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Research Article

Usability and Accessibility Evaluation of KIRF-Ranked University Library Websites in Kerala, India

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ABSTRACT

In this study, we evaluated the accessibility and usability of KIRF (Kerala Institutional Ranking Framework)-ranked university library websites using the WAVE (Web Accessibility Evaluation) Tool, based on WCAG 2.1 guidelines. We examined whether these library websites provide accessible, user-friendly information services for all users. Based on the KIRF rankings, we selected and examined 10 university library websites for accessibility elements, including errors, contrast issues, alerts, and ARIA (Accessible Rich Internet Applications) attributes. We found clear differences in the usability and accessibility performance of the assessed university library websites, showing variation in their compliance with WCAG 2.1 accessibility guidelines. The AIM (Accessibility Impact Score) accessibility score of the evaluated library websites ranged from 2.0 to 8.9, indicating unequal levels of accessibility compliance among the selected institutions. We found that the AIM score was not associated with university rankings and could not predict future KIRF university rankings.

Keywords: KIRF rankings, Library websites, Web accessibility, Webometrics, Website analysis.

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INTRODUCTION

In today's digital environment, websites have become important platforms for sharing information and delivering services across many disciplines (Lai *et al.*, 2008). Academic libraries, affiliated with universities and post-secondary institutions, use a web-based system to enable users to access library holdings, electronic materials, bibliographic databases, and a variety of user services (Tedd *et al.*, 2006). Therefore, a well-designed, well-structured library website is essential to support the core functions of the academic library by providing timely, effective access to information resources for teaching, learning, and research (Turner, 2010). However, a library website alone does not meet all users' needs (Mierzecka and Suminas, 2018). To be effective, the website must be user-centred and inclusive (Mohammad and Aldakhil, 2024). The two fundamental dimensions that critically affect the effectiveness of the library's web-based system are usability and accessibility. Usability is the extent to which users can easily navigate, interact with, and accomplish their tasks on a website (Lee and Kozar, 2012). Accessibility is the degree to which a website is designed and constructed to enable individuals with diverse abilities to use its features and services (Lewthwaite, 2014). The W3C defines web accessibility as "universal access to the internet, regardless of the kind of hardware, software, network infrastructure, native language, culture, geographical location, or physical or mental ability" (Ellcessor, 2010). A website with good usability lets users navigate pages smoothly, find information quickly, and complete tasks without difficulty (McGillis and Toms, 2001; Palmer, 2002). On academic library websites, usability is essential because users rely on them to access digital resources, library services, and academic information (Chowdhury *et al.*, 2006). Usability helps users navigate websites efficiently and complete tasks without difficulty, while accessibility ensures equal access to information and services for all users, including people with disabilities (Agarwal and Venkatesh, 2002).

Several national and international studies have used accessibility evaluation tools, such as the WAVE Web Accessibility Evaluation Tool and the WCAG guidelines, to analyse academic and library websites (Acosta-Vargas *et al.*, 2018; Campoverde-Molina *et al.*, 2020, 2021; Devi and Kumar, 2023). These studies identified common accessibility barriers, including missing alternative text, empty links, low colour contrast, and improper webpage structure (Hackett and Parmanto, 2009; Hong *et al.*, 2007). However, little is known about library websites of universities affiliated to Kerala. Thus, this study aims to bridge this gap by evaluating the usability and accessibility of selected KIRF-ranked university library websites using the WAVE Web tool and WCAG guidelines with the following objectives.

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Objectives of the study

- To assess the overall accessibility of the KIRF-ranked university library websites in Kerala.
- To identify major accessibility barriers that influence user interaction and inclusive access to websites.
- To measure the association between AIM score and KIRF ranking score.
- To investigate whether the AIM score can predict the KIRF ranking of the universities.

Past Studies

Dinda and Rahman (2025) evaluated the compliance of state universities' websites with WCAG 2.1 (Web Content Accessibility Guidelines 2.1) for selected state Universities in West Bengal. The study used a quantitative, tool-based evaluative methodology to assess the web accessibility of selected State Universities in West Bengal. The analysis revealed notable differences in accessibility compliance among the selected University Websites. The University of Gour Banga had the most issues (1,669), while the University of North Bengal had only 3, and the University of Kalyani led in inclusive design with 512 accessibility features. Common problems like poor contrast, missing structural elements, and incorrect ARIA roles highlight the need for regular audits and WCAG-compliant /web design to ensure truly inclusive digital access.

