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Awareness About the Use of Reference Management Tools Among the Research Scholars in Periyar University: A Survey

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Abstract
This study investigates the awareness and utilization of reference management tools among research scholars at Periyar University. Reference management tools play an important role in organizing and citing academic literature, yet their adoption and proficiency among scholars can vary widely. The survey aims to assess the level of awareness, usage patterns, preferred tools, and challenges research scholars' face in employing these tools effectively. Insights from this research can inform strategies to enhance scholarly productivity and improve the academic writing process.

Keywords: reference management tools, research scholars, academic productivity, citation management

INTRODUCTION

A systematic examination of the characteristics and behaviors of the user information system is called user research. Their emphasis on satisfying customer needs directly affects how healthy libraries function as information services. "User studies" mainly focused on "users" to evaluate their information demands, information-seeking behavior, and use patterns. User research can be defined as a methodical analysis of the information demands of users to facilitate efficient communication between information systems and users. Some terminology that is similarly related but occasionally lack definitions include "user studies," "information-need studies," "user studies," "information-transfer studies," "communication-behavior studies," "information-behavior studies," "dissemination and utilization studies," and so on. They then try to obtain the information they need frequently and as needed by employing various information sources.

Reference Management Tools

With reference management systems, bibliographic references are easy to gather, organize, distribute, and cite. These tools can also distribute references among team members, automatically create bibliographies and in-text citations, and manage PDFs. Software that maintains a database of bibliographic records and generates the bibliographic citations (references) required for those records in scholarly research is known as reference management software, citation management software, or bibliographic management software. Once a record is saved, it can be used repeatedly to create bibliographies, lists of scholarly books, and articles' references. Users can search bibliographic records

in online bibliographic databases and library catalogs using various reference management programs. Z39.50 is an early communications protocol used before the World Wide Web to access library catalogs and is still in use at many libraries. The majority of bibliographic databases nowadays are accessible as websites that enable exporting specific bibliographic records in different formats that are imported by reference management software, even if Z39.50 is still in use.

Endnote

EndNote is a commercial reference management software program used to organize references and bibliographies when producing articles, reports, and essays. Both Windows and macOS support it. EndNote was developed in 1989 by Richard Niles, and Niles & Associates held it until 2000, when Thomson Corporation's Research Soft Division of the Institute for Scientific Information purchased it. The owner was changed to Clarivate (formerly Clarivate Analytics) in 2016.

Mendeley Reference Manager

Founded in 2007 by Paul Foeckler, Victor Henning, and Jan Reichelt, PhD candidates, Mendeley is a reference manager program purchased by Elsevier, a Dutch academic publishing corporation, in 2013. It is used to create bibliographies for academic publications and organize and distribute research papers. Mendeley is a free reference manager that is available for desktop and web use. It is accessible via the web, Mac OS, Linux, and Windows.

Zotero

Zotero is an open-source reference managing software that may be used for free to manage PDF and ePUB files, bibliographic data, and related research materials. Frank Bennett is an associate professor at Nagoya University teaching comparative law. It may be downloaded for iOS, Mac, Windows, and Linux.

RefWorks

Using the web-based tool RefWorks, you can generate and manage your references from anywhere. It was developed by Ex Libris, a business of ProQuest, and can be accessed online via any computer browser.

Paperpile

Web-based and commercial, Paperpile is a reference management tool emphasizing connection with Google Scholar and Docs. A Google Chrome browser plugin is used to implement some aspects of Paperpile. Paperpile LLC, the company that produces it, was established in 2012.

BibTex

BibTex is compatible with Word and Open Office; it may also be used with LaTex via BibTex. You can generate a list of works cited using Google Docs, which is a program for managing and formatting bibliographies in LaTeX and markdown documents.

