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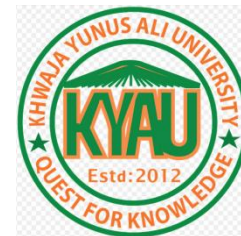
Research Article

Measuring Library Anxiety of Students in University Libraries of Bangladesh Applying Bostick's Scale

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Abstract

Academic achievement can be significantly impacted by using library resources and services, but anxiety about libraries may limit students' willingness to use them. Less initiative is taken to assess user anxiety levels in academic libraries in Bangladesh. This study assessed library anxiety levels, evaluated the effect of library anxiety on comfort with library service and technology as well as measured individual differences in library anxiety by different demographic groups applying Bostick's Library Anxiety Scale (LAS). Bostick's LAS was adapted as per the academic library environment, including forty-eight items under five dimensions with a five-point Likert scale. A survey was conducted among 392 students from two private, one international and two public universities in Bangladesh. For data analysis, negatively worded statements were reverse-scored so that all the statements were scored in the same direction. The multiple regression analysis was done to evaluate the effect of library anxiety on comfort with library service and technology. The individual differences in library anxiety were computed through ANOVA and Independent Sample T-test by different demographic groups. The overall mean score of library anxiety was 3.99 out of 5, indicating that library anxiety level was reasonably low among the students. Affective and staff barriers significantly affected comfort with library services as well as affective, cognitive, and staff barriers significantly affected comfort with library technology. The overall and dimensional library anxiety was significantly different among the users by category of university and user. Numerous statistical methods supported sampling adequacy, reliability, and validity of the adapted scale that will prompt further studies on assessing library anxiety in academic libraries locally and globally. The findings would have significant policy and practical implications for developing and implementing strategies that help students feel less anxious and do better academically.

Keywords: Effect, Library anxiety, Bostick's Scale, Individual Difference, University libraries, Bangladesh.

1. Introduction

Academic libraries are service-oriented institutes dedicated to providing quality services and appropriate information resources to meet the teaching, learning, and research needs of their users. University students frequently use the library for their learning and research needs (Alam, 2021; Alam and Mezbah-ul-Islam, 2021). Some students think that they do not have the necessary skills or practical knowledge to use library services and resources (Ahmed and Aziz, 2017).

Library Anxiety is a feeling of fear, nervousness, tension, or apprehension experienced by users when they are using or contemplating the use of a library (Asghar *et al.*, 2021). In Bangladesh, library anxiety among users in academic libraries may occur from a lack of knowledge of library tools, previous experience with the library atmosphere, technology-based library services, and self-confidence to conduct library-based research (Ahmed and Aziz, 2017).

Most of the university libraries in Bangladesh are trying to improve their teaching, learning, and research tools and change the process of providing and sharing information to users through ICT-based services (Alam, 2018; Alam and Mezbah-ul-Islam, 2019). However, the application of ICT in the library, shifting information atmosphere, and availability of e-resources both offline and online have confused library professionals about whether the users get appropriate services from the libraries when required or feel library anxiety (Alam and Mezbah-ul-Islam, 2023). Many researchers used Bostick's Library Anxiety Scale (LAS) to measure library anxiety worldwide. However, insufficient research has been conducted to measure the library anxiety using the Bostick's LAS in Bangladesh (Ahmed and Aziz, 2017).

Thus, it is expected to assess the overall and dimensional library anxiety levels, evaluate the effect of library anxiety on comfort with library service and technology as well as measure the individual differences in library anxiety by different demographic groups applying Bostick's LAS.

2. Research Hypotheses

Based on the research gaps and their significance, the study has formulated the following hypotheses:

H1: Lower the staff barrier regarding library anxiety, higher the user comfort with library service.

H2: Lower the affective barrier regarding library anxiety, higher the user comfort with library service.

H3: Lower the cognitive barrier regarding library anxiety, higher the user comfort with library service.

H4: Lower the staff barrier regarding library anxiety, higher the user comfort with library technology.

H5: Lower the affective barrier regarding library anxiety, higher the user comfort with library technology.

H6: Lower the cognitive barrier regarding library anxiety, higher the user comfort with library technology.

H7: The library anxiety level among the students of public, private, and international university libraries of Bangladesh differs significantly.