Ohaju (2022) compared the usability and accessibility of several European university websites and identified the best university websites in Africa from the viewpoint of students. The study found that none of the evaluated university websites fully complied with WCAG Guidelines, and accessibility performance varied across institutions, with automated tools identifying many problems. Similarly, Krittika and Shimray (2025) compared the top 25 web-accessible world universities with 25 accessible Indian universities using WCAG 2.2. The findings showed that Indian university web pages had more accessibility violations than universities worldwide across all 3 WCAG 2.2 conformance levels. Most violations fell under Level A, indicating poor compliance with basic accessibility requirements. There were also numerous issues caused by technical errors in HTML and CSS. The study found more compatibility issues in Firefox than in Microsoft Edge. Therefore, university websites, particularly in India, need significant improvement to achieve WCAG 2.2 compliance and support inclusive access to digital content.

Hasan (2014) evaluated nine university websites from Jordan using specific design criteria and the factors students consider when assessing the usability of educational websites. The study selected 9 university websites based on 4 international college and university rankings. The study found content to be the most important usability category, followed by navigation, ease of use, communication, design, and organisation/architecture. Petra University ranked highest in usability, and AI-Albayt University ranked lowest.

Iqbal and Warraich (2012) investigated the accessibility and usability of university websites using both user-based and process-based evaluation. The goal was to analyse the websites' performance from both student and evaluator perspectives, identify usability strengths and weaknesses, examine how demographics influence usability, and recommend improvements to access information on the websites. Data were collected using a mixed-methods approach, including a structured questionnaire to evaluate usability across five dimensions, supported by interviews with evaluators and an administrative professional. The data were then analysed using both statistical and thematic analyses. The study found that the university websites' usability is moderate. Students indicated that while they found the website easy to learn, they were unhappy with both the design and the navigation. Perception of usability varied by age and frequency of visits. Evaluators noted similar issues with the website's colour, loading time, and content clarity, and the administration indicated that budget constraints limit its ability to address these usability issues.

Rekha and Shailendra, (2023) evaluated how well academic library websites are accessible to people who are visually impaired and have other physical disabilities. The study primarily used automated accessibility evaluation with WAVE. The sample included 15 academic library websites in the Delhi-NCR region. The main finding was that most websites had significant accessibility problems. The most concerning issues were missing alternative text, structural issues, and colour contrast issues. Pandey and Kumar (2025) investigated whether Indian museum websites' layouts provide an effective means of accessing their content using the World Wide Web Consortium's (W3C) Web Content Accessibility Guidelines (WCAG) 2.1. The investigators used the Siteimprove Accessibility Checker to compare the museums' websites based on three accessibility levels: A, AA, and AAA. The study reported that selected museum websites had very low accessibility relative to the recommended compliance level. A large number of errors, relative warnings, and review items indicate that most sampled museums had numerous technical barriers on their websites.

METHODOLOGY

We used a quantitative research approach for this investigation. The study's population consists of university library websites in Kerala. The universities were selected based on the 2025 KIRF ranking, an official ranking of higher education institutions in Kerala (Kerala Institutional Ranking Framework, 2026a). We used the WAVE tool to assess website accessibility and usability. It is an automated tool that evaluates web accessibility based on

WCAG guidelines. The tool helps identify issues such as errors, contrast issues, alerts, and structural elements.

We collected data in 2 phases. In the first phase, we accessed the KIRF ranking in the first week of September 2025. The ranking included 11 universities (Kerala Institutional Ranking Framework, 2026b). Next, we identified each university's official library webpage. Then we manually searched each university website on Google and opened the library websites. In the second phase, we entered each university library URL into the WAVE tool to evaluate accessibility. The WAVE tool produced results for each URL, including errors, alerts, and contrast issues. We manually exported the results into an Excel file for further analysis. The collected WAVE results yielded an overall score and rank to compare the usability and accessibility of the selected library websites. During data collection, the WAVE tool could not support the Thunchath Ezhuthachan Malayalam University library website due to technical incompatibility. As a result, the website was excluded from the study, and the analysis was conducted on the remaining 10 university library websites.

The accessibility evaluation results of the selected university library websites were analysed using both descriptive and statistical techniques. Descriptive analysis summarised various accessibility aspects, including errors, alerts, contrast issues, and structural elements identified on the library websites. Furthermore, correlation analysis examined the relationship between KIRF rankings and accessibility scores generated through the WAVE tool. This statistical technique helped determine whether institutional ranking was associated with website accessibility performance.