The Use of Reference Management Toolshas the Following Advantages

1. **It saves your time**: It is an efficient method of keeping the way of your references and sidesteps, having to type out each reference manually.
2. **Ensures consistent referencing:** There is less room for error than manually referencing. Referencing styles in these software packages can output references consistently and accurately.
3. **It helps you to keep track of what you have read**.
4. **It allows you to keep your research organized**. You can store your references in one place in a systematic way.
5. **Enhances your digital literacy skills.** Citation management tools are very helpful in many respects: they can save time by managing a list of references or citations easily and efficiently. They also aid in organizing and making citations accessible by managing the material while conducting research. Both energy and valuable time are saved in this way.

Automatic Reference Manager

Five automatic reference managers are currently available: Reference Manager, Zotero, Mendeley, EndNote, Read Cube, RefMan, and RefWorks.5, 6 Mendeley, Read Cube, and Zotero are online resources that offer free downloads for organizing citation references in open-source software. However, EndNote software, Reference Manager, RefWorks, and Papers (Mac) fall into the premium category since they must be purchased before installation. Additionally, EndNote is offered by Microsoft Office as a cite-while-you-write (CWYW) plug-in addon. However, an attempt has been made to differentiate between reference management/citation management tools in general and Reference Management Software.

REVIEW OF RELATED LITERATURE

A literature review critically analyzes a segment of published knowledge involving summary, classification, and comparison of prior research studies, reviews, and theoretical articles. **Panda (2023)** examines the role of academic libraries in helping users locate optimal resources, emphasizing the utility of Reference Management Software (RMS) in refining search strategies, conserving resources, and enhancing the clarity of research presentations. The study analyzes five prominent RMS: Citavi, EndNote, Mendeley, Qiqqa, and Zotero. **Mvula (2023)** focuses on assessing the familiarity and adoption of RMS among faculty at the University of Zambia, aiming to improve citation accuracy and efficiency. Despite awareness of RMS availability, there is limited usage among faculty members, with Mendeley being the most commonly used, suggesting a need for enhanced training initiatives across different academic faculties. **Bapte and Bejalwar (2022)** surveyed research scholars using Mendeley for citation management, revealing varying satisfaction levels with citation style editing and formatting. Their findings underscore challenges in training and inconsistent experiences among users regarding the effective utilization of Reference Management Tools (RMTs).

Nitsos, Malliari, and Chamouroudi (2022) explored the adoption of reference management software among postgraduate students at Aristotle University of Thessaloniki, identifying Mendeley, EndNote, and Zotero as the most preferred tools. Their study highlights varying awareness levels of these tools among students, influenced by academic discipline and degree level. **Singh, Mahawar, and Singh (2022)** investigated the awareness and usage patterns of RMS among research scholars at Central Universities of North India. Their findings indicate widespread familiarity with RMS, with Mendeley

and Zotero being the preferred choices. They recommend implementing comprehensive training programs to maximize the effective utilization of these systems. These analyses collectively highlight the critical role of RMS in academic research while highlighting challenges such as inadequate training and varying levels of awareness and adoption among Research scholars.

OBJECTIVES OF THE STUDY

- To identify the level of awareness of Reference Management Software tools among the Research scholars.
- To know the preference for using the Reference Management tools.
- To identify the different kinds of Reference Management software used.
- To find out the specific Reference Management software used for their Research.
- To determine the level of satisfaction of research scholars.
- To point out challenges faced while using reference management tools

HYPOTHESES

(H0): There is no significant difference between the gender and use of reference management software among academic researchers.

(H0): There is no significant difference between the respondents' gender and the gender-wise results on the challenges the reference management tools face.

METHODOLOGY

The methodology of this study involves collecting data using a well-structured questionnaire was prepared, and 110 questionnaires were distributed to Periyar University Research Scholars. Of the 110 questionnaires, 95 were fully completed and returned by the respondents, resulting in a response of 86.36%. The questionnaires used in this study were designed to be easy to understand and answer, with clear instructions and questions relevant to the research topic. The questionnaires covered various aspects of the research topic, including demographic information, opinions, and experiences. The questionnaires are analyzed and tabulated using SPSS16, a study based on the Random Sampling Method.

STATISTICAL TOOLS & TECHNIQUES

Statistical tools and techniques are scientific tools that help to collect and analyze data to identify patterns and trends. These tools can help to draw meaningful conclusions from raw data. The following techniques were used in the study. The questionnaires were analyzed and tabulated with SPSS VERSION-21.

