study, it was aimed to explore depression, anxiety, sleep quality, biological rhythms, and risk factors related to taste and smell loss in COVID-19 patients.

METHOD

This case-control study was conducted as a single-centered multi-unit study in the Kafkas University Health, Application, and Research Hospital Clinics between January 1 and May 15, 2021. The study included patients who agreed to participate in the study and met the criteria of being over 18 years of age and who applied to COVID-19 clinics with symptoms such as fever, cough, weakness, fatigue, joint pain, loss of taste or smell; and who were diagnosed with COVID-19 by PCR test, anamnesis, physical examination or radiological tests. Patients, some of whom received 5-day medication at home and some of whom were hospitalized, were interviewed within a maximum of 2 weeks after their treatment was completed. Afterward, healthy individuals with similar characteristics in terms of age and gender were included in the control group. Participants with a history of psychiatric illness or active psychiatric illness in clinical interviews and electronic medical records were excluded from the study.

Socio-demographic Data Form

The patient's demographic information was obtained: Age, gender, education level, marital status, regular income, income level, and smoking habit. In addition, the patients were asked whether they were hospitalized for treatment of COVID-19 and if they were hospitalized, its duration, whether other family members had COVID-19, whether they were aware of whom they contracted COVID-19, and whether any family members lost their lives due to COVID-19. Finally, the patients' general knowledge level about COVID-19 was measured through a survey consisting of five questions, and their habit of learning about COVID-19 was evaluated. Before the study, detailed anamnesis of the patients was conducted, and they were asked whether they were exposed to taste or smell loss symptoms.

Depression Anxiety Stress Scale (DASS-21)

DASS-21 is a 4-point Likert scale that evaluates the depression, anxiety, and stress dimensions of the individuals in the past week, which consists of seven items, each in clinical and non-clinical samples.[9] The points that can be received from each sub-dimension range between 0 and 21, and as the points obtained from the sub-dimensions increase, the levels of depression, anxiety, or stress also increase. A validity and reliability study of the Turkish version of the DASS-21 Short Form was conducted.

Biological Rhythms Interview of Assessment in Neuropsychiatry (BRIAN)

BRIAN was developed to measure individuals' daily cyclic rhythm and functionality.[10] The scale consists of 4 points Likert type 21 items. It has five subscales: sleep, activity, social, diet habits, and dominant rhythm patterns. The dominant rhythm pattern scores are not included in the total score when the total score is calculated. High scores express irregularities in the biological rhythm. The Turkish version of the scale was utilized in this study.

Pittsburgh Sleep Quality Index (PSQI)

PSQI consists of seven sub-components that evaluate subjective sleep quality, sleep latency, sleep duration, sleep disturbances, use of sleeping medication, and daytime dysfunction.[11] The total score of the seven components is the total PSQI score. The self-report scale gives detailed information about the type and intensity of sleep quality and sleep disorders within the past month. The total score from the scale ranges between 0 and 21, and high values indicate that sleep quality is bad and sleep disorder level is high. A score of ≥5 shows that clinical sleep quality is significantly impaired. The Turkish version of the scale was utilized in this study.

The statistical analysis of the data obtained from the participants in this study was done with the Statistical Package for the Social Sciences software's version 22.0. In the descriptive analysis, frequency, percentage, mean, standard deviation, median, minimum and maximum were used. Kolmogorov–Smirnov test was to evaluate the normal distribution state of the data. In assessing the difference between the groups, a significance test for the difference between the two means (Student's t-test) was used for the continuous variables that achieved the parametric test assumption. The Mann–Whitney-U test was used for those not reaching the parametric test assumption. In the analysis of qualitative variables, the Chi-square test was used. In the correlation between the continuous variables, Pearson correlation analysis was used when two scales were parametric, and Spearman correlation analysis was used when one of the variables was non-parametric. The correlation coefficient (r) evaluation was ranked as "low" between 0 and 0.24; "medium" between 0.25 and 0.49; "good" between 0.50 and 0.74 and "very good" between 0.75 and 1.0. Binary logistic regression analysis was applied to the variables that showed significant differences in Chi-square analyses to determine the effect of independent variables on the dependent variables of taste or smell loss. A $p<0.05$ was accepted as significant.

RESULTS

A total of 247 individuals and 123 (49.7%) patients with COVID-19 and 124 (50.3%) control group were included. The socio-demographic and COVID-19-related characteristics according to groups are summarized in Table 1.

According to the correlation analysis between the scales applied to all participants, a statistically significant positive correlation was observed between total DASS-21 and BRIAN scores ($r=0.526$, $p<0.001$), total PSQI and BRIAN scores ($r=0.465$, $p<0.001$), total PSQI and DASS-21 scores ($r=0.482$, $p<0.001$). DASS-21, BRIAN, and PSQI scores according to groups are summarized in Table 2.

A total of 123 patients with COVID-19 include 60 (48.7%) hospitalized-treated groups (HTG) and 63 (51.3%) home-treated groups (HOG). When comparing HTG and HOG according to socio-demographic and COVID-19-related characteristics, there was no significant difference between the groups in terms of gender, marital status, and history of psychiatric disorders in the family ($p=0.951$, $p=0.103$, $p=0.235$, respectively). The mean age in the HTG was higher compared to the HOG (55.1±14.4 vs. 33.9±9.9, $p<0.001$). There was a significant difference between the groups regarding education level; the frequency of college or university graduates was 49 (77.8%) in the HOG and 10 (16.7%) in the HTG ($p=0.001$). There was also a significant difference between the HTG and HOG groups in terms of income level and who had a job with a regular income (6 [10.0%] vs. 37 [58.7%], $p=0.001$ and 34 [56.7%] vs. 56 [88.9%], $p=0.001$, respectively). The frequency of smoking was 3 (5.0%) in the HTG and 19 (30.2%) in the HOG ($p=0.001$). Moreover, there were 33 (55.0%) in the HTG and 10 (15.9%) in the HOG with comorbid chronic diseases ($p=0.001$). In terms of characteristics related to COVID-19, in terms of time spent on COVID-19, 40 (66.6%) in HTG and 25 (39.6%) in HOG spent 1 h or more ($p=0.004$). In addition, in terms of COVID-19 knowledge levels, 40 (66.7%) in HTG and 57 (90.5%) in HOG were found to have good to very good knowledge levels ($p=0.861$). There was no significant difference between the groups in terms of having family members with COVID-19 and losing family members due to COVID-19 (36 [60.0%] in the HTG vs. 35 [55.6%] in the HOG, $p=0.618$ and 7 [11.7%] in the HTG and 8 [12.7%] in the HOG, $p=0.861$, respectively).

Among the DASS-21 subscales, stress subscale scores were 7.6±3.7 in the HTG and 7.8±4.7 in the HOG, anxiety subscale scores were 7.4±3.7 in the HTG and 5.1±4.2 in the HOG, depression subscale scores were 6.3±3.9 in the HTG and 6.1±4.7 in the HOG ($p=0.782$, $p<0.001$, $p=0.548$, respectively). DASS-21, BRIAN, and PSQI scores in the home-treated group and HTG of COVID-19 patients are summarized in Table 3.