Analysis and Interpretation

General details of the library websites selected for the study

Table 1 lists universities in Kerala, along with their libraries, website URLs, KIRF scores, and KIRF Rankings. The universities are arranged from highest to lowest rank by score. The Cochin University of Science and Technology ranked first with a score of 87.346, and the Sree Narayana Guru Open University ranked lowest with a score of 23.9. Mahatma Gandhi University and the University of Calicut ranked next, with scores of 82.288 and 72.858, respectively. Kerala Agricultural University ranked fourth with a score of 63.828, while Kerala Veterinary and Animal Science University ranked next with 62.394. Kannur University ranked sixth with a score of 57.277. The recently established Kerala University of Digital Sciences, Innovation and Technology, Thiruvananthapuram, also featured in the KIRF ranking with a score of 39.765 and ranked 10th. The lowest-scoring university as per the ranking was Sree Narayana Guru Open University, Kollam, with 23.9 score.

Overall accessibility summary

Table 2 presents the accessibility evaluation of the investigated university library websites, conducted using the WAVE tool. Regarding accessibility errors, Dr. Hermann Gundert Central Library recorded the highest count with 81 errors (61.39%), while the Knowledge Central Library recorded no errors. Regarding contrast errors, the KAU Central Library recorded the highest number with 68 errors (2764%), followed by the CH Muhammed Koya Library with 62 errors (25.20%), whereas the Sree Sankaracharya University Library reported no contrast errors. For accessibility alerts, the Mahatma Gandhi Central Library reported the highest count, with 106 alerts (27.82%), while the Sree Narayana Guru Open University and the Knowledge Central Library recorded the fewest, with 5 (1.31%) and 6 (1.57%) alerts, respectively. Concerning accessibility features, the CUSAT Library led with 80 features (26.4). For structural elements, the Mahatma Gandhi Central Library recorded the highest count with 86 elements, while the Knowledge Central Library reported the lowest structural count of 2 elements (0.53%). Regarding ARIA-related accessibility issues, the Mahatma Gandhi Central Library recorded the highest number of issues, with 192 (36.99%), followed by the Dr Hermann Gundert Central Library with 177 issues (34.10%). Finally, the Accessibility and Inclusion Metric (AIM) scores reflected these disparities, with the Knowledge Central Library achieving the highest score of 8.9, followed by the CUSAT Library at 7.2 and the Sree Sankaracharya University Library at 6.6, while the Hermann Gundert Central Library recorded the lowest AIM score of 2.2 and the NAULS Library scored 3.0, collectively indicating a wide disparity in web accessibility standards across the evaluated institutions.

Accessibility Errors

Table 3 displays the accessibility evaluation of 10 university library websites in Kerala, examining 12 error categories and revealing significant disparities in compliance levels across institutions. The most common error was missing alternative text for linked images, with the Dr. Hermann Gundert Central Library recording the highest count of 43 instances, followed by the KAU Central Library with 21, the NAULS Library with 20, and the remaining institutions with 21. Missing alternative text was the second most common violation, concentrated primarily in the C. H. Muhammed Koay Library (33) and the Dr Hermann Gundert Central Library (27), with all other libraries recording zero instances under this category. An empty link was distributed more broadly across institutions, with the Mahatma Gandhi Central Library reporting the highest count of 10, followed by the Dr Hermann Gundert Central Library with 9, the CUSAT Library with 8, and the Sree Sankaracharya University Library with 7. Empty button errors were confined exclusively to the Mahatma Gandhi Central Library (8 instances), and broken ARIA references were most prevalent in the same institutions (8 instances); the NAULS Library and Sree Narayana Guru Open

University Library each contributed 1. Less frequent violations, such as missing form labels, broken skip links, empty headings, empty table headers, language errors, and marquee elements, were distributed among the KAU Central Library, KVASU Library, NAULS Library, and Sree Narayana Guru Open University Library. In contrast, the Knowledge Centre Library recorded 0 errors across all evaluated categories, reflecting full accessibility compliance, while the CUSALT Library also performed well, with violations limited to empty links alone. Overall, missing image alt text and empty links are the most widespread accessibility barriers, with the Dr Hermann Gundert Central Library and the C.H Muhammed Koya Library showing the most significant accessibility deficiencies among all evaluated institutions.