- Chi-square test
- T-test
- Mean
- Standard deviation

DATA ANALYSIS AND INTERPRETATION

Interpretation and analysis are two key steps in the research process. Interpretation involves making sense of the data that has been collected and analyzing it to draw meaningful conclusions. The analysis

involves using statistical methods and other techniques to organize, describe, and summarize the data. The objective of analysis is to gain insights and understanding from the data, which can help answer research questions and test hypotheses.

Table 1 Gender- Wise Respondents

S.No	Gender	Frequency	Percentage
1	Male	45	47.4
2	Female	50	52.6
Total		**95**	**100.0**

Table 1 defines the frequency and percentage of male and female respondents from a total sample of 95 respondents. Out of the total sample, 47.4% of the respondents were male, while 52.6% were female. This indicates that there were more female respondents in the sample compared to male respondents

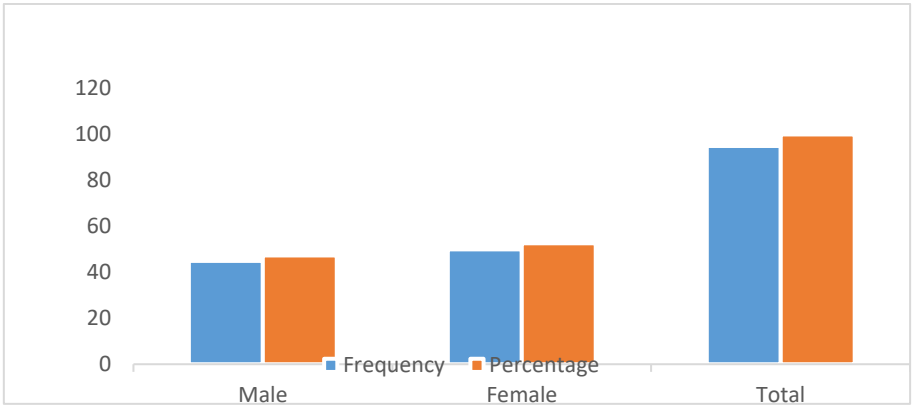

Fig 1Gender- Wise Respondents

Table 2 Age-Wise Respondents

S.No	Gender	Frequency	Percentage
1	23-26	36	37.9
2	26-30	33	34.7
3	30-35	21	22.1
4	Above 35	5	5.3
Total		**95**	**100.0**

Table No.2 shows the frequency and percentage of respondents in age groups 23-26 Age, 26-30 Age,30-35 age, and above 35 Age from a total sample of 95 respondents. Of these, 37.9% were 23-26 Age Age, 34.7% were 26-30 Age,22.1% were 30-35 Age, and 5.3% were above 35 Age. This indicates that most respondents were 23-26 Age students.

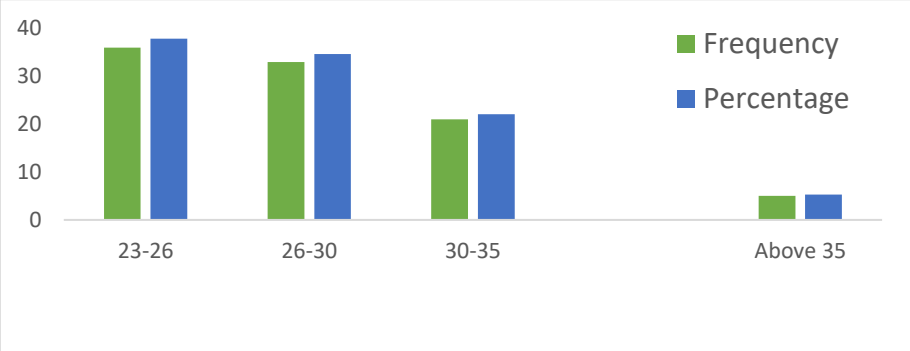

Fig 2 Age -Wise Respondents

Table 3 Awareness level of reference management tool

S.No	Type	Frequency	Percentage
1	Yes	95	100
2	No	-	

Table 3 describes the commonness and percentage of respondents and shows the number of students who know about Reference management tools. Out of 95 respondents, 95 knew about reference management tools. All are familiar with them.