There was 67 (54.4%) of the patient group in the study that had loss of taste or smell. The group's mean age with taste or smell loss was lower than those without taste or smell loss (40.6±15.9 vs. 48.6±15.7, $p=0.006$). The frequency of females in the group with taste or smell loss was considerably higher than those without taste or smell loss (42 [62.7%] vs. 13 [23.2%], $p<0.001$). The number of smokers was 54 (80.6%) in the group with taste or smell loss and 47

Table 1. Socio-demographic and COVID-19-related characteristics according to groups

	Patient Group (n=123)	Control Group (n=124)	p
Age (years)	44.3±16.2	42.2±13.0	0.267*
Gender			
Female	55 (44.7)	60 (48.4)	0.652†
Male	68 (55.3)	64 (51.6)	
Education Level			
Other (not educated or have other courses)	13 (10.6)	12 (9.7)	<0.001†
Primary	30 (24.4)	2 (1.6)	
High-school	21 (17.1)	7 (5.6)	
College or university	59 (48.0)	103 (83.1)	
Marital Status			
Single	35 (28.5)	67 (54.0)	<0.001†
Married	88 (71.5)	57 (46.0)	
Income Level			
<2800 TL	17 (13.8)	8 (6.5)	0.025†
2800-8000 TL	63 (51.2)	54 (43.5)	
>8000 TL	43 (35.0)	62 (50.0)	
A regular job with an income			
Yes	90 (88.9)	34 (27.4)	<0.001†
No	33 (26.8)	90 (72.6)	
Smoking			
Yes	22 (17.9)	54 (43.5)	<0.001†
No	101 (82.1)	70 (56.5)	
Presence of any psychiatric illness in first- and second-degree relatives			
Yes	35 (28.5)	23 (18.5)	0.092†
No	88 (71.5)	101 (81.5)	
Additional Diseases			
Yes	43 (35.0)	28 (22.6)	0.045†
No	80 (65.0)	96 (77.4)	
Time spent per day for COVID-19 disease			
Less than 1 h	58 (47.2)	90 (72.6)	<0.001†
1–2 h	53 (43.1)	25 (20.2)	
3 h or more	12 (9.8)	9 (7.3)	
COVID-19 knowledge level			
Very bad or bad	10 (8.1)	6 (4.8)	0.347†
Medium	16 (13.0)	16 (12.9)	
Good	52 (42.3)	44 (35.5)	
Very Good	45 (36.6)	58 (46.8)	
Family members with COVID-19			
Yes	71 (57.7)	45 (36.3)	0.001†
No	52 (42.3)	79 (63.7)	
Death of any family member due to COVID-19			
Yes	15 (12.2)	24 (19.4)	0.171†
No	108 (87.8)	100 (80.6)	

TL: Turkish liras.

Data is presented as mean±standard deviation and n (%).

*T-test in independent groups, †Chi-square test.

Table 2. DASS-21, BRIAN, and PSQI scores according to groups

	Patient Group (n=123)	Control Group (n=124)	p
Total stress sub-scale score	7.7±4.2	3.6±2.3	<0.001*
Total anxiety sub-scale score	6.2±4.2	2.9±2.2	<0.001*
Total depression sub-scale score	6.2±4.3	2.3±1.7	<0.001*
Total DASS-21 score	20.0±11.5	8.8±4.8	<0.001*
Total sleep sub-scale score	13.0 (1.0–20.0)	9.0 (1.0–16.0)	<0.001†
Total social sub-scale score	7.0 (4.0–16.0)	9.0 (4.0–16.0)	0.477†
Total activity sub-scale score	11.0 (5.0–20.0)	7.0 (5.0–19.0)	<0.001†
Total diet sub-scale score	8.0 (4.0–16.0)	8.0 (4.0–16.0)	0.280†
Total BRAIN score	40.1±8.6	33.4±6.3	<0.001*
Total dominant rhythm sub-scale score	6.0 (3.0–12.0)	6.0 (3.0–12.0)	0.194†
Subjective sleep quality	1.0 (0.0–3.0)	1.0 (0.0–3.0)	<0.001†
Sleep latency	0.0 (0.0–3.0)	0.0 (0.0–3.0)	<0.001†
Sleep duration	0.0 (0.0–3.0)	0.0 (0.0–3.0)	0.076†
Habitual sleep efficiency	0.0 (0.0–3.0)	0.0 (0.0–3.0)	0.017†
Sleep disturbances	0.0 (0.0–3.0)	0.0 (0.0–3.0)	<0.001†
Use of sleeping medication	0.0 (0.0–3.0)	0.0 (0.0–3.0)	0.338†
Daytime dysfunction	1.0 (0.0–3.0)	1.0 (0.0–3.0)	<0.001†
Total PSQI score	5.2±3.0	2.9±1.5	<0.001*

BRAIN: Biological rhythms assessment interview in neuropsychiatry; DASS-21: Depression anxiety stress scale short form; PSQI: Pittsburgh sleep quality index.
Data is presented as mean±standard deviation and median (min-max).
*Independent group t-test, †Mann Whitney U test.

Table 3. DASS-21, BRIAN, and PSQI scores in the home-treated group and hospitalized-treated group of COVID-19 patients

	Home-treated group (n=63)	Hospitalized-treated group (n=60)	p
Total DASS-21 score	18.9±12.7	21.3±10.1	0.242*
Total sleep sub-scale score	12.0 (5.0–20.0)	9.0 (5.0–20.0)	0.003†
Total social sub-scale score	6.0 (4.0–16.0)	9.0 (4.0–14.0)	0.006†
Total activity sub-scale score	11.0 (5.0–20.0)	9.0 (5.0–19.0)	0.703†
Total diet sub-scale score	7.0 (4.0–16.0)	9.0 (4.0–13.0)	0.028†
Total BRAIN score	42.1±9.1	37.9±7.5	0.007*
Total dominant rhythm sub-scale score	8.0 (3.0–12.0)	5.0 (3.0–12.0)	0.001†
Subjective sleep quality	1.0 (0.0–3.0)	1.0 (0.0–3.0)	0.145†
Sleep latency	0.0 (0.0–3.0)	0.0 (0.0–3.0)	0.344†
Sleep duration	0.0 (0.0–3.0)	0.0 (0.0–3.0)	0.001†
Habitual sleep efficiency	0.0 (0.0–3.0)	0.0 (0.0–3.0)	0.199†
Sleep disturbances	0.0 (0.0–3.0)	0.0 (0.0–3.0)	0.001†
Use of sleeping medication	0.0 (0.0–3.0)	0.0 (0.0–3.0)	0.435†
Daytime dysfunction	1.0 (0.0–3.0)	1.0 (0.0–3.0)	0.187†
Total PSQI score	4.6±3.0	5.8±2.9	0.013*

BRAIN: Biological rhythms assessment interview in neuropsychiatry; DASS-21: Depression anxiety stress scale short form; PSQI: Pittsburgh sleep quality index.
Data is presented as mean±standard deviation and median (min-max).
*Independent group t-test, †Mann Whitney U test.

(83.9%) in those without taste or smell loss (p=0.807). The number of people having another chronic disease was 47 (70.1%) in the group with taste or smell loss and 33 (58.9%) in those without taste or smell loss (p=0.267). Among the scale scores, only DASS-21's depression subscale score in the group with taste or smell loss was significantly higher than those in the group without taste or smell loss (7.1±4.6 vs. 5.1±3.9, p=0.014).

Logistic regression analysis was performed to investigate possible predictors of the patient group's taste or smell loss risk. The model consisted of age, gender, and mean score on the depression subscale of the DASS-21. The model, including all predictors, was statistically significant (χ^2=31.21, p<0.001). The factors related to taste or smell loss are summarized in Table 4 (Cox and Snell R^2=22.4% and Nagelkerke R^2=36.3%).

DISCUSSION

This study aimed to explore depression, anxiety, sleep quality, biological rhythms, and risk factors related to taste and smell loss in COVID-19 patients. According to the results of this study, it can be stated that individuals with COVID-19 have a higher risk of developing mood disorders and impairments in their biological rhythms and sleep quality than the control group. In addition, it can be stated that patients in the HTG, in other words, patients with severe symptoms, are at greater risk in terms of anxiety disorder and impairment in sleep quality than patients without severe symptoms. This study found that impairment in the sense of taste or smell in COVID-19 is seen more frequently in younger people and females. In addition, depression scores were significantly higher in individuals with taste or smell loss.

