

## Websites as a Gate of Pharmacy Schools to the World: Is national accreditation cause a difference?

### Eczacılık Fakültelerinin Dünyaya Açılan Kapısı Olarak İnternet Siteleri: Ulusal Akreditasyon Fark Yaratıyor mu?

#### Short title: Pharmacy Schools Websites

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#### ABSTRACT:

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

**Materials and methods:** Websites of all pharmacy schools in Turkey have been evaluated by scoring availability of predetermined items. t-tests and paired sample t-test were conducted to compare the groups.

**Results:** As a result, we found that there is no statistical difference between private or public and accredited or non-accredited schools ( $p > .05$ ). Also, we observed no statistical difference between the scores in 2012 and 2021 ( $p > .05$ ).

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

**Keywords:** Faculty websites, national accreditation, pharmacy education, pharmacy school

## **ÖZ:**

**Amaç:** İnternet siteleri günlük hayatımızın önemli bir parçası olmanın yanı sıra ana bilgi kaynağı ve aynı zamanda küresel bir ağ haline geldi. Bu kapsamda, eczacılık fakültelerinin internet siteleri yalnızca eğitim içerikleri ile değil, aynı zamanda bu fakültelerin dünyaya açılan kapısı olması açısından da önem taşımaktadır. Bu çalışmada, literatürde yer alan kriterlere dayalı olarak eczacılık fakültelerinin internet sitelerinin değerlendirilmesi ve ulusal eczacılık lisans eğitim akreditasyonunun buna etkisinin incelenmesi amaçlanmıştır.

**Gereç ve Yöntemler:** Türkiye'deki tüm eczacılık fakültelerinin internet siteleri belirlenen önceden belirlenen kriterler doğrultusunda incelenmiş ve kriterlerin mevcudiyeti puanlanmıştır. İstatistiksel değerlendirme için t-testi ve eşleştirilmiş örneklem t-testi yapılmıştır.

**Bulgular:** Vakıf veya devlet üniversitelerine bağlı fakülteler ile akredite olan veya olmayan eczacılık fakültelerinin internet siteleri arasında istatistiksel olarak anlamlı bir fark bulunamamıştır ( $p>0,05$ ). Ayrıca, internet sitelerinin 2012 ve 2021 yıllarının puanları karşılaştırıldığında bu iki farklı yıl için istatistiksel olarak anlamlı bir fark olmadığı gösterilmiştir ( $p>0,05$ ).

**Sonuç:** Türkiye'deki eczacılık fakültelerinin büyük bir kısmının devlet üniversitelerine bağlı fakülteler olduğu görülmüştür. Bununla birlikte, henüz tüm fakültelerin akreditasyon sürecini tamamlamadığı görülmüştür. Bu kapsamda, 39 fakülteden sadece 14'ünün akredite olduğu görülmüştür. Devlet üniversitelerine bağlı fakültelerin kriterlerin her birinden aldıkları puanların toplamı vakıf üniversitelerine bağlı fakültelerden daha yüksek bulunmuştur ve bunlar arasında özellikle akredite fakültelerin internet sitelerinin puanları daha yüksektir. Ancak, akredite ve akredite olmayan fakülteler ile devlet ve vakıf üniversitelerine bağlı fakülteler arasında istatistiksel olarak anlamlı bir fark bulunamamıştır. İnternet siteleri yükseköğretim kurumları için, bir iletişim aracı olarak, tartışılmaz bir öneme sahiptir. Bu nedenle, eczacılık fakülteleri, internet teknolojilerindeki gelişmelerle içine düştüğümüz sanal dünyayı da göz önünde bulundurarak çağın gerekliliklerini yakından takip etmelidir. Sonuç olarak, internet sitelerinin içerikleri ve düzenlenmesi ile ilgili daha ileri çalışmalar yapılmalı ve eczacılık fakültelerinin internet sitelerinin kalitesi de geliştirilmeli ve güncel tutulmaya çaba harcanmalıdır.

**Anahtar kelimeler:** Fakülte internet sayfası, eczacılık eğitimi, eczacılık fakültesi, ulusal akreditasyon

## **INTRODUCTION**

In today's world, websites are one of the crucial elements of daily life. Also, they became the main information sources and also a global network in the last two decades.<sup>1</sup> With the evolution of the Internet, a new communication way has taken place and web-based two-way communication became 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.<sup>2</sup> 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 those do not have the opportunity to have a website use 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.<sup>3</sup>

In Turkey, 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.<sup>4</sup> In this context, the importance of the websites of pharmacy schools 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 Turkey, which is established regarding The Higher Education Quality Council of Turkey (THEQC). THEQC was founded in 2015 under the "Higher Education Quality Assurance Regulation".<sup>5</sup> Also, considering the quality of higher education, Institutional Accreditation Program has been started and an accreditation organization named The National Society of Assessment and Accreditation of Pharmacy Education (ECZAKDER) has been founded for accreditation of pharmacy schools.<sup>6,7,8</sup> The accreditation process begins with the application of pharmacy school as per the requirements determined by ECZAKDER (Ver. 5.0). After the pre-evaluation report, applicant pharmacy school is informed about its results. If there is no additional request of ECZAKDER, an audit committee is assigned. Eventually, the compliant school acquires the accreditation approval for 6 years.