H8: The library anxiety level between undergraduate and postgraduate students differs significantly.

3. Literature Review

Library anxiety is not a new notion, which is a multifaceted phenomenon encompassing emotional, cognitive, and environmental factors that influence users' comfort levels with library services and technology. Mellon (1986) focused much empirical research on library anxiety, introducing her groundbreaking theory of library anxiety and found that eighty percent of students feel anxiety about using their respective libraries due to the lack of knowledge about the location of library resources, how to start and continue research and large size of the library. Bostick (1992) introduced a Library Anxiety Scale including 43 items under five factors, i.e., knowledge of the library, affective barriers, mechanical barriers, staff barriers, and comfort with the library, with a 5-point scale to measure library anxiety quantitatively. He explained that knowledge of the library refers to "student perspectives on how familiar they think they are with the library and its resources". Affective barriers measure the

"respondent's feeling of adequacy when using the library". Mechanical barriers explore the "feelings that emerge from student reliance on library equipment". Staff Barriers reveal "library user's perception of library staff as intimidating and unapproachable as well as being too busy to help". Finally, comfort with the library reflects "how safe, welcoming and nonthreatening the library is perceived to be". In the past three decades, several researchers discussed, modified, tested, and validated Bostick's LAS in various academic libraries globally (Ahmed and Aziz, 2017).

Based on the available literature, some research was carried out on measuring library anxiety worldwide using Bostick's Scale (Ahmed and Aziz, 2017; Akhtar et al., 2023; Anwar *et al.*, 2004; Asghar *et al.*, 2021a, 2021b; Brumfield, 2023; Jiao *et al.*, 2004; Jiao and Onwuegbuzie, 1997; Karim and Ansari, 2010; McPherson, 2015; Noprianto, 2019). However, insufficient research has been conducted to measure library anxiety using Bostick's Scale in individual university libraries in Bangladesh (Ahmed and Aziz, 2017). Besides, less importance is given to evaluate the impact of library anxiety on comfort with service and technology as well as individual differences in library anxiety levels, including public, private, and international universities in Bangladesh by applying Bostick's LAS.

4. Methodology

4.1 Research Design

The quantitative method was applied to determine the library anxiety level, the effect of library anxiety on user comfort with service and technology as well as individual differences in library anxiety levels by category of university and user in the universities of Bangladesh. The Bostick's Library Anxiety scale was adapted for conducting the study consisting of demographic information, i.e., university name, university category, user type, and forty-eight items under five library anxiety dimensions. All the items were modified as per the local arrangements of the university libraries under the five library anxiety dimensions, including the staff barrier, comfort with service, affective barrier, cognitive barrier, and comfort with technology. Respondents were asked to give their opinion on each of the items with a "5-point Likert scale" administered with "1 lowest to 5 highest".

4.2 Population, Sample and Data Collection

Currently, there are 114 private, 55 public, and two international universities in Bangladesh (UGC, 2024). Among the universities, two private, two public, and one international university were selected for this study. The population for this study consisted of undergraduate and postgraduate students of the selected universities. The purposive sampling method was considered for this study due to the huge population size of the selected universities, collecting data from the current users, and making this study more convenient. According to Sekaran (2003), "if the total population size is 100000 or more" would be required "a minimum sample size of 384 respondents" in research. Roscoe (1975) recommended that if the samples are to be broken into subsamples, a minimum of 30 samples are necessary for each subsample. The sample size of 392 is suitable for carrying out the study, which has met the criteria of Sekaran (2003) and Roscoe (1975). The researchers visited the selected university libraries and delivered the questionnaire to the students inside the libraries of the selected universities.

4.3 Data Analysis Procedure

Firstly, the negatively worded items were reverse-scored for data analysis so that all the statements were scored in the same direction. SPSS 22 was applied to analyze data. The overall, dimensional, and item-wise library anxiety levels were measured by descriptive statistics. The multiple regression analysis was done to evaluate the effect of library anxiety on user comfort where staff barrier, affective barrier, and cognitive barrier were used as independent variables, and comfort with service and comfort with technology were applied as the dependent variables. ANOVA test was applied to determine the individual difference in library anxiety levels by category of university. Besides, an "Independent sample T-test" was used to identify the individual differences in library anxiety between undergraduate and postgraduate students.