In a meta-analysis, depression, anxiety, and sleep disturbance prevalence in COVID-19 patients was reported as 45%, 47%, and 34%, and in the general population as 33.7%, 31.9%, and 20.1%, respectively.[12] In this study, the scores related to depression, anxiety, and sleep quality impairment in the patient group were higher than the control group, similar to the literature. In addition, biological rhythm irregularity was higher in the patient group than in the control group in this study. Therefore, it can be suggested that biological rhythm irregularity contributes to the psychiatric symptoms in the patient group as well. COVID-19 patients are expected to be exposed to a significant mental disorder wave.[13] In an extensive study carried out with 62.354 COVID-19 patients, 18.1% were diagnosed with a psychiatric disorder on the 14th and 90th days after the disease. Furthermore, this risk was found to be much higher in comparison to influenza and other respiratory tract viruses. COVID-19 has become a condition that triggers adverse psychological effects that can increase individuals' anxiety, depression, and stress levels depending on the damage caused by the disease.[14] In this study, the depression, anxiety, and stress total and sub-scale score means were significantly higher than the control group, similar to the literature.

Accompanying severe illnesses can be shown as a contributing factor to increasing the prevalence of depression in COVID-19.[12] In this study, the frequency of chronic diseases was significantly higher in the patient group than in the control group. In the literature, it has been found in some studies that an increase in the frequency of family members having COVID-19 is a situation that increases the risk of developing depressive symptoms in COVID-19 patients.[15] Similar to this finding, the frequency of depressive symptoms in the patient group and the frequency of family members contracting COVID-19 were higher in the patient group than in the control group in this study. Another factor related to developing depression in COVID-19 patients might be the intensity of the disease. A significant difference in depression scores was not found in this study between the HTG with severe symptoms and the individuals without severe symptoms who received outpatient treatment. In another study, no relationship was found be-

Table 4. The factors related to taste or smell loss

	β	SE	Wald	p	Odds ratio	95%CI
Age	0.037	0.014	7.361	0.007	1.038	1.010-10.67
Gender						
Female/Male (ref)	1.794	0.441	16.541	<0.001	6.012	2.533–14.271
Total depression sub-scale score	−0.072	0.051	1.996	0.158	0.931	0.843–1.028
Constant	−2.457	0.841	8.533	0.003	0.086	

CI: Confidence interval; SE: Standard error.
Logistic regression analysis.

tween the severity of the disease and depression, similar to this finding.[16] However, another study found that exposing the condition severely is related to depression among COVID-19 patients.[15] In another study carried out about 1 month after having COVID-19, it was indicated that half of the participants reported at least a slight level of depression and common anxiety. However, medium and severe anxiety was reported at 10.4%, and severe depression at 19%. This study said that individuals with severe symptoms developed more intense psychiatric symptoms.[17] Although depression scores were generally higher in the patient group than the control group in this study, there was no significant difference between the HTG and HOG in terms of depression scores. In this research, the reason for this result might be based on the differences in criteria for disease severity, the sample size, and the use of DASS-21 for depression.

In this study, the anxiety and stress sub-scale scores mean were found to be significantly higher in the patient group compared to the control group besides the depression sub-scale of the DASS-21 scale. The relationship between stressful life events and psychiatric illness is more vital than connecting with medical or physical conditions. The psychiatric outcomes of SARS-CoV-2 infection might emerge due to both the virus' immune reaction to itself and psychological stress factors such as social isolation, the psychological effect of a new, severe, and potentially deadly disease, and concerns about transmitting the infection to others and being stigmatized.[5] Thirty-four percent of the hospitalized COVID-19 patients displayed anxiety symptoms, and it was found that the possibility of developing anxiety symptoms is higher in patients exposed to the disease severity.[18] In addition, studies in the literature indicate that social isolation and loneliness also cause negative results in mental health.[19] In this study, the patients' anxiety scores of the hospitalized group (patients with severe symptoms) were significantly higher than those of the home-treated group. Thus, these results were in line with the conclusions of the literature.

A family history of mood disorders increases the risk of mood disorders in individuals two to four times.[20] Since there was no significant difference between the patient and control groups in terms of family history of psychiatric illness and none of the participants in this study had a history of psychiatric illness, it can be said that the significantly higher levels of depression, anxiety, and stress in the patient group compared to the control group are significantly related to COVID-19 and related factors.

It has been reported that viral infections affect circadian rhythms. It is well-known that viruses reprogram the host cell metabolism, and this carries the potential to regulate circadian hour components.[21] It has been reported that circadian impairment causes a hyperinflammatory condition along with more severe results after viral infections and that hypoxia, which is seen in cases such as COVID-19, can change body temperature, metabolic rate, the release of physiological variables such as cortisol and melatonin release, in other words, the biological rhythms.[22] Therefore, it is considered that in COVID-19, both the change that takes place in individuals' sleeping, eating, and drinking habits and interpersonal relationships based on a new lifestyle caused by the pandemic and SARS-CoV-2 affecting the host cells infected during the infection in multiple ways and making itself a part of the physiological processes of the cells in the body, their immune response, and basic cellular mechanisms are conditions which can affect biological rhythms. In this study, the irregularity in the biological rhythms of COVID-19 patients was higher than in the control group. It was found that BRIAN subscales of sleep and activity dimensions' score medians were significantly higher in the patient group compared to the control group. Therefore, according to this study, there is more irregularity in the sleep and activity habits of individuals with COVID-19 compared to the control group. However, exposing the disease severity was not parallel to this study's impairment of biological rhythm. The total score means of the biological rhythm of the HOG without severe symptoms were significantly higher than those of the HTG. In the HTG, the sleep and diet sub-scale scores were lower or more regular than the HOG. It can be suggested that this was due to HTG patients' eating, drinking, activity, and sleep conditions continuing more routinely based on the rules of the hospitals. In addition, inadequate sleep quality has been defined as an essential and permanent symptom in individuals with COVID-19.[23] In this study, the score medians indicating impairment in the sleep quality of COVID-19 patients were significantly higher than the control group. Similarly, there are findings in the literature about sleep disorders in COVID-19 patients and survivors of the disease. Mazza et al.'s study on 402 patients with COVID-19 was carried out in about the 1st month; symptoms related to sleep disorders were seen in about 40% of the participants.[5] Similar to this study, in a study including COVID-19 patients without a previous psychiatric disorder, the frequency of sleep disorder diagnosis reached a high frequency of 9% at 90-day follow-up.[13] In a study involving 85 hospitalized COVID-19 patients, sleep disturbances were reported in 54% of the participants.[24] In a study involving 202 hospitalized COVID-19 patients, the risk of sleep disturbances was higher in patients with accompanying chronic illnesses.[25] Similarly, the frequency

of impairment in sleep quality and accompanying chronic diseases in the HTG was also higher in this study. Another study found that impairments in sleep quality are related to depression, and there is no significant difference in terms of anxiety.[26] In Wang et al.'s study involving 484 hospitalized COVID-19 patients, sleep disturbance prevalence was 42.8%, and high anxiety increases the risk of sleep disturbances.[27] Similarly, the sleep disturbance and anxiety scores were significantly higher in both the patient and control groups and the HTG than the HOG in this study.

COVID-19 has become a condition that triggers adverse psychological effects that can increase individuals' anxiety, depression, and stress levels depending on the damage caused by the disease. Although depression scores were generally higher in the patient group than the control group in this study, there was no significant difference between the HTG and HOG in terms of depression scores. Our smaller sample size and use of DASS-21 for depression and anxiety may have given us different results.

This study also investigated the loss of taste or smell in COVID-19 patients and its association with different variables. The literature expresses that the senses of taste and smell impairments are caused by the direct damage given by the virus to the smell and taste receptors. Changes in the sense of smell are associated with the damage delivered by the virus to the olfactory bulbous or olfactory nerve. In contrast, the importance of taste impairments is related to the damage given to the ACE2 receptor located in the oral cavity.[28] In this study, 54.4% of our patient group had a loss of taste or smell. In other studies, taste or smell loss was found in half of the COVID-19 patients or more.[29] In this study, the group's mean age with taste or smell loss was younger than the group without taste or smell loss, and the frequency of females was higher in this group. The literature shows that taste or smell loss is seen more in younger ages and the female gender.[30] In this study, when the other factors related to age and gender variables were fixed, this increased the risk of taste or smell loss in COVID-19 patients. Therefore, the result is in line with the literature.