Apart from these, the COVID-19 pandemic has transformed the learning process dramatically and nearly all HEI in Turkey respond to this situation with e-learning platforms which led to a significant increase in web-based communication. The lockdowns and campus closures switched the face-to-face in-person learning to the new world. And websites substituted the billboards in HEIs.<sup>9</sup> 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. For 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.<sup>10</sup> 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.<sup>12,13</sup> However, there is no data on the websites of pharmacy schools in Turkey. In this study, we aimed to evaluate 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 Turkey 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.<sup>10</sup> Data collection was conducted between 01.03.2021 – 10.03.2021. The evaluation process was conducted regarding the studies of Gibson et al. and Yurdakul et al.<sup>12,14</sup> Also, to compare the characteristics of websites of the schools those 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. 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 Yurdakul et al. In this context, the content of a website has divided into two main categories: functional

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\* (Sozen-Sahne B, Yegenoglu S. Pharmacy faculties' windows open to the world: The web sites of faculties of pharmacy in Turkey. In: 10th International Symposium on Pharmaceutical Sciences. Ankara; 2012.)

aspects and accessibility aspects. Primarily, features such as the information provision and communication networks were assessed as functional aspects. On the other hand, characteristics such as using images, the existence of school logo, having an independent website were considered as accessibility aspects. The evaluation criteria were given in Table 1.

Additionally, to show the differences between 2012 and 2021, the criteria of the former study were considered as 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 comparison could only be made with the schools that are 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 as 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 are implicitly emphasized.<sup>7</sup> Furthermore, according to the accreditation standards, it is an expectation from schools, to inform their stakeholders in an exact and accessible way.<sup>15</sup> 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 in the websites of pharmacy schools. Accordingly, the three hypotheses are conducted 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 analyse the data. The level of significance was set a priori at  $p < .05$ . 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 were 16 in 2012, but increased 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 is omitted and evaluations conducted for 39 schools. The status of pharmacy schools that are objected to this study is presented in Table 2, with their being on public or private, accredited or non-accredited.<sup>16</sup>

As a result of the scoring the highest score was 23 and the lowest score was 10. The mean of the scores was 16,51. Prior to comparisons, normality tests are conducted to determine whether the data is modelled 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 normal distribution ( $p > .05$ ).<sup>17</sup> Afterwards, the comparisons are conducted with the t-test and, the results are given in Table 3.

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

In addition, the normality test is carried out for data those were obtained for the comparison of the schools those existed in 2012. It is found that the data have normal distribution regarding the Shapiro-Wilk test ( $p > .05$ ). Subsequently, the comparison for scores which are objected to the

same schools but different years, the paired sample t-test was conducted. These results are given in Table 4.

There is no significant statistical difference between the scores in 2012 and 2021 ( $p > .05$ ) and also, H3 is rejected (Table 4).

## DISCUSSION

In the age of communication technologies, the use of websites in many 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.<sup>18,19</sup> Furthermore, visibility, which gives clues about the functioning of an organization, is also an important factor for institutions such as The SCImago Institutions Rankings (SIR).<sup>20</sup> In this context, the current status of the pharmacy schools' websites in Turkey is revealed in a framed perspective in this study.

As seen in Table 2, the majority of 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 are no significant statistical difference between these two groups. Therefore, all of the three hypotheses are rejected ( $p > .05$ ).

Recently, across the world, HEI has become market-oriented progressively. Hence, creating a brand and prove the quality is crucial for HEI and, accreditation is a distinct element in this context.<sup>21</sup> On the other hand, current accreditation standards have 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 these 14, were established before 2012.<sup>15</sup> 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 involve 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 on their financial status. Since the students are their customers in a certain way, they object to the market rules.<sup>22</sup> 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 HEIs door. As an important channel of communication, websites are a unique tool to inform and communicate directly with the candidates as they are the potential customers.<sup>23</sup> 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 website of pharmacy school, it is found that there is no significant difference between public and private schools.

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

In order to have websites as an indicator of quality and catching 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 be also beneficial. Whereas internet has the countless number of pages, users prefer to use the search engines to reach each site precisely. Search engines are kind of a software, which collect information about websites, such as URL address, keywords or keywords groups defining the content, technical information and also links that are provided in the website. Studies have shown that users tend to click on the first five results and ignore the remained. Considering user behaviour, it is notable to use search engine optimization (SEO) to move the website on the top of the search engine results.<sup>26,27</sup>

### **Study limitations**

Number of pharmacy schools are increasing day-by-day, hence it is not possible to include all schools in this study.

### **CONCLUSION**

Websites, as the main communication tools in today's world, its importance for higher education institutions are indisputable. In this context, pharmacy schools as the higher education institutions should keep up to date with their official websites, considering the virtual world we fell into with the developments in web technologies, besides the COVID-19 pandemic. Having websites as a category and formation the standards in the accreditation process of pharmacy schools may increase the 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 to the standardization process. Last but not least, recognizing the importance of web-based communication tools will be a starting point to be prepared for worldwide crises such as pandemics.

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## TABLES

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-nonaccredited schools

Comparison group	Mean	Standard Deviation	p
Public	17,93	2,960	> .05
Private	13,33	1,923	
Accredited	17.21	3,512	> .05
Non-accredited	16,12	3,370	

Table 4. Comparison group results

Comparison group	Mean	Standard Deviation	p
2012 scores	12,47	2,386	> .05
2021 scores	13,27	2,520	

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Not applicable.

Uncorrected proof