4.4 Sample Adequacy, Reliability, and Validity

The criteria for KMO value is "0.90s = marvelous, 0.80s = meritorious, 0.70s = middling, 0.60s = mediocre, 0.50s = miserable, and below 0.50 = unacceptable" (Kaiser, 1974). KMO value is 0.910 for staff barrier, 0.875 for

library services, 0.701 for affective barrier, 0.665 for cognitive barrier, 0.817 for library technology, and 0.750 for five dimensions of library anxiety, which is greater than the threshold of 0.7 (Leech et al., 2005), indicating the 392 samples are statistically significant for conducting factor analysis. Nunnally (1978) suggested that "alpha values should be 0.70 or greater". The internal consistency of all items (α=0.917), staff barrier (α=0.910), library service (α=0.875), affective barrier (α=0.701), cognitive barrier (α=0.665), and library technology (α=0.817) were very satisfactory indicated that good reliability of overall library anxiety items. A factor analysis was "conducted where the factor analysis procedure was constrained to extracting five factors, the scale items loaded on" the five factors and had a total of 53.81 percent of the variance. All the items were loaded on the factors from 11.798 to 0.043. In factor analysis, "only factors having latent roots [eigenvalues] greater than one are considered significant" (Andaleeb & Simmonds, 1998). However, the 5 factors had an eigenvalue greater than one, from 11.798 to 2.293, indicating that five variables were significant to conduct factor analysis. The discriminant validity is achieved if the "correlation between one scale and another is not as high as each scale's coefficient alpha" (Andaleeb & Simmonds, 1998; Fornell & Larcker, 1981). The alpha coefficient of each factor (0.712 to 0.908) was as high as the correlation between one factor and the other, which supported the discriminant validity (Table 1).

Table 1: Discriminant Validity

	1	2	3	4	5
Staff Barriers	**0.908**				
Comfort with Services	0.346	**0.899**			
Affective Barriers	.396	.383	**0.734**		
Cognitive barriers	.300	.297	.610	**0.712**	
Comfort with Technology	.309	.639	.241	.026	**0.882**

5. Data Analysis
5.1 Demographic information
The highest responses were from private universities (171, 43.6%), followed by public universities (161, 41.1%) and international universities (60, 15.3%). The largest number of respondents were from Dhaka University (96, 24.5%), followed by Khwaja Yunus Ali University (94, 24%), International Islamic University Chittagong (77, 19.6%), Rabindra University (65, 16.6%) and Islamic University of Technology (60, 15.3%). Among the respondents, 326 (83.2%) were undergraduate students, and 66 (16.8%) were postgraduate students. The respondents' demographic information indicated that a diversified population participated in the survey.

5.2 Overall, Dimensional and Item-wise Library Anxiety
The overall mean of library anxiety score was 3.99 out of 5 with a standard deviation of 0.60, indicating that the level of library anxiety was reasonably low among the students in the selected universities of Bangladesh. Dimensionally, the highest mean of library anxiety score was 4.55 for Barriers with Staff, followed by 4.16 for Comfort with Library Services, 3.77 for Comfort with Library Technology, 3.72 for Cognitive barriers, and 3.69 for Affective Barriers with the services of the university libraries among the five library anxiety dimensions. The result of this study indicated that library anxiety exists among the students in the universities of Bangladesh, as all the LAS scores fell between 3.06 and 4.66 on a 5-point Likert scale (Table 2).

Table 2: Overall, Dimensional and Item-wise Library Anxiety

ID	Statements	Mean	SD
BS1	I can't get help in the library at the time I need it	4.63	0.92
BS2	I feel like I'm bothering the library staff if I ask a question	4.39	1.17
BS3	Library staff are unapproachable	4.48	1.02
BS4	Library staff are unfriendly	4.66	0.78
BS5	Reference librarians are unhelpful	4.57	0.90
BS6	Library staff don't care about students	4.51	1.08
BS7	Library staff don't have time to help me because they are always busy doing something else	4.53	0.89
BS8	Library staff don't have time to help me because they are always on the phone	4.64	0.92
BS9	Library staff don't listen to students	4.61	0.89

