DESIDOC Journal of Library & Information Technology, Vol. 44, No. 5, September 2024, pp.328-337, DOI : 10.14429/djlit.44.05.18850

Web Presence and Features of Library Websites/Webpages of NIRF-Ranked Pharmacy Institutes of South India: An Evaluative Study

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ABSTRACT

The study focuses on conducting a web content analysis of 28 library websites and webpages of NIRF-ranked South Indian Pharmacy Institutes of India. Data collection utilised the observation and survey methods of the concerned websites and webpages. The analysis reveals that two libraries (7.14 %) utilise open-source content management systems (WordPress and Webs) to develop their dedicated library websites. A large majority (96.43 %) of libraries provided information about the library, printed books and journals, and copyright statements on their websites/webpages. Information regarding subscribed e-journals and e-books was found on 24 (85.71 %) libraries' websites. Additionally, fifty percent of libraries offered information relevant to ILL/document delivery, remote access, and reprographic services as core services. E-learning platforms such as CourseWare, Edx, Swayam Prabha, NPTEL, and Swayam were mentioned on 12 (42.86 %) libraries' websites, while eight (28.57 %) libraries provided plagiarism checkingfacility. The study also highlights that only a few libraries are familiar with implementing Web 2.0 technologies. The overall results found that even the top scoring websites/webpages have only fifty percent of the web contents present based on the predefined criteria. The findings of this study can assist librarians and webmasters in restructuring their library websites with user-friendly designs and features to provide essential content about their libraries, collections and services.

Keywords: Content analysis; Web content; Library websites/webpages; Web 2.0 tools; Pharmacy institutes; NIRF

1. INTRODUCTION

Over the past decade, the internet has become an indispensable medium for the distribution of electronic information, particularly in academic environments. The quantity and quality of information available on the internet are increasing at an unprecedented rate[1]. A website or webpage serves as an important informational and promotional tool for various activities, presenting products and services in a sophisticated manner to engage customers of business organisations and institutions. Likewise, the importance of library websites has become absolutely necessary in this internet age to fulfil the knowledge quest of academic and research institutes in specific domains. Library websites are primarily built for user engagement through virtual modes, serving as comprehensive gateways to electronic resources and services from diverse sources in a unified manner. They represent a unique way to promote the presence of libraries in electronic form. Thus, the maintenance of websites has added additional responsibility to the shoulders of library professionals, challenging them in this digital world[2]. The content present on websites is a critical element and should be maintained and updated frequently with authentic information to represent the summary of the respective libraries, designed for their specific purposes. Content analysis is a standard technique for collecting information on organised content in a standardised format to make inferences about the meaning and characteristics of described content and other documented materials. It is a frequently used tool for evaluating websites in library and information studies and is considered the best technique to extract the meaning of content between similar web texts due to its high flexibility[3].

In India, the reputation of higher educational institutes and universities is measured through accreditation and ranking processes to assess the quality status of educational institutions. The National Institutional Ranking Framework (NIRF) is the sole ranking process in India. It is conducted under five distinct parameters: teaching, learning, and resources; research and professional practices; graduation outcomes; outreach and inclusivity; and perception. The ranking is overseen by the Ministry of Education and covers different domain categories as well as an overall category[4]. This study employs content analysis to examine the library websites of the top-ranked South Indian pharmacy institutes listed in the NIRF. It aims to identify common elements present on these websites.

Received : 28 January 2023, Revised : 15 April 2024
Accepted : 02 May 2024, Online published : 24 September 2024

2. LITERATURE REVIEW

Bulla and Hadagali[5] analysed the web content present on central university library websites of India. Only 33 central universities were providing links to library websites out of 47. The study found that most libraries offered information pertaining to library collections, photo galleries, and e-resources. Some of the inadequate information was not found related to web OPAC, FAQ's, feedback, Ask a Librarian, and search option facilities on selected web sites. Deepthi and Tadasad6investigated indigenously developed products and services by university libraries using the content analysis method. Out of 51 universities, only 44 universities had functional websites. The study highlighted that none of the libraries provide advanced information services to their users except alerting services. The authors suggested that universities should indigenously develop their own products and services with existing staff with help of emerging technologies that are worth marketing, as outlined by the Saracevic information consolidation model.