Table 4 Sources for knowing knowledge about the reference management tools.

S.No	Which medium	Frequency	Percentage
1	Faculty members	24	25.35
2	Library	30	31.6
3	Online Resource	41	43.2
Total		95	100.0

Table 4 shows the sources from which they learned about the reference management tools. Out of 95 respondents, 25.35% were known from faculty members,31.6% from the library, and 43.2% from online resources. This indicates that the majority of the respondents were known from online resources.

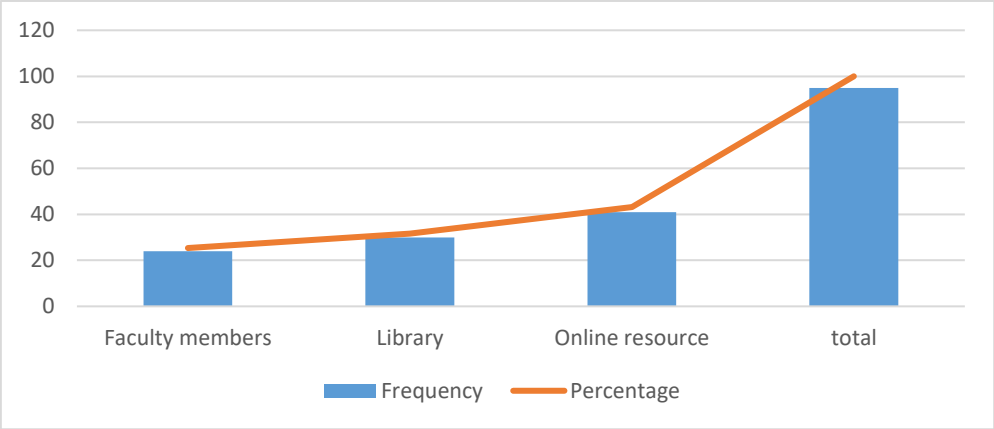

Fig 3 Sources for knowing knowledge about the reference management tools

Table 5 Time period used for reference management tools.

S.No	Period	Frequency	Percentage
1	Daily	32	33.7
2	Weekly	32	33.7
3	Monthly	25	26.3
4	Never	6	6.3
Total		**95**	**100.0**

Table 5 shows the period spent on the research for reference management tools. Of 95 respondents, 33.7% use daily, 33.7% use weekly,26.3% use weekly, and 6.3% never use this. This indicates that the majority of the respondents were from daily and weekly.

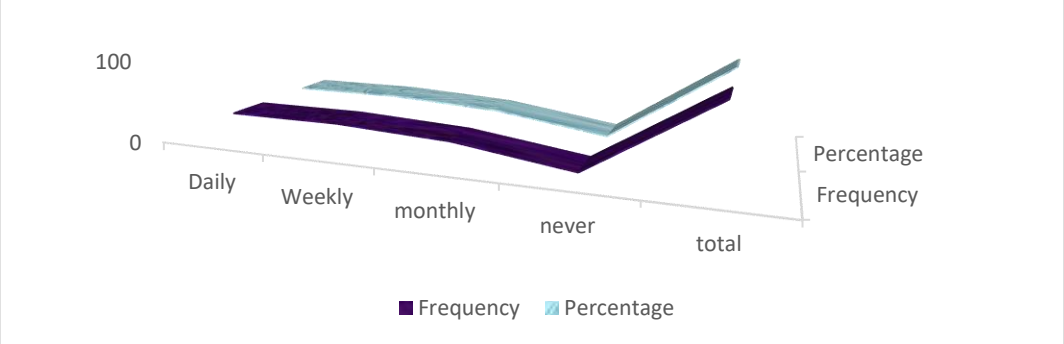

Fig 4 The period used for reference management tools

Table 6 challenges faced by the respondents

S.No	challenges	Frequency	Percentage
1	Limited integration	32	33.7
2	Technical issue	40	42.1
3	Compatibility	21	22.1
4	All of these	2	2.1
Total		**95**	**100.0**

Table 6 shows the challenges faced by the researcher while using the reference management tools. Out of 95 respondents, 33.7% had trouble with limited integration, 42.1% faced technical issues,22.1% faced compatibility, and 2.1% faced all these problems. This indicates that most respondents were facing limited integration as a significant issue.