BS10	There is often no one available in the library to help me	4.43	1.19
CS11	Good instructions for using online journal/e-book database are available	3.94	1.30
CS12	I always use online public access catalog before approaching the shelves	3.89	1.45
CS13	I enjoy learning new things about the library	4.43	1.20
CS14	I want to learn to do my own research	4.47	1.01
CS15	lf I can't find a book on the shelf, the library staff will be there to help me	4.21	1.20
CS16	The digital institutional repository is easy to use	3.86	1.32
CS17	The Internet services are always available when I want to use	3.94	1.55
CS18	The library is a comfortable place to study	4.28	1.18
CS19	The library is an important part of my studies	4.36	1.23
CS20	The library staff who work at the circulation desk are helpful	4.24	1.22
AB21	I can never find the information that I need in the library	3.84	1.27
AB22	I don't know what resources are available in the library	3.63	1.32
AB23	I don't understand the library's overdue fines	3.73	1.28
AB24	I find online journals and e-books too complex for finding information	3.06	1.46
AB25	I often can't find a seat in the library to study	3.71	1.58
AB26	The computers in the library are usually out of order	3.83	1.46
AB27	The directions for using online journal/e-book database are not clear	3.80	1.34
AB28	The library never has the materials/equipment that I need	3.72	1.45
AB29	The library would not let me check out as many items as I need	3.80	1.52
AB30	The library's rules are too restrictive	3.72	1.54
CB31	I am embarrassed that I don't know how to use the library	3.70	1.54
CB32	I am unsure about how to begin my research	3.53	1.52
CB33	I don't know how to use research-related services	3.43	1.60
CB34	I don't know how to use digital institutional repository	3.55	1.48
CB35	I don't know what to do next when the book I need is not on the shelf	3.68	1.46
CB36	I don't need to use digital services for my research	4.01	1.27
CB37	I get confused trying to find my way around the library	4.07	1.28
CB38	I never browse subscribed online resources to find information	3.76	1.46
CT39	Auto email notification regarding circulation service is interesting	3.42	1.58
CT40	Online book reservation system is user-friendly	3.57	1.57
CT41	I can easily access online journal/e-book database from PC & smart phone	3.88	1.46
CT42	I frequently use research-related services of the library	3.65	1.55
CT43	I frequently use self-renewal system to renew borrowed books	3.94	1.40
CT44	I mostly use internet services in the library	4.05	1.40
CT45	I often use digital institutional repository to get institutional publications	3.80	1.35
CT46	I often use online resources for class preparation or research project	4.07	1.26
CT47	Remote access to subscribed online journals and e-books through MyAthens is easy to use	3.35	1.64
CT48	The library website is easy to navigate	4.00	1.32
Staff Barriers		4.55	0.73
Comfort with Services		4.16	0.92
Affective Barriers		3.69	0.77
Cognitive barriers		3.72	0.84
Comfort with Technology		3.77	1.01
Overall		**3.99**	**0.60**

5.3 Effects of Library Anxiety on User Comfort with Service and Technology

Table 3 shows the hypothesized path, path coefficient (β), t value, probability values (p), and decisions of the hypotheses. The study revealed significant positive impacts of staff barrier (β=0.226, t=4.535, p<0.001), and affective barrier (β=0.245, t=4.083, p<0.001) on user comfort with library service in the university libraries. However, the cognitive barrier (β=0.080, t=1.390, p>0.165) has an insignificant positive effect on user comfort

with library service. The study also identified that the staff barrier ($\beta=0.268$, t=5.222, p<0.001), and affective barrier ($\beta=0.269$, t=4.552, p<0.001) have a significant positive effect on user comfort with library technology. However, the cognitive barrier ($\beta= -0.219$, t= -3.682, p>0.001) has a significant negative effect on user comfort with library technology.