There was no significant difference between groups with and without taste or smell loss regarding smoking and having another chronic illness in this study. Another study similarly determined no relationship between taste or smell loss in COVID-19 patients and smoking.[31] In this study, the DASS-21 score means of the group with taste-smell loss was higher enough to be significant than those without taste-smell loss. There was no significant difference between the two groups regarding the mean of the anxiety sub-scale score. Still, the depression sub-scale score means were significantly higher in the taste and smell loss group.

In a study involving COVID-19 patients, taste and smell loss were related to anxiety and depressive state.[32] In this study, taste or smell loss was found to be only associated with the development of depressive symptoms. Our results might be attributed to the differences in the used surveys. Speth et al.'s study was a prospective study and applied their surveys to their patients during the period they had COVID-19 and the application of our surveys within 2 weeks after the disease.[32]

The limitation of the study is that although this study has strength in having a well-matched control group with the patient group, our sample size may not be sufficient to evaluate the results of a pandemic such as COVID-19 adequately. Therefore, the results of this study cannot be generalized to all COVID-19 patients. In addition, this study evaluated the patients' conditions in the first 2 weeks after discharge. It lacked the long-term follow-up to present the progress of mental results.

CONCLUSION

As a result, there was higher depression, anxiety, stress levels, impairment in sleep quality, and irregularity in biological rhythms in individuals with COVID-19 compared to the control group in this study. In addition, individuals with severe symptoms of anxiety and sleep quality impairment levels were higher than those without severe symptoms. In addition, complaints of taste or smell loss in COVID-19 were related to the depression level. In COVID-19 patients, the age factor increased taste or smell loss 1.0 times, and the gender factor increased the taste or smell loss 6.0 times. COVID-19 inevitably has psychiatric consequences besides medical consequences. Therefore, it seems necessary to identify mental effects by approaching COVID-19 patients from a psychiatric point of view.

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Case Report

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Two Cases of Chilaiditi Syndrome: Symptomatic and Asymptomatic Presentation

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ABSTRACT

Chilaiditi syndrome or sign is mostly asymptomatic but rarely presents with gastrointestinal symptoms. Air under the right hemidiaphragm, which is a sign of the syndrome on direct X-ray, may suggest many acute abdominal etiologies. Both the haustral structures formed by the folds and visualization of the interposition of the colon between the liver and the right hemidiaphragm on computed tomography confirm the Chilaiditi sign. In this article, we present two cases of Chilaiditi, a symptomatic elderly patient with gastrointestinal complaints during hospitalization, and an asymptomatic youth person. This sign, which is one of the differential diagnoses of air under the right hemidiaphragm in X-ray, is aimed to attract the attention of clinicians to protect the patient from unnecessary interventional procedures as a requirement of the quaternary prevention principle. Lifestyle changes and medical treatments for complaints were recommended in both cases, and no surgical procedure was performed.

Keywords: Chilaiditis syndrome, colon, gastrointestinal disease, quaternary prevention

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INTRODUCTION

The Chilaiditi sign, described by the Greek Radiologist Chilaiditi in 1910, is the imaging of the interposition of the intestine between the liver and the diaphragm; if this sign accompanies gastrointestinal symptoms, it is called Chilaiditi syndrome.[1] It is often detected incidentally on a direct X-ray or computed tomography. It is observed between 0.025% and 0.28% in the general population and is frequently seen in men. Furthermore, its incidence increases with age. Most cases are asymptomatic; gastrointestinal symptoms, such as mild abdominal pain, nausea, indigestion, and constipation, are observed in symptomatic patients.[2] In this case report, the Chiladiti sign, which was detected in a 23-year-old asymptomatic male person and a 66-year-old male patient with gastrointestinal symptoms during hospitalization, is presented considering the relevant literature, with the informed consent of both persons.

CASE REPORT

Case 1

A 23-year-old male applied to a family medicine outpatient clinic for a workplace entrance examination. He did not have any clinical complaints. It was learned that he had gastrointestinal complaints such as indigestion, bloating, variable abdominal pain, and irregularity in defecation for a long time in his past, and his complaints decreased with the use of proton

pump inhibitors and diet regulation. His physical examination was unremarkable except for an obese appearance and increased tympanitis in the right upper quadrant of the abdomen and partially under the ribs. On the chest X-ray, it was seen that the right diaphragm was elevated, and the air image of the colon drew attention to it (Fig. 1a). After the X-ray was reported as the Chilaiditi sign, computed tomography of the abdomen was taken, and it was seen in the image that the colon loop interposed between the right hemidiaphragm and the liver (Fig. 1b). Because to the fact that the person is currently asymptomatic, dietary and lifestyle changes for possible gastrointestinal symptoms were explained and information was given about possible complications.

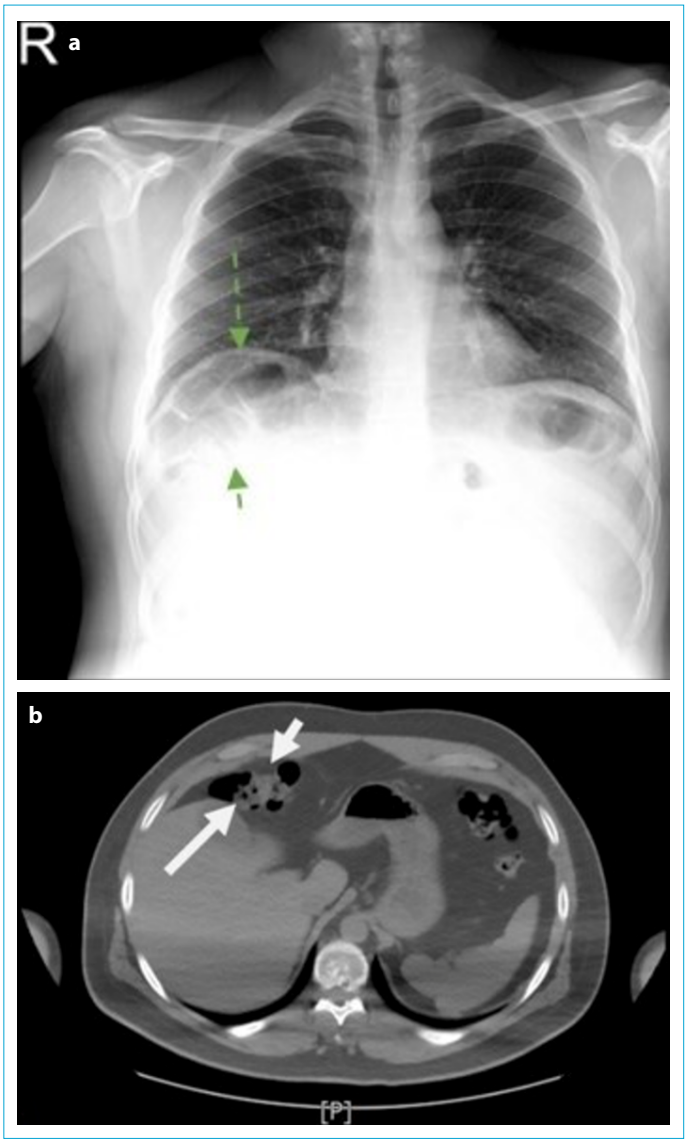

Figure 1. (a) Air spaces belonging to the colon are seen under the right hemidiaphragm. **(b)** The colon loop is interposed between the liver and the right hemidiaphragm.