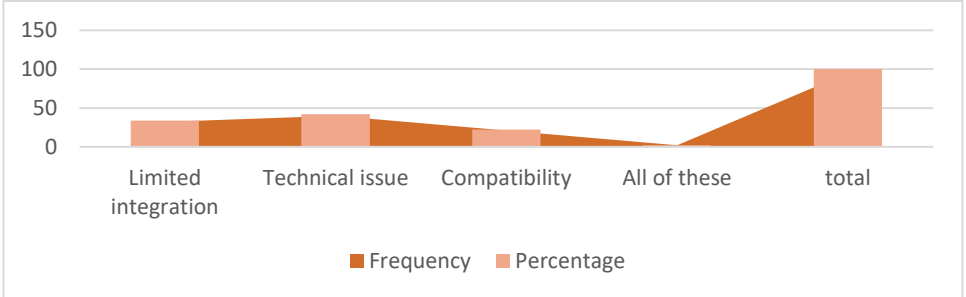

Fig 5 Challenges faced by the respondents

Table 7 Types of platforms used by the respondents

S.No	Platform	Frequency	Percentage
1	Windows	60	63.2
2	Linux	21	22.1
3	Ubuntu	11	11.6
4	macOS	3	3.2
Total		**95**	**100.0**

Table 7 indicates the platform used by the researcher for reference management tools. Of 95 respondents, 63.2% were using Windows,22.1% were using the Linux platform, 11.6% were using the Ubuntu platform, and 3.2% were using the macOS. This indicates that most respondents were using Windows as their working platform.

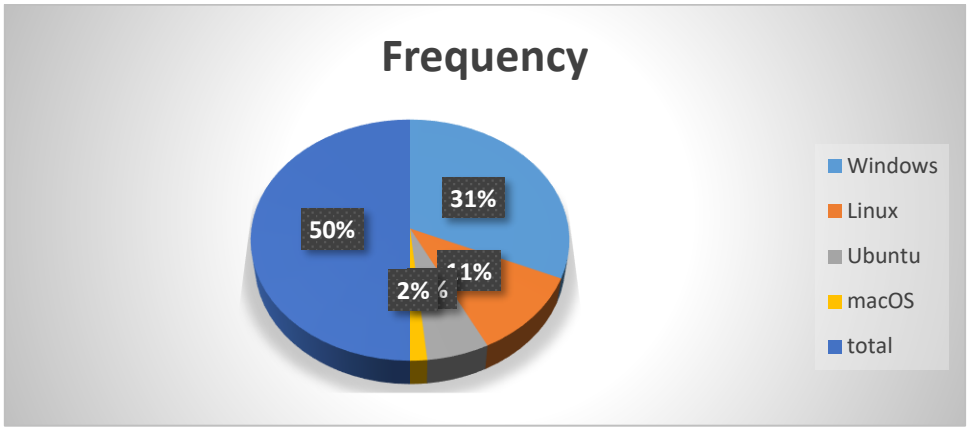

Fig 6 Type of platform used by the respondent

Table 8 Different kinds of roles used by the respondents

S.No	Platform	Frequency	Percentage
1	Only reference collecting	29	30.5
2	Only referencing styles	26	27.4
3	Both A&B	40	42.1
Total		**95**	**100.0**

Table 8 shows the role of the researcher's reference management tools. Of 95 respondents, 30.5% used it as a reference collection and 27.4% as a referencing style. Moreover, 42.1% are using it for both purposes. This indicates that the majority of the respondents were using both kinds.