Table 3: Effects of library anxiety on user comfort with service and technology

H	Hypothesized Paths	β	t	p	Decisions
			Sig. >1.96	*Sig. <0.05*	
H-1	Staff Barrier ->Comfort with Service	0.226	4.535	0.000	Significant
H-2	Affective Barrier->Comfort with Service	0.245	4.083	0.000	Significant
H-3	Cognitive Barrier->Comfort with Service	0.080	1.390	0.165	Insignificant
H-4	Staff Barrier ->Comfort with Technology	0.268	5.222	0.000	Significant
H-5	Affective Barrier->Comfort with Technology	0.269	4.352	0.000	Significant
H-6	Cognitive Barrier->Comfort with Technology	-0.219	-3.682	0.000	Significant

β = Beta, Sig. = Significance, t = t-value, p = p-value

5.4 Difference in Library Anxiety by University Category

The university category computed the user responses for the overall and dimensional library anxiety levels by ANOVA. The study revealed that there was a significant difference in overall library anxiety level (p<0.001) among the users of public (3.96), private (3.86), and international (4.43) university libraries. It is found that there was a significant difference among the users of public, private, and international university libraries in terms of library anxiety in Barriers with Staff (p<0.001), Comfort with Library Services (p<0.001), Affective Barriers (p<0.001), Cognitive barriers (p<0.016), and Comfort with Library Technology (p<0.001).

5.5 Individual Difference in Library Anxiety by User Category

User category computed the user responses for overall and dimensional library anxiety by Independent Sample T-test. The study identified that overall library anxiety was a significant difference (P<.005) between undergraduate (3.95) and postgraduate (4.15) students. It is found that there were significant differences between undergraduate and postgraduate students in terms of library anxiety in Barriers with Staff (p<0.001), Affective Barriers (p<0.003), Cognitive barriers (p<0.001), and Comfort with Library Technology (p<0.001).

6. Discussion

The study adapted Bostick's Library Anxiety Scale, including 48 items under five dimensions, according to the university libraries' environment, by consulting with some library and information science researchers, incorporating academicians and professionals. Numerous statistical methods, i.e., KMO values, Cronbach's alpha, factor analysis, and discriminating validity supported this model's sampling adequacy, reliability, and validity.

H1: Lower the staff barrier regarding library anxiety, higher the user comfort with library service: The staff barrier was employed as X_1 with the user comfort with library service (Y), where the β_1 value is 0.226, the p-value is 0.001, and the t-value is 4.535, indicating that the library resources have a significant positive effect on user comfort with library service in the university libraries of Bangladesh. The result indicated that if the staff barrier of the libraries is reduced by 1 percent, the level of user comfort with library service is expected to increase by 2.26 percent.

H2: Lower the affective barrier regarding library anxiety, higher the user comfort with library service: The affective barrier was employed as X_2 with the user comfort with library service (Y), where the β_1 value is 0.245, the p-value is 0.001, and the t-value is 4.083, indicating that the library resources have a significant positive effect on user comfort with library service. The coefficient beta value recommended that if the staff barrier of the libraries is reduced by 1 percent, the level of user comfort with library service is expected to increase by 2.45 percent.

H3: Lower the cognitive barrier regarding library anxiety, higher the user comfort with library service: The cognitive barrier was employed as X_3 with the user comfort with library service (Y), and found that the β_1 value is 0.080, the p-value is 0.165, and the t-value is 1.390, indicating that the library resources have an insignificant

positive effect on user comfort with library service. The result indicated that if the cognitive barrier of the libraries is reduced by 1 percent, the level of user comfort with library service is expected to increase by 0.80 percent.

H4: Lower the staff barrier regarding library anxiety, higher the user comfort with library technology: The staff barrier was employed as X_1 with the user comfort with library technology (Y), where the β_1 value is 0.268, the p-value is 0.001, and the t-value is 5.222, indicating that the library resources have a significant positive effect on user comfort with library technology. The coefficient beta value recommended that if the staff barrier of the libraries is reduced by 1 percent, the level of user comfort with library technology is expected to increase by 2.68 percent.

H5: Lower the affective barrier regarding library anxiety, higher the user comfort with library technology: The affective barrier was employed as X_2 with the user comfort with library service (Y), and found that the β_1 value is 0.269, the p-value is 0.001, and the t-value is 4.552, indicating that the library resources have a significant positive effect on user comfort with library technology. The coefficient beta value recommended that if the staff barrier of the libraries is reduced by 1 percent, the level of user comfort with library technology is expected to increase by 2.69 percent.

