



Websites as a Gate of Pharmacy Schools to the World: Does National Accreditation Cause a Difference?

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ABSTRACT

Objectives: Websites have become the main information source, being a crucial element of our daily life and a global network. In this context, the importance of the websites of pharmacy schools is considered not only for their educational mission, but also for their gates to the world. In this study, we evaluated the websites of pharmacy schools based on criteria issued in the literature.

Materials and Methods: Websites of all pharmacy schools in Türkiye were evaluated by scoring the availability of predetermined items, where *t*-tests and paired *t*-test were used to compare the groups.

Results: As a result, we found that there is no statistical difference between private and public and accredited or non-accredited schools ($p>0.05$). Also, we observed no statistical difference between the scores in 2012 and 2021 ($p>0.05$).

Conclusion: Most pharmacy schools in this study were public, and the accreditation status still seems challenging. Of these 39 schools, only 14 schools are accredited. Total scores of public schools were found to be higher than the private ones and notably, accredited schools have higher scores. Yet, there is no statistically difference between accredited and non-accredited schools or public and private schools. Importance of websites as a communication tool for higher education institutions (HEIs) is indisputable. In conclusion, pharmacy schools should keep up to date with their official websites, considering the virtual world we fell into with the web technologies' developments. Also, further studies should be conducted on the websites of pharmacy schools regarding user demands. Besides we suggest that pharmacy schools' website' quality should be improved and keeping them up to date should be ensured.

Key words: Faculty websites, national accreditation, pharmacy education, pharmacy school

INTRODUCTION

In today's world, websites are one of the crucial elements of daily life. Also, they became the main information sources and a global network in the last two decades.¹ With the evolution of the internet, a new communication way has taken place and web-based two-way communication has become a more and more leading tool. As a consequence, the structure and quality of websites have come to the agenda and development and degree of quality turned into a question and a research area.² Here and now, it is hard to imagine any institution both governmental and non-governmental, without a website. Considering that the internet is an important communication

channel, small companies and freelancers that do not have the opportunity to have a website that uses social media accounts for the same purpose. In such an environment, higher education institutions' (HEI) brand image would be built on their web-based communication ability.³

In Türkiye, HEIs, which are defined as post-secondary education institutions, are classified as faculties, graduate schools, 4 year schools, conservatories, post-secondary vocational schools and applied science centres by the Council of Higher Education (CoHE). Pharmacy schools count as faculties and they provide a diploma equal to a master's degree to their students.⁴ In this context, the importance of the websites of pharmacy schools

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concluded not only for the academic degree that they provide, but also for communication with students and other stakeholders such as other schools or researchers from different parts of the world.

Furthermore, there is an organization for accreditation of pharmacy schools in Türkiye, which is established regarding The Higher Education Quality Council of Türkiye (THEQC). THEQC was founded in 2015 under the “Higher Education Quality Assurance Regulation”.⁵ Also, considering the quality of higher education, Institutional Accreditation Program has been initiated and an accreditation organization named “The National Society of Assessment and Accreditation of Pharmacy Education” (ECZAKDER) has been established for the accreditation of pharmacy schools.⁶⁻⁸ The accreditation process begins with the application of a pharmacy school as *per* the requirements determined by ECZAKDER (ver. 5.0). After the pre-evaluation report, applicant pharmacy school was informed about its results. If there is no additional request from ECZAKDER, an audit committee is assigned. Eventually, the compliant school acquires the accreditation approval for 6 years.

Apart from these, the coronavirus disease-2019 (COVID-19) pandemic has transformed the learning process dramatically and nearly all HEI in Türkiye responded to this situation with e-learning platforms, which led to a significant increase in web-based communication. The lockdown and campus closures switched the face-to-face in-person learning to the new world. And websites substituted the billboards in HEIs.⁹ In this context, the importance of the websites of all institutions has been recognized once again. Particularly, most of the students could not complete the curriculum and assessments in traditional ways. Those nearing the end of higher education phase have faced various difficulties such as lack of internship opportunities, decrease in job opportunities, being inexperienced in the world of remote work.¹⁰ Moreover, even the internship programs have been completed *via* online internship education programs organized by Turkish Pharmacists’ Association (<https://www.teb.org.tr/news/9319/TEBGK-Taraf%C4%B1ndan-D%C3%BCzenlenen-Online-End%C3%BCstri-Staj-E%C4%9Fitimi-Program%C4%B1>).

Educational institutions’ websites and their roles have been the subject of some studies with different aspects.^{11,12} However, there is no data on the websites of pharmacy schools in Türkiye. In this study, we evaluated the websites of pharmacy schools based on criteria issued in the literature, to put forward their previous and current status, offer suggestions for their improvement.