Case 2

A 66-year-old male patient with known chronic obstructive pulmonary disease (COPD) was admitted to the emergency department for increased dyspnea. After the examinations, he was hospitalized with a pre-diagnosis of COPD exacerbation. Chest X-ray was taken on admission; increased bilateral aeration, flattening of the bilateral diaphragms, and an appearance compatible with the colonic loop under the right hemidiaphragm were detected (Fig. 2a). Abdominal computed tomography was performed on the patient due to complaints such as bloating, abdominal pain, and dif-

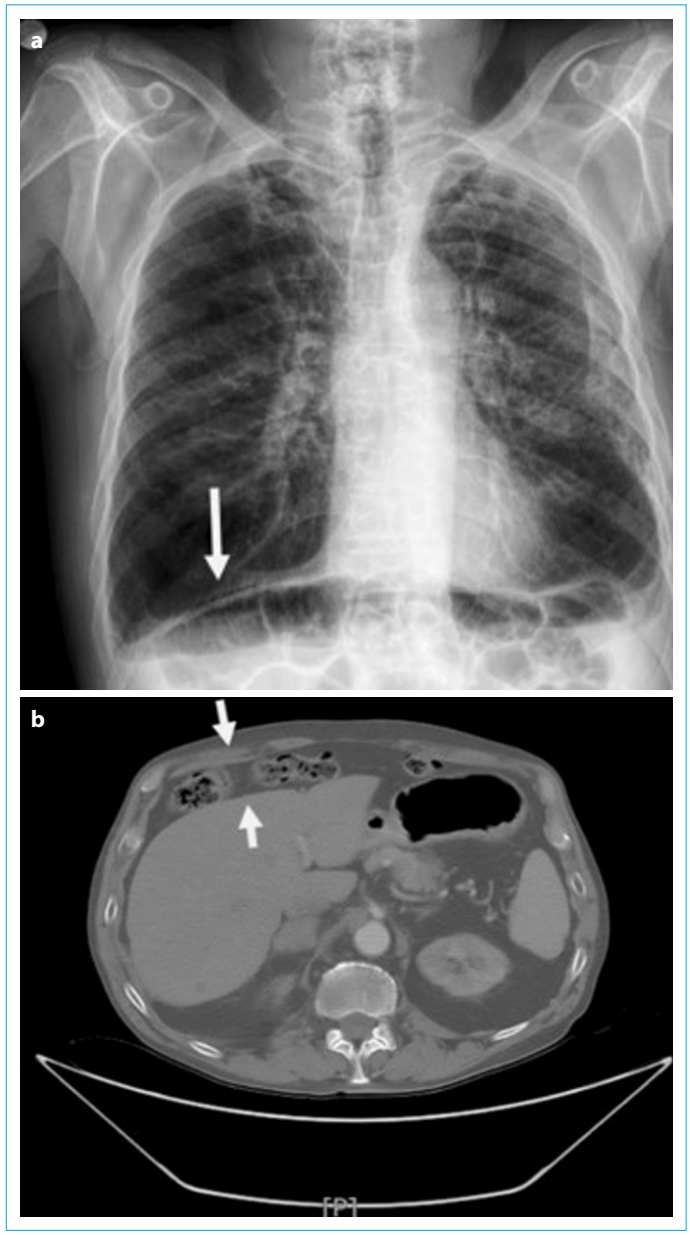

Figure 2. (a) Flattening of the bilateral diaphragms and colon loop under the right hemidiaphragm. **(b)** The colon loops are interposed between the liver and the right hemidiaphragm.

ficulty breathing while eating during follow-up and treatment. On tomography, it was observed that the colon loops were interposed between the liver and the right hemidiaphragm (Fig. 2b). With the diagnosis of Chilaiditi syndrome, in addition to dietary recommendations, anti-spasmodic and motility-regulating medications were administered in the treatment.

DISCUSSION

Chilaiditi cases are mostly asymptomatic, but few cases present with non-specific gastrointestinal symptoms such as bloating, indigestion, nausea, and abdominal pain.[2-4] Chilaiditi cases are rare clinical conditions; when not recognized correctly, they can be confused with many acute abdomen etiologies such as pneumoperitoneum, which is included in the differential diagnosis of subdiaphragmatic air and may cause clinicians to perform unnecessary surgical intervention. Deciding on surgical intervention only with radiological images is not suitable for medical science. However, in patients who do not have symptoms compatible with acute abdomen, interventional procedures for diagnosis and treatment can be performed due to radiological images. For this reason, it is necessary to protect the patient from unnecessary invasive procedures based on quaternary prevention, also known as "primum non-nocere".[5] The presence of normal plical or haustral appearance of the colon under the diaphragm on direct X-ray may help in the differential diagnosis of Chilaiditi signs and other diseases with free air images in the abdomen. In patients with the Chilaiditi sign, the subdiaphragmatic air is not displaced by changing position. In cases where intestinal air and free air cannot be distinguished in the subdiaphragmatic area on X-ray, computed tomography can be performed for differential diagnosis.[6] In Chilaiditi syndrome, supportive treatments such as rest, fluid supplementation, nasogastric decompression, enemas, laxatives, and a fiber diet are generally recommended; surgical treatment is limited. Complications of Chilaiditi syndrome that may require surgical intervention include the cecum, splenic flexure, and transverse colon volvulus, cecal perforation and rarely perforated subdiaphragmatic appendicitis.[7]

The clinical significance of the Chilaiditi sign is that the air image of the colon under the right hemidiaphragm on the direct X-ray taken at the time of admission suggests acute abdominal etiologies such as perforation and may cause unnecessary surgical procedures. Our cases are presented to draw attention to family physicians, emergency physicians, and surgeons to consider the Chilaiditi sign as a differential diagnosis and to avoid harming the patient to provide the quaternary prevention known as "primum non nocere."

Disclosures

Informed Consent: Written informed consent was obtained from the patients for the publication of the case report and the accompanying images..

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Achilles Tendon Rupture in a Patient Presenting with Pain in the Ankle: A Case Report

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ABSTRACT

Achilles tendon rupture is the most common tendon rupture of the lower extremity. Lower extremity and foot pains are frequently among the complaints of patients who apply to the primary care unit. In this case report, we wanted to explain Achilles tendon rupture, which can also be encountered in primary care and should be considered among the differential diagnoses.

Keywords: Achilles tendon, family practice, mobility limitation, rupture

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INTRODUCTION

Achilles tendon rupture is the most common tendon rupture of the lower extremity, which mostly affects active people and is caused by repetitive, compulsive movements such as running, jumping, and sudden acceleration or deceleration. It is 3 times more common in men than women.[1] The rupture usually occurs approximately 2–6 cm proximal to the calcaneus entry of the tendon of the gastrocnemius and soleus muscles.[2] Causes of Achilles tendon rupture include forced sudden plantar flexion of the foot, direct trauma, long-standing tendinopathy, and intratendinous degenerative conditions. Acute ruptures usually present with sudden onset pain associated with an audible "pop" sound at the injury site. Patients may describe a feeling similar to being kicked in the lower leg. On physical examination, patients with ruptured Achilles tendon cannot stand on their toes, and plantar flexion of the ankle is weak.[3] The Achilles tendon area is evaluated for ecchymosis, increased temperature, hematoma, edema, and tenderness. Palpation is used to check for tendon continuity.[4] According to clinical suspicion after physical examination, the diagnosis can be confirmed by ultrasonography or magnetic resonance imaging.[5] The first step in the treatment of a patient diagnosed with Achilles tendon rupture is rest, elevation, pain control, and functional support. Conservative and surgical treatment options are available in the next step. Due to similar results in surgical and conservative approaches, surgery is generally preferred in a selected group of patients with high physical needs.[6] With this case report, we wanted to state that Achilles tendon rupture should be kept in mind in patient with ankle pain.