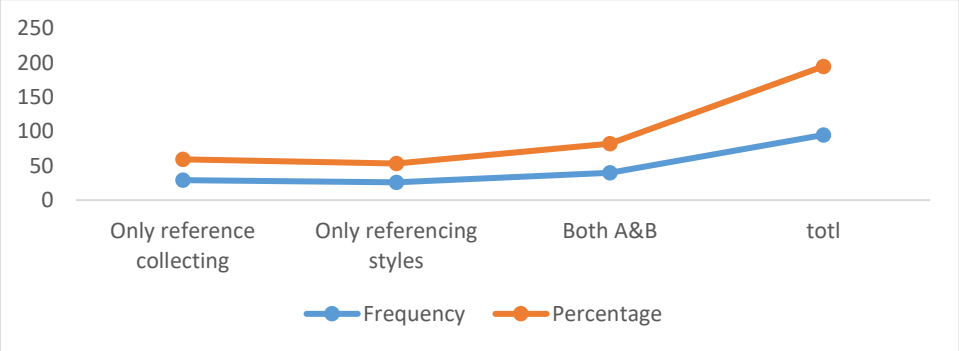

Fig 7 Different kinds of roles used by the respondents

Table 9 Types of reference management tools used by the respondent.

S.No	Kind of software	Frequency	Percentage
1	Mendeley	35	36.8
2	Endnote	24	25.3
3	Zotero	16	16.8
4	Others	20	21.1
Total		**95**	**100.0**

Table 9 shows the different kinds of reference management software that the Researcher can use. Of 95 respondents, 36.8% were using Mendeley,25.3% were using Endnote,16.8% were using Zotero, and 21.1% used the other reference managers. This indicates that most respondents were using Mendeley as their Reference Manager.

Table 10 level of satisfaction of the respondents

S.No	Level of satisfaction	Frequency	Percentage
1	Highly satisfied	26	27.4
2	Satisfied	29	30.5
3	Neutral	32	33.7
4	Dissatisfied	5	5.3
5	Highly dissatisfied	3	3.2
Total		**95**	**100.0**

Table 10 shows the level of satisfaction with reference management tools. Out of 95 respondents, 27.4% were delighted,30.5% were satisfied,33.7% were neutrally satisfied, 5.3% were dissatisfied, and 3.2% were highly dissatisfied. This indicates that most respondents were neutrally satisfied with the Reference management tools.

Table 11 Types of access used by the Respondents.

S.No	Type of usage	Frequency	Percentage
1	Free reference manager	55	57.9
2	Subscription reference manager	16	16.8
3	University-authorized reference manager	24	25.3

Total	**95**	**100**

Table 11 shows the use of free or paid reference management tools. Out of 95 respondents, 57.9% were using the free access, 16.8% were using the paid access, and 25.3% were using the University Authorized reference management tools. This indicates that the majority of the respondents were using the free reference management tools.

Table 12 kind of login used by the respondent

S.No	Type of access	Frequency	Percentage
1	Installed own reference manager	31	32.6
2	University login	32	33.7
3	Using in Online	32	33.7
Total		**95**	**100.0**

Table 12 shows the installation of reference management tools on their laptop or University Login. Of 95 respondents, 32.6% were installed on their laptop,33.7% were using the University login, and 33.7% were Using it online. This indicates that the majority of the respondents were using the university login and using it Online.

Testing Of Hypotheses

Table 14 Difference between the Genders of the Respondents to use the Reference Management Tools.

H_0: There is no significant difference between the respondents' gendersin using the reference management tools.

Gender	Mendeley	Endnote	Zotero	Others	Total	Sig	Result
Male	11	15	11	8	45	**0.27**	**Rejected**
Female	24	9	5	12	50		
Total	35	24	16	20	95		

Table 14 shows 95 respondents, of which 35 identified as Mendeley user respondents, 24 as endnote user respondents, 16 as Zotero user respondents, and 20 as other user respondents. The table shows the distribution of respondents based on their gender and respondents use the reference management tools. In the section, the Sig value of 0.27 indicates a significant relationship between the gender of the respondents who use the reference management tools. Since the Sig value is less than the value level of 0.05, we can desert the null hypothesis and conclude that there is an effective relationship between gender and the use of reference management tools.