Accessibility Alert

Table 4 shows the accessibility alert evaluation of the sampled university library websites, revealing noticeable variation in the distribution of error alerts across criteria. For missing labels, C.H. Mohammed Koya Library recorded the highest value (2), while most other libraries reported none. CUSAT Library had the highest occurrence of redundant alternative text (12), with all other libraries showing zero, and also recorded the highest redundant title text (18), along with the only instance of unlabelled form controls with titles (1). Suspicious alternative text and nearby images with identical alternative text were most prominent at Dr Hermann Gundert Central Library (26) and Dr B.R. Ambedkar Central Library (22), respectively, while other libraries showed minimal or no issues. Only a few institutions were missing a first-level heading: C.H. Mohammed Koya Library, KAU Central Library, Sree Sankaracharya University Library, and Knowledge Centre Library, each recorded the value 1. Suspicious link text was high in the NAULS Library (6), followed by the Mahatma Gandhi Central Library (4). Links to PDF documents were most frequent in Dr Hermann Gundert Central Library (25) and CUSAT Library (6), with many libraries reporting none. Justified text was significantly elevated at Mahatma Gandhi Central Library (42), which also recorded the highest counts of images with titles (29) and redundant links (31), followed by KAU Central Library (23). The Sree Sankaracharya University Library also had a notably high count of justified text (11). Categories such as audio/video content, layout tables, no-page regions, JavaScript jump menus, and YouTube-related issues occurred only minimally across

Table 1: General details of the University Libraries selected for the study.

Sl. No.	Name of University	Name of Library	Library URL	KIRF Score	KIRF Rank
1.	Cochin University of Science and Technology, Ernakulam	CUSAT Library	http://library.cusat.ac.in	87.346	1
2.	Mahatma Gandhi University, Kottayam	Mahatma Gandhi Central Library	https://library.mgu.ac.in/	82.288	2
3.	University of Calicut, Malappuram	C. H. Mohmmed Koya Library	https://library.uoc.ac.in/en/	72.858	3
4.	Kerala Agricultural University, Thrissur	KAU Central Library	https://library.kau.in	63.828	4
5.	Kerala Veterinary and Animal Sciences University, Wayanad	KVASU Library	https://www.kvasu.ac.in/library---e-library-1	62.394	5
6.	Kannur University, Kannur	Dr. Hermann Gundert Central Library	https://hgcl.kannuruniversity.ac.in/	57.277	6
7.	Sree Sankaracharya University of Sanskrit, Kaladi, Ernakulam	Sree Sankaracharya University Library	https://library.ssus.ac.in/	49.146	7
8.	The National University of Advanced Legal Studies (NUALS), Ernakulam	NAULS Library	https://library.nuals.ac.in/	45.784	8
9.	Thunchath Ezhuthachan Malayalam University, Malappuram	Thunchath Ezhuthachan Malayalam University library	http://malayalamuniversity.edu.in/en/library/	42.409	9
10.	Kerala University of Digital Sciences, Innovation and Technology, Thiruvananthapuram	Knowledge Centre (KDIT Library)	https://duk.ac.in/library/	39.765	10
11.	Sree Narayana Guru Open University, Kollam	Sree Narayana Guru Open University Library	https://idp.sgou.ac.in/	23.9	11

Table 2: Overall Accessibility Summary.

Sl. No.	Name of Library	No. of Errors	Contrast Errors	Alert	Feature	Structure	ARIA	AIM Score (10)
1.	CUSAT Library	8 (3.38%)	3 (1.21%)	53 (13.91%)	80 (26.4%)	47 (12.46%)	34 (6.55%)	7.2
2.	Mahatma Gandhi Central Library	18 (7.89%)	45 (18.29%)	106 (27.82%)	76 (25.08%)	86 (22.81%)	192 (36.99%)	2.9
3.	C. H. Mohammed Koya Library	36 (17.14%)	62 (25.2%)	16 (4.19%)	9 (2.97%)	29 (7.69%)	6 (1.15%)	2.4
4.	KAU Central Library	28 (16.09%)	68 (27.64%)	36 (9.44%)	40 (13.2%)	37 (9.81%)	47 (9.05%)	2.5
5.	KVASU Library	14 (9.58%)	7 (2.84%)	30 (7.87%)	22 (7.26%)	42 (11.14%)	4 (0.77%)	5.9
6.	Dr Hermann Gundert Central Library	81 (61.36%)	35 (14.22%)	93 (24.4%)	37 (12.21%)	67 (17.77%)	177 (34.1%)	2
7.	Sree Sankaracharya University Library	13 (25.49%)	0	21 (5.51%)	17 (5.61%)	22 (5.83%)	0	6.6
8.	NAULS Library	33 (86.84%)	15 (6.09%)	15 (3.93%)	17 (5.61%)	34 (9.01%)	57 (10.98%)	3
9.	Knowledge Centre (KDIT Library)	0	2 (0.81%)	6 (1.57%)	4 (1.32%)	2 (0.53%)	0	8.9
10.	Sree Narayana Guru Open University Library	5 (2.11%)	9 (3.65%)	5 (1.31%)	1 (0.33%)	11 (2.91%)	2 (0.38%)	5.4