Verma and Pathak[7] examined the web content analysis of 29 library websites of ICSSR (Indian Council of Social Science Research) research institutes. The primary data was collected from the respective websites through observation and survey methods. The analysis resolved that 100 % of websites showcased the research publication output of their respective institutes, and 93.10 % listed core research areas and ongoing research activities on the websites. Based on the search results on the Google search engine, 89.66 % of research institutes appeared on the first page of the search results. 82.76 % maintained separate webpages to showcase their library collection, services, Web OPAC, and subscribed journals.

Vijay, Kannappanavar and Mestri[8] conducted an online survey to analyse the web content present on the library websites of the Indian Institute of Technology. It was observed from the results that IIT library websites presented information that was different from one another in many aspects. The authors stressed the need for cooperation among the libraries and to form a specialised educational network among the IIT libraries. Geetha, Mamatha and Farhana[9] surveyed and examined the attitude, perception, purpose, and benefits towards using the library portal among the science stream faculty and research scholars at Kuvempu University. The analysis resolved that the majority of respondents felt research was a major reason to visit the portal and the portal provided more efficient access to the desired resources.

Chakraborty[10] analysed the cultural dimensions and their effects on the quality of websites based on Hofstede five dimensional models (power distance index, individualism, masculinity, uncertainty avoidance, and long-term orientation). The sample sise consisted of 85 university libraries across the world, and the samples were collected from library websites on the three continents of North America (30), Europe (30), and Australia (25).

Devi and Verma[11] used 172 parameters to evaluate the IITs and NITs library websites of India. The ranking of websites was done based on the obtained scores of the websites using a five-point rating scale. Based on the analysis, none of the websites came out with an excellent score or very good score. IIT Kanpur stood in 1st place with a score of 102.5 among the IITs, and NIT Rourkela secured 9th place with a score of 71.5 in the overall ranking and first place among the NITs. Brahma & Verma[2] analysed the web contents of National Library websites present in Asia continent. The outcome of the study reveals that the majority (95 %) of libraries have dedicated library websites, except Afghanistan and Brunei, which have dedicated webpages for their national libraries. Slightly (53.65 %) more than half of the libraries provided Facebook, and Twitter has the most preferred Web 2.0 tool by national library websites.

Rafiq[12], *et al.* examined the quality of the library websites of the QS world's top-ranked 50 medical university libraries. The authors explored the services, resources, information dissemination tools, and training opportunities provided to library users. The analysis found that the majority of library websites (86 %) used the COVID-19 button to get regular updates, and the top five technical services offered through library websites were material renewal, research consultations, Interlibrary Loan (ILL), live chat facility, and library fine accrue. Similar study was carried out Kumar & Yadav[13] studied the efficiency of the top ten NIRF-ranked Indian university library portals of 2019. Researchers prepared a weighted checklist based on previous studies with four main headings (general information, library collections, services, and social web technologies) and scored them in classes of excellent, good, average, and poor. None of the portals could score within the 'Excellent' to 'Good' class, whereas only six library portals could score within the 'Average' class. The researchers concluded with the recommendation that, in collaboration with the University Grant Commission (UGC) and the Indian Library Association (ILA), they should formulate the National Minimum Framework for University Library Portals, to maintain minimum mandatory contents that must presented through library portals.

Ukwattage[14] analysed to know whether health science library websites of Sri Lanka were providing 'research guides', 'citation guide', 'subject guide', 'tutorials' and 'other instructional' to support academic teaching, learning, and research activities for their users. It was found from the results that none of the academic health science library websites of Sri Lanka provide instructional guides when compared with international library websites in similar fields. Ullah[15] used the content analysis method to evaluate the 45 medical library websites of Pakistan. The results showed that none of the library websites contained more than 27 items enlisted in the 40-item checklist. The development of medical library websites was in its early stages and missed most of their important features while communicating with users.

3. OBJECTIVES OF THE STUDY

To study the content analysis of library websites/ webpages of NIRF ranked south Indian pharmacy institutes of India was principle objective of the study. The specific objective was framed for the study as follows:

- To examine the methods used for developing library websites/webpages of NIRF ranked south Indian pharma institutes.
- To determine the library collections and services offered by library website/webpages of selected NIRF ranked south Indian pharma institutes.
- To identify the Web 2.0 features implemented in the library websites/webpages of the NIRF ranked south Indian pharma institutes.
- To determine the rank of the selected library websites/ webpages of the NIRF ranked south Indian pharma institutes based on the obtained score using predefined criteria.
- To suggest selective measures to improve the library websites/webpages of the NIRF ranked south Indian pharma institutes.