CASE REPORT

A 67-year-old male patient presented with complaints of pain and limited mobility in the left ankle. The patient described a sudden onset of severe pain as if hitting his left ankle with a stone while performing a dance and a spasm in the left lower leg. The patient applied to the

emergency outpatient clinic as his pain did not go away after 1 day. The patient was evaluated by family medicine residents in the emergency department. It was learned that the patient had known coronary artery disease and hypertension, a history of cerebrovascular accident in 2012, and percutaneous transluminal coronary angioplasty was performed in April 2021. The patient was using acetylsalicylic acid 100 mg/day, ticagrelor 180 mg/day, pantoprazole 40 mg/day, atorvastatin 80 mg/day, ramipril 10 mg/day, and metoprolol 50 mg/day. The patient had a 30-pack/year smoking history. On physical examination, vital signs were normal (fever: 36.2°C, blood pressure: 130/85 mmHg, pulse: 76 bpm). There was no open wound, ecchymosis, or dermabrasion. With palpation, a gap was detected in the left Achilles tendon and pain at the tendon level. Left ankle plantar flexion was weak and slightly painful. Left toe, knee, and hip joints' mobilities were normal. Thompson's test was positive. Neurological examination and other system examinations were normal.

Achilles tendon rupture was considered in the preliminary diagnosis of the patient. Ultrasonography examination of the left Achilles tendon was requested and reported as follows: A hetero-geneous appearance, approximately 5–6 cm proximal to Tuber calcanei, which may be compatible with partial rupture and echogenic areas of hemorrhage close to the trace and the distal part of the Achilles tendon is edematous were observed. The patient was consulted by the orthopedics and traumatology department with the diagnosis of partial Achilles tendon rupture. A short leg splint in plantar flexion was applied to the patient by the consultant. Ice application, rest, left ankle elevation, and non-steroidal anti-inflammatory medication have been suggested. The patient was evaluated in the orthopedics and traumatology outpatient clinic 5 days after discharge, and elective left ankle magnetic resonance imaging was requested. MRI result showed a complete tear in the middle part of the Achilles tendon. Magnetic resonance imaging (MRI) images of the left ankle are shown in Figure 1. At this level, edematous signal changes were observed in the surrounding soft tissue. The operation was recommended to the patient by the orthopedic department.

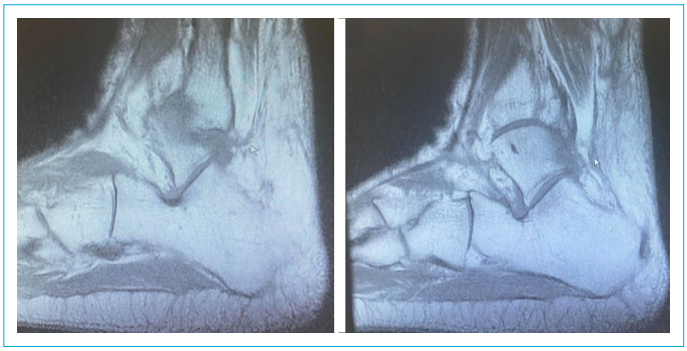

Figure 1. MRI images of the left ankle.

DISCUSSION

Although the Achilles tendon is the strongest and largest tendon in our body, it is the most frequently injured tendon in the lower extremity.[7] The incidence of Achilles tendon rupture was found to be approximately 18/100,000 in a study. In the USA, Achilles tendon ruptures occur most frequently in young male patients (20–39 years), while the greatest increase in incidence was observed in middle-aged patients (40–59 years). The reason for this situation is thought to be an increase in participation in recreational sports in middle age.[8] Our patient stated that he experienced such a situation at the age of 67 while dancing (halay) for entertainment purposes.

Multiple risk factors for Achilles tendon rupture have been identified.[3] These risk factors can be listed as poor pre-exercise condition, long-term corticosteroid use, excessive effort, chronic systemic diseases, and quinolone antibiotic use. Individuals with a family history of Achilles tendon rupture are also at greater risk. Right-handed individuals are more likely to rupture the left Achilles tendon, and vice versa. Our patient also uses his right hand dominantly, and an Achilles tendon rupture occurred on his left side.

Acute Achilles tendon rupture can only be diagnosed by history and physical examination.[7] According to the American Academy of Orthopedic Surgeons Clinical Practice Guidelines, the presence of two of the findings, which are positive Thompson test, decreased plantar flexion strength, palpable defect in the distal Achilles tendon, or increased passive ankle dorsiflexion at rest (Matles test) is sufficient for the diagnosis.[9] MRI and ultrasonography may also be helpful in cases of suspicious or partial rupture and assist in pre-operative planning.[7] The main goals of treatment are to restore the length and tension of the tendon to optimize the patient's ability to return to the desired level of activity. The treatment approach should be patient-specific depending on many factors, such as age, functional demand, activity level, and medical comorbidities.[7] There are different treatment management options, from conservative treatment to open or percutaneous surgical repair.[6] Ice application, rest, left ankle elevation, and non-steroidal anti-inflammatory drugs were recommended to our patient. The operation was planned for our patient according to the MRI results of the left ankle.

CONCLUSION

In this case report, it is been shown that Achilles tendon rupture can be due to ankle sprain, which is a frequent reason for referral to family medicine. Since family physicians are at the first point of contact with the patient, it is of great importance that they take the patient's anamnesis in detail and evaluate the patient with a comprehensive and holistic approach.

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Breaking the Mold: Encouraging Student-led Facilitation in Medical Education to Transform Learners into Leaders

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ABSTRACT

The approach of students as facilitators is an innovative teaching-learning approach that highlights the active involvement of students in guiding and supporting the learning experiences of their peers. It not only enhances students' understanding and retention of knowledge but also fosters a sense of ownership, responsibility, and professional growth. As institutions plan to implement the strategy of employing students as facilitators, they must keep a few things in mind to ensure that the intended learning outcomes can be accomplished. In conclusion, the use of students as facilitators in the field of medical education acts as a transformative approach to learning. In fact, the employment of this approach can result in better student engagement, improved retention of knowledge, promotes collaborative learning, and also prepares them for their future roles as health-care professionals. This calls for the need for all institutions to explore the possibility and introduce students as facilitators of teaching-learning methods to supplement conventional teaching methods.

Keywords: Learning, medical education, student

INTRODUCTION

In the conventional educational environment, teachers remain the sole information provider, while students are regarded as the mere recipient of knowledge.[1] Nevertheless, we cannot deny the fact that in the future, each undergraduate medical student of today's era is expected to become a facilitator or source of information provider to their batchmates or junior students (in their undergraduate period), or to undergraduate students or postgraduate juniors (in their period of residency), or even to the junior doctors (in their clinical practice).[1,2] Thus, it becomes quite essential that we must expose undergraduate medical students to facilitation skills to prepare them eventually to discharge their roles effectively in the due course. Moreover, it will also challenge the existing norms and we can acknowledge the valuable contributions of students in the learning process of their colleagues and even juniors.[1-3]

STUDENTS AS FACILITATORS

The approach of students as facilitators attracted lots of attention in heterogeneous educational settings, and the same even applies to medical education.[2] In general, student as a facilitator is an innovative teaching-learning approach that highlights the active involvement of students in guiding and supporting the learning experiences of their peers.[2,3] It would

not be wrong to state that student facilitators act as a link between teachers and students and ensure that the learning remains inclusive. The employment of students as facilitators brings about a shift in the traditional classroom dynamics, thereby enabling a collaborative learning environment. Considering the fact that success in health-care delivery is determined by better communication, teamwork, and critical thinking skills, exposing students to the role of facilitator will help immensely.[3-5]

It not only enhances students' understanding and retention of knowledge but also fosters a sense of ownership, responsibility, and professional growth.[4,5] Moreover, in this process, the student facilitator also gets an opportunity to share their knowledge and experience with their peers and accordingly engage in critical thinking and problem-solving activities.[5,6] Based on the experience acquired in such sessions, these student facilitators can also be utilized in other academic activities like workshops.[6,7] From the administrator's perspective, this is a wonderful opportunity to utilize the collective wisdom of their students to move forward toward the attainment of the vision and mission of the institution. In short, this approach of using a student as facilitators is useful and effective for student facilitators, other peers, teachers, and administrators.[5-8]