Table 15 Difference between the gender of the respondents and the Gender-Wise results on the challenges faced while using the Reference Management Tools

H_0: There is no significant difference between the gender of the respondents and the gender-wise results on the challenges faced while using the reference management tools.

Challenges faced by the respondents	Gender	N	Mean	Std. Deviation	Df	T value	Sig	RESULT
	Male	43	1.9302	.79867	91	.577	.566	Accepted
	Female	50	1.8400	.71027				

Table 15 shows that an independent sample t-test was conducted to find the challenges faced using the reference management tool concerning Gender (Male/Female). The Sig value: 566> 0.05 at a 5% significance level. There is no significant difference found. Therefore, the null hypothesis is accepted. There is a considerable difference in the challenges faced using the reference management tool across genders.

FINDINGS

Among the 95 respondents, the sample comprised 47.4% males and 52.6% females, indicating a slightly higher proportion of females. The majority of respondents (37.9%) were aged between 23-26 years, followed by 34.7% aged 26-30, 22.1% aged 30-35, and 5.3% aged above 35. All 95 respondents were familiar with reference management tools, with 25.35% acquiring knowledge from faculty members, 31.6% from the library, and 43.2% from online sources. Regarding usage frequency, 33.7% of respondents reported daily use of reference management tools, 33.7% used them weekly, 26.3% monthly, and 6.3% never used them. Integration issues were reported by 33.7% of respondents, with technical issues affecting 42.1% and compatibility concerns for 22.1%. Windows was the most common platform for reference management tools among respondents (63.2%), followed by Linux (22.1%), Ubuntu (11.6%), and macOS (3.2%). The primary uses of reference management tools included reference collection (30.5%) and managing referencing styles (27.4%).

Mendeley was the most widely used software (36.8%), followed by EndNote (25.3%), Zotero (16.8%), and other tools (21.1%). Regarding satisfaction, 27.4% of respondents were neutral, 30.5% were satisfied, and 5.3% were dissatisfied with their reference management tools. Free tools were used by 57.9% of respondents, while 16.8% used paid tools, and 25.3% used university-authorized tools. Regarding installation, 32.6% of respondents installed reference management tools on their laptops, 33.7% used university logins, and 33.7% utilized online access. Study by gender indicated no significant difference in software usage (Mendeley et al.) between males and females, with a significance level of 0.27, rejecting the null hypothesis. Additionally, male respondents reported a mean challenge score of 1.9302 (SD=0.79867), slightly higher than the 1.8400 mean score reported by female respondents. The T-value was 0.577 with a significance value of 0.566, indicating no statistically significant difference in challenges faced between the two groups.

CONCLUSION

The study concludes that Periyar University's Research Scholars have an excellent understanding of reference management software. The majority of the respondents are familiar with the reference management tools. Most respondents are neutrally satisfied with reference management tools, so fostering awareness about using reference management tools among research scholars is imperative for enhancing the efficiency, accuracy, and integrity of scholarly work. By embracing these tools, scholars can streamline the citation process, mitigate the risk of plagiarism, and organize their research materials more effectively. As the academic landscape continues to evolve, promoting awareness and proficiency

in reference management tools ensures that researchers can navigate the complexities of scholarly writing with confidence and integrity, ultimately contributing to advancing knowledge and the scholarly community.