4. METHODOLOGY

This study aimed to evaluate the library websites/ webpages of NIRF-ranked South Indian pharmacy institutes listed in 2023, using the content analysis method. Initially, only the South Indian pharmacy institutes were identified from the official NIRF website (https://www.nirfindia.org/2023/PharmacyRanking.html). Further, the study focused on 28 library websites, excluding 3 that did not have dedicated webpages or websites for their respective libraries. A standard checklist was developed based on previous studies by Al-Qallaf & Ridha[16], Devi & Verma[17] and Madhusudhan & Bharathi[18]. In third phase the data was collected from respective websites through internet based survey and observation method was incorporated for study. The selected websites (listed in Appendix 1) were scanned thoroughly between October to November 2023 and the content of websites was classified into two parts to know their presence and in their absence in selected library websites/webpages. Further, the collected data was prepared and presented in tabular form and calculated with simple calculation methods using Microsoft Excel.

5. DATA ANALYSIS

The study was restricted to analysing only the 28 library websites/webpages out of 31; the remaining 3 websites were ignored due to the non-availability of dedicated websites or webpages for their respective libraries.

5.1 Domain Extension

The top-level part of a website name is formally referred to as the domain extension. Table 1 highlights the top 4 types of domain extensions used by NIRF-ranked South Indian pharmacy institutes in India. Out of the 28 institutes, 13 (46.43 %) used the 'ac.in' domain system for their websites, followed by 11 (39.29 %) institutes that used 'edu.in' extensions. Additionally, 3 (10.71 %) institutes used the '.in' extension, while the '.org' extension was used by 1 (3.57 %) institute.

5.2 Accessibility of Library Websites

Navigation is widely acknowledged as a crucial factor in determining the usability of a website, as it allows users to efficiently locate and access the desired content within a few clicks. Table 2 outlines the accessibility of library websites from the institutional homepage. Out of the institutes surveyed, 9 (32.14 %) had library links located under the facilities/infrastructure menu, while 7 (25.00 %) had links under the campus life/student corner menu. Additionally, seven institutes had library links in various other locations on the institutional homepage. Only 5 (17.86 %) institutes provided direct library links with the name of the library or central library.

5.3 Availability of Library Websites

To analyse the availability of library websites/ webpages, three criteria were developed, as outlined in Table 3. A website typically consists of a collection of webpages registered under a single domain. Of the libraries surveyed, 22 (78.57 %) had dedicated library webpages attached to their parent websites. Only four (14.29 %) libraries had their own dedicated library websites, while the remaining two (7.14 %) utilised open-source content management systems (WordPress and Webs) to develop their library websites. The trend of libraries and librarians transitioning towards using open-source technologies for creating library websites is positive. This shift not only allows for the exploration of ICT knowledge but also provides opportunities for professional growth without dependency on IT expertise.

Table 1. Classification of domain extension of parent website

Domain name	Total	Percentage
ac.in	13	46.43 %
edu.in	11	39.29 %
.in	3	10.71 %
.org	1	3.57 %
Total	**28**	**100 %**

Table 2. Accessibility of pharma library website/webpage from institutional homepage

Criteria	Total	Percentage
Link under facilities/central facilities menu/infrastructure	9	32.14 %
Campus life/student corner	7	25.00 %
Linked under different location of the homepage	7	25.00 %
Direct link on home page has library/central library	5	17.86 %

5.4 Design Factor

The aesthetic appearance of a website is a crucial aspect of its design. Table 4 focuses on the design factors of library websites/webpages. It was observed that none of the websites provided information about browser compatibility or view resolution of the site within the scope of the study. However, it was noted that all websites maintained proper uniformity across all webpages. Additionally, two libraries (7.14 %) used scrolling notice bars/news tickers on their respective sites to announce events and share the latest information about the libraries.

5.5 Site Description

An essential aspect of website design is the site description, where user compatibility should be the main focus for developers. Proper information should be provided regarding the functionality of the headings mentioned on the webpages. Three major criteria were designed in this category, as shown in Table 5. It was found that 100 % of websites offered information in English rather than the national or regional language. Furthermore, it was observed that 22 (78.57 %) website/webpages used a text-only version, while six (21.43 %) used both text and graphics to attract users.