JUSTIFICATION FOR STUDENTS AS FACILITATORS

Before we employ the strategy of the student as a facilitator, we must be convinced about its utility and this can be explained on the basis of the following justifications.[4-6] Upon employment of students as facilitators, it gives an opportunity for students to get connected with their peers, as they not only learn from each other but also even there is an enabling learning environment.[7,8] Further, it gives a platform for them to have better engagement and thus they contribute actively to the discussion, which in turn promotes deep learning. In continuation, it also helps the student to augment their communication skills as in the process of facilitation, they simplify complex topics, with the help of examples.[8-10] Moreover, these educational experiences ensure that there is better collaboration and teamwork among students, which is also essential for future successful health-care practices.[9,10]

Further, these student facilitators act as role model for their colleagues and they can learn the skill of effective learning, professionalism, and lifelong learning.[10,11] While students act as facilitators, they can encourage critical thinking among their peers by asking application-based questions, which will in turn motivate students to become curious and learn better. In this process, the student facilitator even acquires leadership skills, which happens to be one of the core competencies expected of a competent medical graduate. As students assume the role of a facilitator, they feel the ownership of their learning and thus are motivated to learn themselves and even facilitate learning among their peers.[7,10] Finally, these student facilitators can provide customized support to their peers based on their specific needs, which might not be possible with real teachers.[9,12]

PREREQUISITES FOR EFFECTIVE IMPLEMENTATION OF STUDENT AS FACILITATOR

As institutions plan to implement the strategy of employing students as facilitators, they must keep a few things in mind to ensure that the intended learning outcomes can be accomplished.[3,4] This has to begin with the fact that students who are going to assume the role of facilitator must have a thorough knowledge of the topic which will significantly help them in their role of facilitation. In addition, students have to be trained in the domain of facilitation techniques (namely, active listening, effective questioning, managing group dynamics), communication skills, and time management (so that they can maintain a balance between their academics and this responsibility of facilitation).[5-8] Moreover, students must be exposed to those scenarios which will aid them to acquire leadership skills, and conflict resolution skills, as such situations might actually emerge while they are doing facilitation among peers.[11,13]

Further, it is also necessary that student facilitator need to nurture critical thinking skills, which will aid them to analyze complex themes, facilitate discussions, and thereby lay down the seeds for higher-order thinking among their peers.[7,8] The student facilitator must be also trained in the skill of giving effective and constructive feedback, which will in turn strengthen their role as facilitator and will also augment learning among peers.[2,3] Finally, these students should be given access to adequate resources to ensure continued learning and professional development. All these trainings and exposure to the student facilitator will significantly aid in enhancing their overall confidence and will empower them to effectively support peer learning.[3-6]

ADVANTAGES OF EMPLOYMENT OF STUDENTS AS FACILITATOR

Students serving as facilitators in the learning process in medical education have been linked with multiple merits, such as engagement in active learning, which ensures in-depth understanding and better retention of the topic that is covered.[12,14] In contrast to the teachers, with the student facilitator, the other students can be more relaxed and feel free to engage in discussion without having the fear that they will be judged.[2] The entire process plays its part in augmenting the communication skills of both facilitator

and interpersonal skills. Further, as students know that they have to facilitate learning among their peers, they adopt a self-directed learning approach and take ownership of their individual learning and are thus empowered.[4,5]

As these student facilitators are one among the other peers, they can ensure better engagement and create a collaborative learning environment.[11,13] Furthermore, we can be hopeful that the entire exercise can augment the possibility of the development of critical thinking skills among peers. Moreover, student facilitator develops leadership skills, teamwork skills, and group management skills, and this entire educational experience also enhances their confidence.[10-12] As the student facilitator works along with their peers in an interactive manner, they realize the learning needs of their peers and thus can adopt an empathetic approach toward them. In short, the above-mentioned advantages ensure that we can ensure the availability of a student-centered learning environment.[13-16]

STUDENTS AS FACILITATOR: POTENTIAL LIMITATIONS AND STRATEGIES TO OVERCOME

Using students as facilitators in medical education has its own share of limitations, and we must ensure that these limitations are adequately addressed to optimize the learning process.[2] A student who does not have proper knowledge about the topic which she/he is about to facilitate will account for major lacunae in the delivery of education.[1,2,4] At the same time, if students are not good at their facilitation skills (or are not well prepared), the utility of the session becomes limited, and the ultimate objective is not attained.[6-8] As students do not have enough teaching experience, we cannot and we must not use this strategy as a sole teaching-learning method, but rather as a supplementary method. At times, it can turn out to be extremely challenging for the students to manage their time to carry out the task of facilitation as well as continue their learning simultaneously.[4,13,14]

Further, we cannot also undermine the possibility that these student facilitators might introduce bias and subjectivity in the discussion if they are not properly sensitized about their roles and learning objectives.[15,16] In addition, in comparison to teachers, they might lack authority in the class, and thus it is extremely important that all students should be sensitized about this kind of process so that everyone participates and contributes in a meaningful manner.[7-9] This will also aid in maintaining proper authority and managing peer dynamics between the different members, and thus, we can maintain a respectful and inclusive learning environment.[12,13] Furthermore, there can be issues with bias, inability to give feedback to their peers, and poor preparation. However, all these challenges can be minimized by better sensitization and preparation of the students.[4,5]

CONCLUSION

The use of students as facilitators in the field of medical education acts as a transformative approach to learning. In fact, the employment of this approach can result in better student engagement, improved retention of knowledge, promotes collaborative learning, and also prepares them for their future roles as health-care professionals. This calls for the need for all institutions to explore the possibility and introduce students as facilitators of teaching-learning method to supplement conventional teaching methods.

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Revolutionizing Clinical Training by Overcoming the Challenges Involved in the Implementation of the Learner-doctor Method

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ABSTRACT

As medical education continues to evolve, the learner-doctor method of clinical training can be acknowledged as an immersive approach to learning. This is primarily because the approach envisages that each medical student is exposed to all the roles of a medical doctor, which they are expected to discharge on completing their training during their residency or clinical practice. Learner-doctor method has been associated with multiple benefits when compared with the conventional mode of clinical training. The innovative learner-doctor method is not free of limitations and has some concerns that must be considered before incorporating it into the curriculum. In conclusion, every teaching-learning method has its share of strengths and weaknesses based on the educational context and available resources. The hour needs to identify the challenges and take appropriate measures to overcome them in our mission to deliver a comprehensive and effective clinical training program.