Table 3: Accessibility Errors.

Sl. No.	Name of Library	Empty Link	Missing Alternative Text	Language Missing or Invalid	Missing Form Label	Broken Skip Link	Linked Image Missing Alternative Text	Empty Form Label	Empty Button	Broken ARIA Reference	Empty Heading	Empty Table Header	Marquee	Total
1.	CUSAT Library	8	0	0	0	0	0	0	0	0	0	0	0	8
2.	Mahatma Gandhi Central Library	10	0	0	0	0	0	0	8	0	0	0	0	18
3.	C. H. Mohmmed Koya Library	2	33	0	1	0	0	0	0	0	0	0	0	36
4.	KAU Central Library	0	0	1	5	1	21	0	0	0	0	0	0	28
5.	KVASU Library	6	0	0	2	0	5	1	0	0	0	0	0	14
6.	Dr Hermann Gundert Central Library	9	27	0	1	0	43	0	0	0	1	0	0	81
7.	Sree Sankaracharya University Library	7	0	0	0	0	6	0	0	0	0	0	0	13
8.	NAULS Library	0	0	1	0	0	20	0	1	0	2	2	1	27
9.	Knowledge Centre (KDIT Library)	0	0	0	0	0	0	0	0	0	0	0	0	0
10.	Sree Narayana Guru Open University Library	0	0	1	1	0	0	0	1	0	0	0	2	5
	Total	42	60	3	10	1	95	1	10	0	3	2	3	

Table 4: Accessibility Alert.

Name Of Library	CUSAT	Mahatma Library	CHMK	Kau Central	KVASU	Hermann Gundert	Sree Sankaracharya	NAULS	Knowledge Centre	Sree Narayana Guru Open
Select missing label	1	0	2	1	0	0	0	0	0	0
Redundant alternative text	12	0	0	0	0	0	0	0	0	0
Suspicious alternative text	7	0	1	0	1	26	1	0	1	1
A nearby image has the same alternative text	5	0	0	0	10	22	0	0	1	0
Unlabeled form control with title	1	0	0	0	0	0	0	0	0	0
Missing first-level heading	1	0	1	1	0	0	1	0	1	0
Suspicious link text	1	4	0	0	0	0	0	6	0	0
Link to PDF document	6	0	1	0	5	25	1	0	0	0
Justified text	1	0	0	0	0	0	0	0	0	0
Redundant title text	18	42	0	0	0	8	0	1	0	0
Image with title	0	29	5	0	0	0	0	0	0	0
Redundant link	0	31	4	23	10	3	3	4	2	0
Audio/Video	0	0	1	0	0	0	0	0	0	0
Layout table	0	0	1	1	3	0	0	0	0	0
No page regions	0	0	0	0	0	0	0	0	1	0
JavaScript Jump Menu	0	0	0	1	0	0	0	0	0	0
YouTube video	0	0	0	1	0	0	0	0	0	0
Skipped heading level	0	0	0	0	1	4	0	2	0	1
Long alternative text	0	0	0	0	0	0	0	0	0	0
Device-dependent event handler	0	0	0	0	0	4	0	1	0	0
Broken same-page link	0	0	0	0	0	1	0	0	0	0
Possible heading	0	0	0	0	0	0	1	0	0	0
Flash	0	0	0	0	0	0	2	0	0	0
Underlined text	0	0	0	0	0	0	1	0	0	1
Very small text	0	0	0	0	0	0	0	0	0	2
Total	53	106	16	28	30	93	10	14	6	5

most libraries. Skipped heading levels and long alternative text were highest in Dr Hermann Gundert Central Library (8 and 4, respectively), with most other libraries reporting zero. The remaining categories, including device-dependent event handler, broken same-page links, possible heading, flash content, underlined text, and very small text, demonstrated negligible frequencies across all libraries. Overall, Mahatma Gandhi Central Library and Dr Hermann Gundert Central Library exhibited comparatively higher concentrations of accessibility errors across multiple parameters, whereas Knowledge Centre Library and Sree Narayana Guru Open University Library demonstrated consistently minimal issues, reflecting a relatively higher degree of accessibility compliance among the libraries examined.