5.6 General Information

Table 6 presents a comprehensive list of general information available on the pharmacy library websites/webpages. This information is crucial as it provides a brief description of the institution and library, including mission and vision statements, objectives, rules and regulations, staff details, and infrastructure. The majority of websites (96.43 %) provide information on the working hours of the libraries. Additionally, 30 (93.75 %) websites/webpages provide information on the library's history, while 25 (89.29 %) provide information on library statistics. Furthermore, 22 (78.57 %) libraries include details about their infrastructure. Slightly more than half (53.57 %) of the websites provide rules and regulations, while 50.00 % provide information on library staff, magazines and newspapers, and ICT infrastructure. Information about library services is available on 13 (46.43 %) websites, and 12 (42.86 %) websites provide details about library membership and the Library Automation (LA) package. Information regarding library sections/blocks is found on 11 (39.29 %) websites, and 10 (35.71 %) libraries stated mission/vision/objectives statements. Ten websites also feature photo/video galleries. Book bank facilities are mentioned on 8 (28.57 %) websites, while less than a quarter (25 %) of websites include information on the classification scheme, library committee, library news and events, annual budget, library circular/notice board, and ask a librarian services.

Table 3. Availability of pharma library websites/webpages

Criteria	Total	Percentage
Used separate webpages	22	78.57 %
The libraries have separate website	4	14.29 %
Used content management system	2	7.14 %

Table 4. Classification of pharma library website/webpage by design factor

Criteria	Total	Percentage
The site page format is maintained the same in all the web pages	28	100.00 %
Use of scrolling notice Bar	2	7.14 %

Table 5. Site description of pharma library website/webpage

Criteria	Total	Percentage
Site offers only english language	28	100.00 %
Text only version	22	78.57 %
Site used both of text and graphics	6	21.43 %

5.7 Physical Collections

Physical collections are an essential part of libraries, providing information to patrons with diverse needs. In today's digital age, users are technologically adept, often visiting library websites virtually before physically visiting the library to check material availability. Table 7 presents a comprehensive list of print collections procured by the respective websites/webpages. The analysis revealed that the majority (96.43 %) of websites provided information

Table 6. General information statements about the pharma libraries

Criteria	Total	Percentage
Library working hours	27	96.43 %
About the library/history	25	89.29 %
Library statistics	22	78.57 %
Library infrastructure	18	64.29 %
Library rules/regulations	15	53.57 %
Library staff/contact info	14	50.00 %
Magazines and newspapers	14	50.00 %
ICT infrastructure	14	50.00 %
Library services	13	46.43 %
Library membership details	12	42.86 %
About library automation (LA) package	12	42.86 %
Library sections/blocks	11	39.29 %
Mission/vision/objectives	10	35.71 %
Photo/video gallery	10	35.71 %
Book bank	8	28.57 %
Classification scheme	5	17.86 %
Library committee	3	10.71 %
Library news/events	2	7.14 %
Annual budget	2	7.14 %
Library circular/notice Board	1	3.57 %
Ask a librarian	1	3.57 %

on printed books, while 26 (92.86 %) listed information on print journals. Information on thesis/dissertation was found on 17 (60.71 %) websites, and slightly more than fifty percent (53.57 %) of the libraries maintained information on back/bound volumes. Eight (28.57 %) websites provided information on subscribed magazines, and two (7.14 %) libraries maintained special collections, such as Braille materials. Conference Proceedings, Abstracts, and Encyclopedias were present (3.57 %) in one or more libraries, while none of the libraries provided information on technical reports and standards.

5.8 Digital Collections

Over the past decade, there has been a noticeable shift towards digital collections, particularly in academic libraries, which are now in high demand alongside print collections. The evolution of electronic gadgets and digital mediums has compelled libraries to procure and subscribe to various databases to support academic curricula and research needs. One of the key advantages of digital collections is that users can access resources from anywhere in the world without interruption, as these resources are available around the clock. Table 8 provides information on the digital collections available on the respective library websites/webpages of pharmacy institutes. Out of 28 websites, 24 (85.71 %) have information on both subscribed e-books and e-journals, while 19 (67.86 %) provided information on pharmaceutical databases such as Micromedex's Drugdex, Rexys, SciFinder, and CiniRex. Information about DELNET was available on fifty percent of the libraries, and 12 (42.86 %) libraries listed information on CD-ROM databases. Information about subscription to consortium facilities was provided by 11 (39.29 %) websites, and 9 (32.14 %) websites had information about abstracting and citation databases such as Scopus, Web of Science, or PubMed, as well as the National Digital Library of India (NDLI).