References

1. Ansari Mr, N. A., Raza, P., & Masoom, M. (2021). Online reference management tools and referencing styles: A study of awareness and usage among Aligarh Muslim University research scholars.
2. Amrutha, R. V., Kumar, K. S., & Kabir, S. H. (2018). Use of reference management software among science research scholars in the University of Kerala. Indian Journal of Information Sources and Services, 8(1), 54-57.
3. Bapte, V. D., & Bejalwar, S. A. (2022). Promoting the Use of Reference Management Tools: An Opportunity for Librarians to Promote Scientific Tradition. DESIDOC Journal of Library & Information Technology, 42(1), 64-70.
4. Basak, S. K. (2014). A comparative analysis of Zotero and Mendeley reference management software. International Journal of Psychological and Behavioral Sciences, 8(11), 1969-197).
5. Cortez, J. (2022). Reference Management Software in the Classroom: Student Awareness, Knowledge, and Usage. The University of Texas at El Paso.
6. Hendal, B. A. (2019). Kuwait University faculty usage and perspectives of reference management software. Open Access Library Journal, 6(8), 1-11.
7. Kali, A. (2016). Reference management: A critical element of scientific writing. Journal of Advanced Pharmaceutical Technology & Research, 7(1), 27-29.
8. Madhuri, A. J. (2021). Use and Awareness of Reference Management Software Tools by Research Scholars of Library and Information Science in India: A Study.
9. Mahawar, K. L., Tanwar, P., & Hurum, U. (2021). Awareness and Use of Reference Management Software among the Research Scholars of School of Information Science and Technology in BBAU, Lucknow: A Comparative Study. College Libraries, 36(III), 62-73.
10. McColl, R. (2018). Leveraging Citation Management Software (CMS) for broad library impact. Pennsylvania Libraries: Research & Practice, 6(2), 93-105.
11. Mvula, D. (2023). A Study on Awareness of Reference Management Software for Research Writing Activity Used by University Teachers. A Study on Awareness of Reference Management Software for Research Writing Activity Used by University Teachers.
12. Nilashi, M., Dalvi, M., Ibrahim, O., Zamani, M., & Ramayah, T. (2019). Interpretive structural modeling of the features influencing researchers' selection of reference management software. Journal of Librarianship and Information Science, 51(1), 34-46.
13. Nitsos, I., Malliari, A., & Chamouroudi, R. (2022). Use of reference management software among postgraduate students in Greece. Journal of Librarianship and Information Science, 54(1), 95-107.
14. Pathak, A., & Johnson, S. (2018). Use and awareness of reference management software among community college students. J. New Librarianship, 3, 229.
15. Panda, s. (2023). Reference Management Software for Assisting Researchers: A Comparative Analysis of Usage and Usability. Library Technology with New Perception, 191-206.
16. Parabhoi, L., Seth, A. K., & Pathy, S. K. (2017). Citation management software tools: A comparison with special reference to Zotero and Mendeley. Journal of Advances in Library and Information Sci-

ence, 6(3), 288-293.
17. Rangaswamy, B., & Babu, R. (2021). Researcher's perception on Zotero and Mendeley reference management tools: A study. Library Philosophy and Practice, 1-11.
18. Sarrafzadeh, M., & Hazeri, A. (2014). The familiarity and use of reference managementsoftware by LIS faculties in Iran. New Library World, 115(11/12), 558-570.
19. Singh, A. K., Mahawar, K. L., & Singh, V. (2022). Use and awareness of Reference Management Software among the Research Scholars of Central Universities in North India: A Survey. Journal of Indian Library Association, 58(2), 112-121
20. Singh, A. K., & Mahawar, K. L. (2021). Awareness of reference management software among the research scholars of Babasaheb Bhimrao Ambedkar University and Mahatma Gandhi Central University. Library Philosophy and Practice (e-Journal), 5589.
21. Singh, B. P. (2020). Managing research data with reference management tools: A changing research landscape. Library Herald, 58(2and3), 13.
22. Speare, M. (2018). Graduate student use and non-use of reference and PDF management software: An exploratory study. The Journal of Academic Librarianship, 44(6), 762-774.
23. Tramullas, J., Sánchez-Casabón, A. I., & Garrido-Picazo, P. (2015). Studies and analysis of reference management software: A literature review. arXiv preprint arXiv:1508.07480.
24. Wahyuningsih, S. (2020). The Importance of Reference Management Software in Academic Writing: The Case of EFL Learners. In Conference Proceeding.
25. https://en.wikipedia.org/wiki/Reference_management_software
26. https://www.mendeley.com/reference-management/mendeley-cite
27. https://endnote.com/
28. https://paperpile.com/
29. https://about.proquest.com/en/products-services/refworks/
30. https://www.periyaruniversity.ac.in/