MATERIALS AND METHODS

Websites of all pharmacy schools in Türkiye have been evaluated. The list of pharmacy schools was elicited from CoHE’s website. We found that 39 schools are providing undergraduate pharmacy education at the beginning of March 2021.¹³ Data collection was conducted between 01.03.2021-10.03.2021. The evaluation process was conducted regarding

the studies of Gibson et al.¹⁴ and Başok Yurdakul and Coşkun.¹¹ Also, to compare the characteristics of websites of the schools that existed in 2012, we used the data, presented in 2012, which is prepared by two co-authors of this article. The evaluation criteria and scoring method were adopted from Gibson et al.¹⁴ Relevantly, the availability of each item listed in Table 1 was scored with 1 point. But regarding the hierarchical structure of schools and their scope, the criteria were widened considering Başok Yurdakul and Coşkun.¹¹ In this context, the content of a website is divided into two main categories: functional and accessibility aspects. Primarily, characteristics such as the information provision and communication networks were assessed as functional aspects. However, characteristics such as using images, the existence of a school logo, and having an independent website were considered as accessibility aspects. The evaluation criteria are given in Table 1.

Additionally, to show the differences between 2012 and 2021, the criteria of the former study were considered a starting point. Except for weekly course program, exam program, curriculum, announcements on the online distance learning process, and social media accounts, other criteria were the same as of 2012. Also, the number of schools has increased since then, so a comparison could only be made with the schools that were established before 2012.

Research hypotheses

The assessment was conducted regarding the national undergraduate pharmacy education accreditation status and public or private schools. By this means, the accreditation status is considered a milestone. Since the aim of the accreditation is stated as “to contribute and facilitate the pharmacy schools’ competence in both educational and professional manner”, the importance of the website of schools is implicitly emphasized.⁷ Furthermore, according to the accreditation standards, it is an expectation from schools, to inform their stakeholders in an exact and accessible way.¹⁵ Moreover, the developments in website usage and its functions with the COVID-19 era and its impact on our lives, websites are considered as the main tool to communicate. Correspondingly, we expect the reflection of these developments on the websites of pharmacy schools. Accordingly, the three hypotheses are designed as follows:

H1: The accredited schools have higher scores than non-accredited schools.

H2: Private schools’ scores are higher than public schools’ scores.

H3: The current scores of the websites of pharmacy schools those existed in 2012, are higher than their previous scores.

Statistical analysis

Statistical analyses were conducted with IBM SPSS ver. 23 (SPSS, Inc. Chicago, IL, USA). Firstly, descriptive statistics were provided, and a test of normality was conducted. Subsequently, to compare the means of two groups, *t*-test was used to analyze the data. The level of significance was set a priori at $p < 0.05$. Furthermore, to compare the scores between 2012 and 2021, paired *t*-test was conducted with the same level of significance.

RESULTS

The total number of pharmacy schools was 16 in 2012, but the number has increased up to 40 in 2021. After the data collection process, a brand new pharmacy school is established, along with the existing 39 schools. Hence, this school was omitted and evaluations were conducted for 39 schools. The status of pharmacy schools that objected to this study is presented in Table 2, with there being on public or private, accredited or non-accredited.¹⁶

As a result of scoring, the highest score of a school was 23, and the lowest score was 10. The mean of the scores was 16,51. Before comparisons, normality tests are conducted to determine whether the data are modeled by a normal distribution. Since the total data were less than 50, the Shapiro-Wilk test is conducted to test the normality. Both of the comparison groups have a normal distribution ($p > 0.05$).¹⁷ Afterwards, the comparisons are conducted with the *t*-test and, the results are given in Table 3.

As it is seen in Table 3, there are no statistically significant differences between groups. So, H1 and H2 hypotheses are rejected.

Additionally, the normality test is carried out for data that were obtained for the comparison of the schools that existed in 2012. It is found that the data have a normal distribution regarding the Shapiro-Wilk test ($p > 0.05$). Subsequently, the comparison for scores which are objected to the same schools but different

years, the paired *t*-test was conducted. The results are given in Table 4.

There is no statistically significant difference between the scores in 2012 and 2021 ($p > 0.05$) and, H3 is rejected (Table 4).

DISCUSSION

In the age of communication technologies, the use of websites in different fields, from travel to education is irreplaceable. For this reason, websites are an important resource for educational institutions to reach their stakeholders to whom they provide services and training.^{18,19} Furthermore, visibility, which gives clues about the functioning of an organization, is also an important factor for institutions such as The SCImago Institutions Rankings.²⁰ In this context, the current status of the pharmacy schools' websites in Türkiye is revealed in a framed perspective in this study.

As shown in Table 2, most schools are public and besides, the accreditation status still seems challenging. According to the mean values of schools, accredited schools have higher scores (17, 21) than non-accredited schools (16.12), which is similar also for public (17.93) and private schools (13.33). However, there were no significant statistical differences between the two groups. Therefore, all the three hypotheses are rejected ($p > 0.05$).