H6: Lower the cognitive barrier regarding library anxiety, higher the user comfort with library technology: The cognitive barrier was employed as X_3 with the user comfort with library service (Y), where the β_1 value is 0.219, the p-value is 0.001, and the t-value is -3.682, indicating that the library resources have a significant negative effect on user comfort with library technology. The result indicated that if the cognitive barrier of the libraries is reduced by 1 percent, the level of user comfort with library service is expected to decrease by 2.19 percent.

H7: The library anxiety level among the students of public, private, and international university libraries of Bangladesh differs significantly: The ANOVA results recommended that there was a significant difference in overall library anxiety level (p<0.001) among the users of the public (3.96), private (3.86), and international (4.43) university libraries, indicating the students of the international university were significantly lower library anxious than the students of the public and private universities in Bangladesh. Besides, it is found that there were significant differences among the users of public, private, and international university libraries in terms of library anxiety in Barriers with Staff (p<0.001), Comfort with Library Services (p<0.001), Affective Barriers (p<0.001), Cognitive barriers (p<0.016), and Comfort with Library Technology (p<0.001), indicating the level of library anxiety among students was significantly lower in the international university than the students of the public and private universities for each of the dimensions. Therefore, the authorities of public and private university libraries should emphasize building awareness among the students regarding their existing services to reduce library anxiety levels.

H8: The library anxiety level between the undergraduate and postgraduate students differs significantly: The Independent Sample T-test recommended that overall library anxiety was significantly different (P<.005) between undergraduate (3.95) and postgraduate (4.15) students, indicating the undergraduate students were significantly higher library anxious than the postgraduate students in the selected universities. The study found significant differences between undergraduate and postgraduate students in staff barrier (p<0.001), affective barriers (p<0.003), cognitive barrier (p<0.001), and comfort with library technology (p<0.001), indicating the undergraduate students were significantly higher library anxious in the selected universities in all the dimensions except for comfort with library services (p>0.475). Thus, the authorities of the selected university libraries should take the initiative to build awareness among the students; special emphasis should be given to the undergraduate students regarding the existing services for reducing their library anxiety level.

7. Conclusion

Numerous statistical methods supported the sampling adequacy, reliability, and validity of the model, which successfully attained all the objectives and provided the answers to all the hypotheses. The overall library anxiety level was reasonably low among the students in the selected universities of Bangladesh. The affective and staff barriers significantly affected comfort with library services as well as affective, cognitive, and staff barriers

significantly affected comfort with library technology. Overall library anxiety was significantly different among the students of public, private, and international universities as well as between undergraduate and postgraduate students. The adapted library anxiety scale would prompt further studies on assessing library anxiety in academic libraries locally and globally. The findings would have significant policy and practical implications for developing and implementing the strategy that helps students feel less anxious and do better academically. Therefore, additional research is expected to make it an effective model that would reveal more relevant and significant findings.

8. Recommendations

Based on the findings, the study suggested some recommendations. University libraries should take the initiative to reduce all the library anxiety barriers. Emphasis should be given to reducing the staff barrier because the respondent was mostly affected by feeling comfortable using library services and technology by that factor. The authorities of public and private university libraries should emphasize building awareness among the students regarding their existing services to reduce library anxiety levels. The selected university libraries should take the initiative to organize training regarding the existing services among the students, especially with emphasis should be given to undergraduate students to reduce their library anxiety level. The library professionals of the selected university libraries should emphasize reducing the cognitive barrier of male students.

9. Acknowledgement

10. Conflict of interest

The authors affirm that there are no conflicts of interest in publishing this work.

11. Ethical Statement

Institutional ethical clearance was obtained from the ethical committee of Khwaja Yunus Ali University before the research was executed.

12. Author contribution

The concept, research design, and questionnaire design for this study were developed by Dr. Md. Jahangir Alam and Rozifa Akhtar. Following that, Rozifa Akhtar conducts the survey and begins drafting, while Dr. Md. Jahangir Alam does data analysis. Dr. Bilkis Begum and Dr. Md. Jahangir Alam are the major contributors to the article's editing and act as critical reviewers. Finally, Rozifa Akhtar collaborated on the manuscript's composition, and the other writers gave their approval after reading it.

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