Additionally, 8 (28.57 %) websites provided information and links relevant to Institutional Repositories (IR) and question banks. Only a quarter (25 %) of websites listed open sources or useful links, and only one (3.57 %) website listed faculty publications, while none of the libraries provided information on recent publications and patents.

Table 7. Physical collections of pharma libraries

Criteria	Total	Percentage
Books	27	96.43 %
Journals	27	96.43 %
Thesis/dissertation	17	60.71 %
Back/bound volumes	15	53.57 %
Magazines	8	28.57 %
Special collections (Braille collections)	2	7.14 %
Conference proceedings	1	3.57 %
Abstracts	1	3.57 %
Encyclopaedia	1	3.57 %
Technical report	0	0.00 %
Standards	0	0.00 %

Table 8. Digital collections of pharma libraries

Criteria	Total	Percentage
E-Journals	24	85.71 %
E-Books	24	85.71 %
Pharmaceutical database	19	67.86 %
DELNET	14	50.00 %
CD ROM database	12	42.86 %
Consortium facility (E-ShodhSindhu and Helinet)	11	39.29 %
Abstracting and citation database (Scopus, Web Science, & Pubmed)	9	32.14 %
National Digital Library of India (NDLI)	9	32.14 %
IR (Institutional repositories)	8	28.57 %
Question banks	8	28.57 %
Open sources/useful links	7	25.00 %
Faculty publications	1	3.57 %
Recent publications	0	0.00 %
Patents	0	0.00 %

5.9 Services and Facilities

The primary objective of libraries and library websites/webpages is to fulfil the knowledge needs of their users by providing a diverse collection and supporting academic curriculum and research within a single platform. Library services and facilities serve as the backbone for disseminating information to assist users through multiple platforms within the shortest period of time. The analysis in Table 9 revealed that 50 % of the websites provided information on remote access, ILL/document delivery, and reprographic services. Eleven (39.29 %) websites provided information about reference services and OPAC links, while 10 (35.71 %) included information on circulation services, and 7 (25.00 %) provided information on CAS (Current Awareness Service). Less than a quarter of the websites provided information on newspaper clippings and new arrivals of books (17.86 %), barcoding (14.29 %), single window search, referral service, and RFID (7.14 %). Only 3.57 % provided information on bibliographic service, SDI (Selective Dissemination of Information), and Kiosk Circulation Facility.

5.10 Web 2.0 Tools

Table 10 illustrates the implementation of Web 2.0 tools in library websites. The most commonly implemented tool was the feedback mechanism, with eight (28.57 %) library websites adopting this system to understand user perceptions and gather valuable suggestions. Only one (3.57 %) library used social networking sites such as Facebook and YouTube to disseminate and publicise

Table 9. Services and facilities of pharma libraries

Criteria	Total	Percentage
Remote access	14	50.00 %
ILL/document delivery	14	50.00 %
Reprographic	14	50.00 %
Reference service	11	39.29 %
OPAC link	11	39.29 %
Circulation service	10	35.71 %
CAS (Current Awareness Service)	7	25.00 %
Newspaper clipping	5	17.86 %
New arrivals	5	17.86 %
Barcoding	4	14.29 %
Single window search	2	7.14 %
Referral service	2	7.14 %
RFID	2	7.14 %
Bibliographic service	1	3.57 %
SDI (Selective Dissemination Information)	1	3.57 %
Kiosk circulation facility	1	3.57 %

Table 10. Implementation web 2.0 tools in pharma library websites/webpages

Criteria	Total	Percentage
Feedback	8	28.57 %
Social networking	1	3.57 %
Google sites	1	3.57 %
FAQ's	1	3.57 %
Leave comment	0	0.00 %
RSS feed	0	0.00 %

the latest information and library facilities to its users. Additionally, one or more websites (3.57 %) used Google sites and FAQ sections. None of the websites utilised RSS feeds or a Leave Comment facility.

5.11 Research Support

Research support is a crucial aspect of libraries, with institutions and libraries increasingly thinking outside the box and allocating part of their budget to support research activities. This includes subscribing to plagiarism and grammar checkers, paraphrasing tools, and providing other open-source research tools on their respective websites. Table 11 specifies the information provided on the research tools available in pharmaceutical libraries. The analysis revealed that slightly more than a quarter (28.57 %) of the libraries provide plagiarism/similarity index facilities, followed by 3 (10.71 %) libraries that offer grammar checking facilities, and 2 (7.14 %) libraries that provide paraphrase tools. One or more library websites (3.57 %) provided information on citation tools, statistical software, and guidance on creating a researcher ID (ORCID).