Recently, across the world, HEI has become market-oriented progressively. Hence, creating a brand and proving the quality is crucial for HEI, and accreditation is a distinct element in this context.²¹ However, current accreditation standards have

Table 1. Evaluation criteria and scoring method

Functional aspects	Accessibility aspects
Corporate history	Having independent website
Mission and vision	Usage of images
Information on administrative board	Sitemap
Search engine	Having language option (e.g., English)
Academic staff	Webmaster
Administrative staff	Updating info
Information on departments	Social media accounts (if applicable)
Contact information	
Academic calendar	
Announcements	
Having menu tab	
School logo	
Employment opportunities	
Weekly course program	
Exam program	
Curriculum	
Announcement on the online distance learning process	

Table 2. Status of pharmacy schools

Status	Accreditation		Total
	Accredited	Non-accredited	
Public	11	16	27
Private	3	9	12
Total	14	25	39

Table 3. Comparison of public-private, accredited non-accredited schools

Comparison group	Mean	Standard deviation	<i>p</i>
Public	17.93	2.960	> 0.05
Private	13.33	1.923	
Accredited	17.21	3.512	> 0.05
Non-accredited	16.12	3.370	

Table 4. Comparison group results

Comparison group	Mean	Standard deviation	<i>p</i>
2012 scores	12.47	2.386	> 0.05
2021 scores	13.27	2.520	

20 categories, which could be difficult to secure for newly established schools. The 14 schools are accredited and as expected 11 of the schools in 14, were established before 2012.¹⁵ Exceptionally, only one school was a private school among these accredited 14 schools, and it was established after 2012. Even though time is a conceivable issue for the accreditation status, the tendency of private pharmacy schools to be involved in the accreditation process seems to lack currently.

Notably, the HEIs are in a competitive environment, where there are too many offers that could be suitable for them. Therefore, the attraction and retainment of students are significant issues in their financial status. Since the students are their customers certainly, they object to the market rules.²² Thus, the private schools are searching for ways to increase their market presence in consideration of market mix. In this context, regarding 7P's of the market mix, promotion is knocking on the HEI's door. As an important channel of communication, websites are a unique tool to provide information and communicate directly with the candidates as they are the potential customers.²³ The total scores of public schools are higher than private ones, which is interesting considering funding options and marketing actions. Consequently, the accredited schools have higher scores. Yet, statistically there is no significant difference between accredited and non-accredited schools. As we consider the accreditation process, which is a questionable position for quality of the website of a pharmacy school, it is found that there is no significant difference between public and private schools.

Over the past decades or so, the changes in higher education have been dramatically affected by web technologies. With all kinds of information, such as paper-based documents or interactive sources, the unprecedented characteristics of websites make them the main way to present and access information.²⁴ Apart from these characteristics, the COVID-19 pandemic has affected our lives and usage of websites remarkably. Associated with e-learning programs and web-based education, which are accessible through websites, have secured their positions.²⁵ Although the development of websites has been progressive, it has not prevailed for pharmacy schools in Türkiye. We found that there is no statistical difference in websites of pharmacy schools, between 2012 and 2021 regarding their aspects.

To have websites as an indicator of quality and catch up with the era, the accreditation standards should include criteria for the web sites of the schools. Furthermore, the visibility of the websites of the faculties is another notable factor. In this context, to comply with some criteria that will increase the visibility will also be beneficial. Whereas internet has a countless number of pages, users prefer to use the search engines to reach each site precisely. Search engines are a kind of software, which collect information about websites, such as URL address, keywords or keywords groups defining the content, technical information and links that are provided on the website. Studies have shown that users tend to click on the first five results and ignore the remained. Considering user behavior, it is notable to

use search engine optimization to move the website on the top of the search engine results.^{26,27}

Study limitations

Number of pharmacy schools is increasing day-by-day, hence, it is impossible to include all schools in this study.

CONCLUSION

Websites, as the main communication tools in today's world, their importance for HEIs is indisputable. In this context, pharmacy schools as the HEIs should keep up to date with their official websites, considering the virtual world we have fell into with the developments in web technologies, besides the COVID-19 pandemic. Having websites as a category and the formation of standards in the accreditation process of pharmacy schools may increase communication with their students, apart from other stakeholders. Following the communication augmentation, it will be beneficial for both the brand image of public and private schools. Further studies and assessments on students' perspectives could be a milestone in the standardization process. Last but not the least, recognizing the importance of web-based communication tools will be a starting point to be prepared for worldwide crises such as pandemics.

Ethics

Ethics Committee Approval: Not applicable.

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Authorship Contributions

Concept: S.Y., B.S.Ş., L.Y., Design: S.Y., B.S.Ş., L.Y., Data Collection or Processing: S.Y., B.S.Ş., L.Y., Analysis or Interpretation: B.S.Ş., L.Y., Literature Search: S.Y., B.S.Ş., L.Y., Writing: L.Y., B.S.Ş., S.Y.

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