Correlation Analysis

A Spearman's correlation analysis was performed to investigate the association between the KIRF ranking score and the AIM accessibility score of KIRF-ranked university library websites to determine whether website standards affected their ranking. The results, as shown in Figure 1 show Spearman's rho = -0.236, indicating a weak negative correlation between the two variables: websites with a higher KIRF score tend to have a marginally lower AIM accessibility score. The correlation strength was minimal. The significance value p=0.154 exceeded the standard level p>0.05, indicating that the relationship was not statistically significant. Thus, no significant association exists between institutional ranking and web accessibility performance among the selected university library websites.

Prediction of KIRF ranking with AIM score

A linear regression analysis was conducted to determine whether the AIM accessibility score could predict universities' future KIRF ranking score (Tables 5A and 5B). The finding revealed a weak association between the two variables (R=0.249). The R^2 value of 0.062 showed that the AIM score explained only 6.2% of the variation in the KIRF score. The regression model was not statistically significant (F=0.530, p=0.487), indicating that the AIM accessibility score was not a significant predictor of the KIRF score.

The regression coefficient for the AIM score was negative (β = -2.01), indicating a slight negative relationship between the accessibility score and the KIRF score. However, since the p-value was greater than 0.05, the relationship was not statistically significant. Hence, the analysis suggests that the AIM accessibility score did not significantly influence or predict the KIRF ranking score.

FINDINGS AND DISCUSSIONS

The present study analysed the usability and accessibility of selected university websites in Kerala using the WAVE tool based on WCAG 2.1 guidelines. We selected the KIRF-ranked universities and their library websites. To our knowledge, this is the first study to assess the web accessibility of KIRF-ranked 11 universities. The study revealed clear differences in the usability and accessibility performance of the selected university library websites in Kerala, showing variation in their compliance with WCAG 2.1 accessibility guidelines. The AIM accessibility score of the evaluated library websites ranged from 2.0 to 8.9, indicating unequal levels of accessibility compliance among the selected institutions. The Knowledge Centre Library secured the highest AIM score of 8.9 and recorded no accessibility errors, reflecting comparatively better accessibility compliance. Dr Hermann Gundert Central Library had the lowest AIM score and reported the most accessibility errors, indicating serious accessibility and usability limitations. The evaluation identified 236 accessibility errors across the selected university library websites, with missing