5.12 Value Added Services

Table 12 outlines the value-added services provided by libraries to market their resources and services through various promotional activities for their users. The table shows that 12 (42.86 %) libraries offer information on e-learning platforms such as Swayam Prabha, NPTEL, Swayam, Coursera, and EdX courses. Additionally, 10 (35.71 %) libraries conduct user orientation programs. Furthermore, four (14.29 %) libraries provide information on archival/rare collections, and three (10.71 %) libraries organise workshops, seminars, and e-resource training. However, there is limited information on book recommendations, information literacy programs, National Library Week, and the mobile app. These aspects are crucial for libraries as they promote user engagement and encourage users to participate in library activities.

Table 11. Research support provided by pharma library websites/webpages

Criteria	Total	Percentage
Plagiarism checker	8	28.57 %
Grammar checker	3	10.71 %
Paraphrase	2	7.14 %
Citation tools	1	3.57 %
Researcher ID	1	3.57 %
Statistical software	1	3.57 %

Table 12. Value added services provided by pharma library websites/webpages

Criteria	Total	Percentage
E-Learning	12	42.86 %
User orientation programs	10	35.71 %
Archival/rare collection	4	14.29 %
Workshop	3	10.71 %
Seminar	3	10.71 %
E-resource training	3	10.71 %
Book recommendations	1	3.57 %
Information literacy	1	3.57 %
Book exhibition	1	3.57 %
National library week	1	3.57 %
Mobile app	1	3.57 %

Table 13. Statement of responsibility of pharma library websites/webpages

Criteria	Total	Percentage
Email	15	53.57 %
Phone	13	46.43 %
Postal address	12	42.86 %
Separate to Link	7	25.00 %
Fax	3	10.71 %

5.13 Statement of Responsibility

The statement of responsibility is a distinct section on the library website where users can contact the relevant person or department regarding library-related queries. Table 13 presents the statement of responsibility of the website across five criteria for pharmacy library websites. It shows that 15 (53.57 %) websites provide email ids, 13 (46.43 %) libraries offer portal addresses, and 12 (42.86 %) libraries include phone numbers. A quarter (25.00 %) of websites have a separate webpage or external link for contact information, and only three (10.71 %) have fax numbers listed on their respective websites.

5.14 Site Aids and Tools

Site aids and tools are essential components that should generally be present on a website. Table 14 outlines five criteria used to assess site aids and tools on library websites. The analysis revealed that information on site maps, allowing users to find the library location using Google Maps, was provided by a quarter (25.00 %) of the libraries. Additionally, 4 (14.29 %) libraries included an "email us" option for queries, 3 (10.71 %) provided a visitor counter on their websites, and keyword search facilities were provided by one (6.25 %) website.

5.15 Authority and Currency

Table 15 examines the authority statements present on library websites, responsible for website maintenance and development, typically located at the end of the webpage. The majority (89.29 %) of library websites include a copyright statement, while 9 (32.14 %) websites provide webmaster/maintenance details. Only 3 (10.71 %) websites include a disclaimer statement, and one (3.13 %) website mentioned a privacy policy and the last updated date on their website.

Table 14. Site aids and tools adopted by pharma library websites/ webpages

Site aids and tools	Total	Percentage
Site map	7	25.00 %
Email us on any query	4	14.29 %
Visitor counter	3	10.71 %
Keyword search	1	3.57 %

Table 15. Authority and currency of pharma library websites/ webpages

Criteria	Total	Percentage
Copyright	25	89.29 %
Webmaster/maintenance details	9	32.14 %
Disclaimer statement	3	10.71 %
Date of last update	1	3.57 %
Privacy policy	1	3.57 %

5.16 Instructional Guides

The instructional guide serves as a tool developed by library staff to assist users in effectively utilising library facilities, resources, and services. Table 16 outlines the top three guides found on library websites. The analysis shows that 4 (14.29 %) libraries have a user manual on their respective websites, 2 (7.14 %) provide a library handbook, and 1 (3.57 %) website offers a user guide.