Keywords: Medical education, medical field training, medical student

INTRODUCTION

As medical education continues to evolve, the learner-doctor method of clinical training can be acknowledged as an immersive approach to learning.[1] The learner-doctor method for clinical training in medical education carries immense potential in making a future competent doctor. This is primarily because the approach envisages that each medical student is exposed to all the roles of a medical doctor, which they are expected to discharge on completing their training during their residency or clinical practice. It will not be wrong to state that this approach has the potential to shape the future of medical education and the competence levels of healthcare professionals.[1,2]

LEARNER-DOCTOR METHOD: PROS

Learner-doctor method has been associated with multiple benefits when compared with the conventional mode of clinical training.[3] It ensures learning by active engagement (learning by doing), wherein students acquire clinical skills and promote critical thinking (improvement in their diagnostic acumen and decision-making abilities). As students get an opportunity to interact with actual patients, it becomes an excellent source of experiential learning, wherein students learn the art of dealing with varied clinical scenarios and practice effective communication.[1,4] Medical students also realize the significance of adopting a patient-centered approach, under which patients are not looked at as just medical cases but as individuals

with specific needs, concerns, and emotions; thus, there is a need to adopt an empathetic and professional approach.[5]

While in hospital wards and other clinical settings, students get a platform and a unique opportunity to interact with other healthcare professionals, making them acknowledge the significance of professionals from other streams in improving patient outcomes.[6,7] Further, as teachers are expected to give feedback and encourage reflection among students, both these activities enable students to critically analyze their performance, identify areas for improvement, and be the driving force in their own academic journey. Finally, all these activities lay down seeds for lifelong learning, which happens to be one of the core competencies expected of a medical graduate.[1]

Table 1. Identified challenges and potential solutions

Identified challenges	Potential solutions
Institutional support	• The Medical Education Unit must organize various workshops and seminars for faculty and administrators to orient them about the evidence-based benefits of the learner-doctor method
	• Share success stories (viz., improvement in learning outcomes and patient satisfaction) from other institutions that have implemented the method
	• Involve medical education experts in carrying out research projects to showcase the effectiveness of the method in institutional settings
Faculty training	• The Medical Education Unit to initiate comprehensive faculty training programs
	• Establish a peer mentorship system, where experienced/trained faculty mentor newer ones, thereby enabling knowledge transfer and skill development
Resource allocation	• Proper scheduling and planning of sessions
	• Gradually begin with a small group of students or in specific clinical settings to manage resources
	• Prioritize resource allocation based on the specific needs of the learner-doctor method
Time constraints	• Implement efficient scheduling of learning opportunities in clinical settings
	• Resort to technology for administrative tasks such as scheduling and documentation for faculty members
	• Ensure implementation of the learner-doctor method beyond the classroom hours in the evening at least once a week
Variable learning experiences	• Standardize clinical posting schedules to ensure exposure to a diverse range of patient cases to all students
	• Develop a schedule to rotate students under different units of the same department to ensure that they are exposed to all teachers
	• Establish the practice of regular debriefing sessions, wherein students share their experiences and challenges, and accordingly learn from their peers
Supervision balance	• Institutions must define the nature of supervision based on the level of students and there has to be a gradual transition to more autonomy
	• Teachers can use remote monitoring or real-time communication tools, to provide immediate guidance to learners (if required)
Patient safety	• Formulate guidelines for the learner-doctor method of clinical training, wherein the role of students is strictly defined
	• The doctor continues to be responsible for patient care and ensures strict monitoring of students
	• Develop a reporting and feedback system for patients and the health workforce to report concerns about patient safety, enabling quick intervention when needed
Patient consent	• Sensitize all patients about the scope and merits of the learner-doctor method with the help of educational materials
	• Train students regarding informed consent and its significance in healthcare delivery
	• Train students to effectively communicate with patients to obtain their willingness and also sort out their queries
Patient interaction-related	• Train medical students in patient communication skills, empathy, and handling difficult conversations
	• Employ encounters with simulated patients to train students to practice managing emotional and challenging situations
	• Organize regular debriefing sessions which enables the student to share their experiences and the coping strategies that they employed to overcome them
Assessment complexity	• Identify assessment tools (like objective structured clinical examinations) that will be used to assess student learning progress
	• Select the learning areas (viz., clinical skills, decision-making, communication, and professionalism, etc.) that will be evaluated in different phases of learning
	• Formulate rubrics for assessment of different areas to make the assessment fair and structured
	• Implement a multi-source feedback system (such as feedback from patients, peers, mentors, and self-assessment) to enable holistic evaluation of students' performance.

LEARNER-DOCTOR METHOD: CONS

The innovative learner-doctor method is not free of limitations and has some concerns that must be considered before incorporating it into the curriculum.[1] The limitations include the resource-intensive program's need to organize faculty development programs to empower them to implement the method effectively. Further, it is only possible to ensure a uniform learning experience for some students, as the quality of training will vary depending on the clinical settings, mentor availability, and the diversity among patients. As the students have to engage in patient care activities beyond college hours, it might become difficult for them to maintain a time balance. At the same time, some students might feel overwhelmed initially when given the responsibility of patient care.

The inexperience among medical students might account for a major risk to patient safety.[1] Thus, it is a must for students to interact with patients under the strict supervision of their teachers. Further, as students might not get adequate exposure to patients, we cannot be confident that they can become competent in specific skill sets. From the teachers' perspective, many might feel that such a method of clinical training will increase their burden, and thus, it is quite essential that all of them be sensitized about the same.[1,2] In addition, it might be challenging to conduct assessments of students objectively and consistently, and this calls for the need to work on the evaluation and its tools to enable learning progression among students.

IDENTIFIED CHALLENGES AND POTENTIAL SOLUTIONS TO OVERCOME THEM

The planning and implementation of the learner-doctor method in medical college settings is expected to encounter multiple challenges associated with different stakeholders.[1,8-10] These challenges might be administration-related (such as convincing administrators to include the learner-doctor method, scheduling of classes, time constraints, and resource allocation), teachers-related (such as untrained faculty, the method being considered as a burden, supervision, and complexity of planned assessments), students-related (viz., time constraints, variable learning experiences, etc.), and patients-related (such as obtaining consent, safety, and willingness). Identified challenges and potential solutions are summarized in Table 1. To effectively implement these challenges, there is an immense need to adopt a strategic approach wherein all the concerned stakeholders must work in collaboration with each other.

CONCLUSION

Every teaching-learning method has its share of strengths and weaknesses based on the educational context and available resources. The need of the hour is to identify the challenges and take appropriate measures to overcome them in our mission to deliver a comprehensive and effective clinical training program.

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Letter to the Editor

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WONCA Europe's New Family Medicine Definition and Sustainable Healthcare Knowledge

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The European Definition of Family Medicine was revised this year by the World Organization of Family Doctors (WONCA) Europe.[1] One health, Planetary Health and Sustainability, was added to the discipline to create the bedrock for a new integrated approach in the 2023 edition. According to the World Health Organization (WHO), "One Health" is an approach to the design and implementation of programs, research, legislation, and policies in which multiple sectors work together to accomplish better public health outcomes.[2] The WHO defines "sustainable healthcare" as a health system that maintains, improves, or restores health while minimizing negative environmental impacts and leveraging opportunities to improve it for the benefit of the health of current and future generations.[3] Planetary health is, on the other hand, the health of human culture and the health of the natural systems on which it relies.

Primary care can positively impact healthcare sustainability and address climate and natural environment change.[4] As specified in the 17 Sustainable Development Goals, ending poverty and other deprivations must go hand in hand with improving health and education as well as reducing inequalities.[5]

Family doctors are in a unique position to promote knowledge about planetary health and sustainability and to encourage changes in behavior.[4] Therefore, family doctors need to strive to integrate sustainability into how they behave and how they practice.

For this matter, the authors welcome the new definition. In the past few months, they have been surveying the knowledge of European family doctors about sustainable healthcare to raise awareness and advocate for more training on the topic. They developed a knowledge survey that consisted of 5 multiple-choice questions (MCQ) and 3 open-ended questions, as well as a characterization of the participants, including demographic information and previous training in sustainable healthcare. The survey was distributed through the European Young Family Doctor's Movement network. In the first round, 49 answers were collected from 13 nationalities (41.7% Turkish). The preliminary results showed that most participants had some knowledge of what sustainable healthcare meant (average score for MCQ was 2.3 out of 5). Qualitative data, which was analyzed by three different researchers, found that many of the participants did not know the correct meaning of the term. The primary results were

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presented at WONCA Europe's conference in June 2023 in Belgium, fostering a dialog among peers and ultimately suggesting distributing the survey further.

Advocating for urgent global issues is only possible if adequate knowledge is possessed and effectively communicated. Raising awareness on the new definition of Family Medicine by WONCA Europe is therefore pivotal to positively impact our communities, patients, and the environment. As young researchers, the authors have identified the need to extend this survey to more colleagues, assessing their knowledge of sustainable healthcare. The authors are striving to collect a wider range of data from more countries.

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