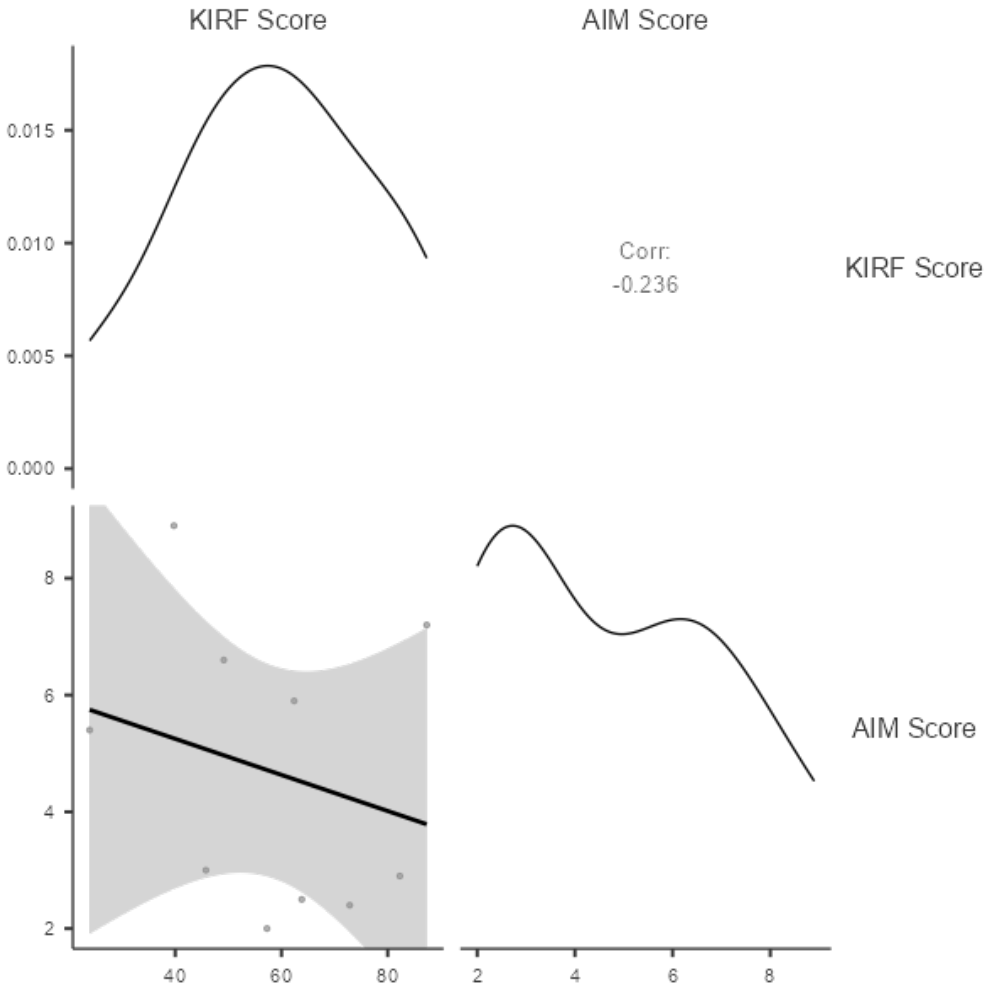

Figure 1: Correlation between KIRF ranking score and AIM score.

Table 5A: Regression Analysis.

			Overall Model Test			
Model	**R**	**R^2**	**F**	**d_f1**	**d_f2**	***p***
1	0.249	0.0622	0.530	1	8	0.487

Note. Models estimated using a sample size of n=10.

Table 5B: Model Coefficients - KIRF Score.

Predictor	**Estimate**	**SE**	***t***	***p***
Intercept	67.87	14.40	4.712	0.002
AIM Score	-2.01	2.76	-0.728	0.487

alternative text for linked images, missing image alternative text, and empty links as the most common issues. The study found 249 contrast-related errors across the evaluated websites, all categorised as very low-contrast issues that affect readability and visual accessibility. The study identified 381 accessibility alerts, indicating potential usability problems related to redundant links, suspicious alternative text, and image-related accessibility concerns. Finally, the study reported that the AIM score is not associated with university rankings and cannot predict future university rankings. However, the study highlighted the major accessibility and usability issues of the ranked university library websites. Thus, universities should take appropriate action to provide a better library website experience for maximum use by library users.

CONCLUSION

The study found a noticeable difference in accessibility performance among the selected library websites. While some websites showed comparatively better accessibility practices, many others contained accessibility issues. These barriers adversely affected website usability and accessibility, particularly for users who rely on assistive technologies such as screen readers and keyboard navigation. The study emphasises the need to adopt inclusive, user-friendly web design practices to provide equal access to digital library resources and services for all users. The findings and recommendations of the study may support university authorities, librarians, web developers, and policymakers in improving the accessibility, usability, and inclusiveness of university library websites, while also contributing to future research in the area of web accessibility and Library and Information Science.

ABBREVIATIONS

AIM: Accessibility and Inclusion Metric (also referred to as Accessibility Impact Score); **ARIA:** Accessible Rich Internet Applications; **CSS:** Cascading Style Sheets; **CUSAT:** Cochin University of Science and Technology; **d_f:** Degrees of Freedom; **HTML:** HyperText Markup Language; **KIRF:** Kerala Institutional Ranking Framework; **KVASU:** Kerala Veterinary and Animal Sciences University; **NUALS:** The National University of Advanced Legal Studies; **PDF:** Portable Document Format; **SE:** Standard Error; **URL:** Uniform Resource Locator; **W3C:** World Wide Web Consortium; **WAVE:** Web Accessibility Evaluation Tool; **WCAG:** Web Content Accessibility Guidelines; **β:** Regression Coefficient; **ρ:** Spearman's Rank Correlation Coefficient.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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