Table 16. Instructional guides provided by pharma library websites/webpage

Criteria	Total	Percentage
User manual	4	14.29 %
Library handbook	2	7.14 %
User guide	1	3.57 %

5.17 Ranking and Rating of Library Websites/Webpages

The Figure 1 represents the ranking of websites/ webpages based on marks obtained by each library websites/webpages of the NIRF-ranked South Indian Pharmacy Institutes of India based on predefined criteria. It was found that the library website of 'Vels Institute of Science, Technology, and Advanced Studies' from Chennai, Tamil Nadu, obtained the highest marks and occupied first rank among the selected websites. The least score and the rank were secured by the library website of 'College of Pharmacy, Madras Medical College' Chennai.

Based on the total number of checkpoints that the library websites/webpages received out of a total of 127 quantitative assessment points, a 'five-point rating' system was adopted. The rating scale range was grouped under (i) 101 and above excellent, (ii) 76–100 very good, (iii) 51–75 good, (iv) 26–50 average, and (v) 1–25 requires improvement. The analysis resolved that none of the websites/webpages scored in the 'excellent' or 'very good' rating categories. Only two (7.14 %) library websites/webpages of NIRF-ranked South Indian Pharmacy Institutes of India fall under the 'good' rating category and eighteen (64.29 %) under 'average' rating category. Furthermore, analysis reveals that eight (28.57 %) library websites/webpages comes under the 'requires improvement' rating category. Therefore, it's clear from the analysis that even the top scoring websites have only fifty percent of the web contents present based on the predefined criteria. The selected library websites need a complete upgrade to meet the user expectations, including the maximum information about the library, collections, services, and facilities with the integration of interactive technologies.

6. CONCLUSIONS

The NIRF-ranked pharmacy institutes in South India are among the top institutes in India in their respective domains. The selected pharmacy websites and webpages exhibit significant differences, with 28 out of 31 institutes having separate library websites and webpages. Higher authorities should promote the creation of separate library

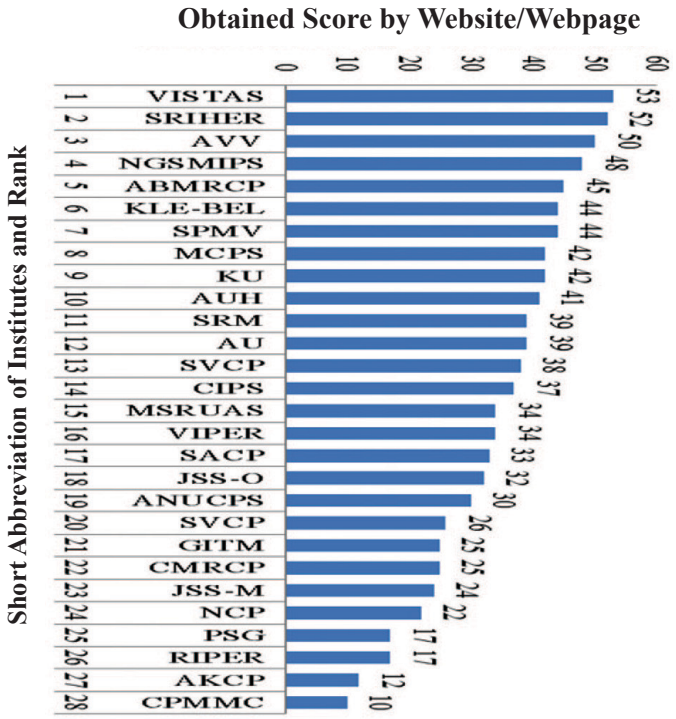

Figure 1. Ranking of website/webpages.

websites because it gives libraries a distinct identity and enables them to independently serve library users with their resources and facilities using contemporary ICT tools. The analysis reveals that two (7.14 %) libraries have utilised open-source content management systems (such as WordPress and Webs) to develop their library websites. This shift towards open-source technologies indicates that libraries and librarians are increasingly embracing such tools, thus enhancing their ICT knowledge and professional growth without relying heavily on IT expertise.

It is recommended that library staff take the initiative to develop Institutional Repositories (IR) and link them to the library website to showcase the research productivity of their respective institutes. Additionally, Web OPAC should be linked to the library website to enable virtual browsing of the physical collection of documents and determine their availability. The inclusion of visitor statistics on websites would also provide insights into usage patterns. Selected library websites and pages should adopt Web 2.0 technologies, including social networking sites, RSS feeds, Ask a ibrarian features, comment sections, and FAQs. The statement of responsibility should be easily accessible on websites to facilitate user queries.

Furthermore, dead links should be promptly removed from websites, as they reflect poorly on the website's credibility. Authority statements of webmasters should be clearly described at the bottom of each page of the websites for issue resolution. Therefore, librarians at pharmacy colleges need to collaborate with website developers to enhance the effectiveness and efficiency of their websites and webpages to attract modern-day users. The findings of this study will benefit existing library websites and webpages of NIRF-ranked South Indian pharmacy institutes, aiding webmasters in improving quality and implementing more informative features on their respective websites.

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ACKNOWLEDGEMENT

I would like to express my sincere gratitude to Mr. Ghouse Modin Nabeesab Mamdapur, Scientist, Information and Documentation at Synthite, Kerala, India, for his support in the completion of this article.

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His contribution to this study included are: Framing objectives and making overall corrections of the manuscript.

Appendix: 1

Rank	Institute name & abbreviation	Library URL
1	Vels Institute of Science Technology & Advanced Studies (VISTAS)	https://www.library.velsuniv.ac.in/
2	Sri Ramachandra Institute of Higher Education and Research (SRIHER)	https://library.sriher.com/?pos=3
3	Amrita Vishwa Vidyapeetham (AVV)	https://aimslibrary.stacksdiscovery.com/
4	N.G.S.M. Institute of Pharmaceutical Sciences (NGSMIPS)	https://ngsmips.nitte.edu.in/library.php
5	Acharya & B M Reddy College of Pharmacy (ABMRCP)	https://www.acharya.ac.in/library
6	KLE College of Pharmacy-Belgaum (KLE-BEL)	http://klepharm.edu/department/10/library/
7	Sri Padmavathi Mahila Visvavidyalayam (SPMV)	https://spmvvlib.wordpress.com/about/
8	Manipal College of Pharmaceutical Sciences (MCPS)	https://manipal.edu/mcops-manipal/about-mcops-manipal/library.html
9	Kakatiya University (KU)	https://kakatiya.ac.in/university-library
10	Anurag University (AUH)	https://anurag.edu.in/discover/campus-life/libraries/
11	S.R.M. Institute of Science and Technology(SRM)	https://www.srmist.edu.in/aboutus/our-campus/library
12	Annamalai University (AU)	http://aulib.annamalaiuniversity.ac.in/
13	Shri Vishnu College of Pharmacy (SVCP)	https://www.svcp.edu.in/library/
14	Chalapathi Institute of Pharmaceutical Science (CIPS)	https://cipslibrary.webs.com/
15	M.S. RamaiahUniversity of Applied Sciences (MSRUAS)	https://www.msruas.ac.in/facilities/fmc-flahs-library
16	Vishnu Institute of Pharmaceutical Education and Research (VIPER)	https://viper.ac.in/aminities/infrastructure/library
17	Sri Adichunchanagiri College of Pharmacy (SACP)	https://accp.co.in/library.html
18	JSS College of Pharmacy-Ooty (JSS-O)	https://jssuni.edu.in/jssaher/college-of-pharmacy-ooty/cpo-library-and-information-center.html
19	Acharya Nagarjuna University College of Pharmaceutical Sciences (ANUCPS)	https://www.nagarjunauniversity.ac.in/library.php
20	Sri Venkateswara College of Pharmacy (SVCP)	http://svcop.in/library.html
21	Gandhi Institute of Technology and Management (GITM)	https://library.gitam.edu/
22	CMR College of Pharmacy (CMRCP)	https://cmrcp.ac.in/library-2/
23	JSS College of Pharmacy -Mysore (JSS-M)	https://jssuni.edu.in/jssaher/college-of-pharmacy-mysuru/library-and-information-center-facilities.html
24	Nandha College of Pharmacy (NCP)	https://nandhapharmacy.org/library-2/
25	PSG College of Pharmacy (PSG)	https://psgpharma.ac.in/campus-life/library/
26	Raghavendra Institute of Pharmaceuatical Education & Research (RIPER)	https://riper.ac.in/library-e-library/
27	Arulmigu Kalasalingam College of Pharmacy (AKCP)	http://www.akcp.ac.in/library.htm
28	College of Pharmacy, Madras Medical College (CPMMC)	http://www.mmc.ac.in/mmc/content_page.jsp?sq1=lib&sqf=584