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EFFECT OF FORMAL AND NON-FORMAL MODES OF EDUCATION ON UNIVERSITY STUDENTS' DIGITAL LITERACY SKILLS AND SELF-REGULATED LEARNING SKILLS

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Abstract

Purpose of the study: The primary purpose of this study is to investigate the effect of formal and non-formal modes of education on students' digital literacy skills and self-regulated learning skills. In addition, to examine and compare these skills in students regarding discipline of their study.

Methodology: Causal comparative research was used for obtaining purposes, as mentioned earlier. Furthermore, two research instruments, DLS (Digital Literacy Scale) by Wardhani et al. (2019) and SSRL (Self-regulated Learning Skills) by Erdogan (2016), are used to collect data. MANOVA and descriptive statistics were used to analyze data.

Main Findings: According to the objectives as mentioned above, the results extracted from findings revealed that formal and non-formal modes of education have a significant effect on students' digital literacy and self-regulated learning skills. Moreover, non-formal students tend to have higher digital literacy skills and self-regulated learning skills, particularly in the natural and computer sciences disciplines.

Applications of the study: This study holds significance in assessing digital literacy and self-regulated expertise in both formal and non-formal education. It offers valuable insights to educators, policymakers, and curriculum designers. Furthermore, it supports the integration of self-regulated learning strategies and digital literacy into the curriculum, contributing to the development of self-regulated and digitally literate individuals. Additionally, this research aids in enhancing already established knowledge and the body of literature.

Novelty/Originality of the study: Numerous studies have been conducted to examine the relationship between digital literacy and self-regulated learning skills discussed in the introduction section. However, this study is unique in investigating how formal and non-formal education cause an effect on self-regulated learning and digital literacy. It also compares these effects across disciplines in university settings, discerning students' preferred learning modes.

Keywords: *Digital Literacy Skills, Self-regulated Learning Skills, Formal, Non-formal, Modes of education, University Students.*

INTRODUCTION

Due to technological advancements, this era is named the era of the digital world, where students need to be digitally literate and skillful. However, one can only attain these skills with self-regulated learning skills. Consequently, the attainment of both these skills is essential for students. As mentioned by Perera et al. (2018), "Present day university students are required to be digitally literate by possessing a working knowledge of digital technology and understanding its usage for learning. But it must be accompanied by, among other aspects, strategies that promote, self-regulated learning" (p. 2). Furthermore, numerous studies have been conducted to examine the relationship between the two skills described above. For instance, Yu et al. (2021) conducted research to look at the association between academic success in blended learning and self-regulated learning, teachers' credibility, and ICT literacy. The results of this study, which used undergraduate students as a sample, showed a positive correlation between self-regulated learning and ICT literacy abilities in blended courses. Similar results were found in a second study on undergraduate students by Perera et al. (2016) that examined the association between self-regulated learning skills and digital literacy skills in a non-formal context. The results of several other studies also demonstrate that both of these skills have a positive relationship in blended, online, formal, informal, and non-formal learning settings (Perera et al., 2016; Yot-Domínguez, & Marcelo, 2017; Anthonysamy, 2020). Therefore, the focus of all the aforementioned studies was on examining the relationship between these two skills. However, this study is unique from others as it aims to examine the effects of formal and non-formal programs of education on self-regulated learning skills and digital literacy abilities Moreover, every university offers different academic programs such as IT, social sciences, natural sciences, and languages. Consequently, the present study also intends to determine students of which discipline of education are more self-regulated and digitally literate.

Objectives of the study

1. To measure the effect of formal and non-formal modes of education on students' digital literacy skills and self-regulated learning skills.
2. To analyze digital literacy skills between formal and non-formal university students regarding discipline of study.
3. To examine self-regulated learning skills between formal and non-formal university students regarding discipline of study.

Research Questions

1. Is there any significant effect of modes of education on digital literacy and self-regulated learning skills?
2. To what extent are formal and non-formal university students digitally literate within their discipline of study?
3. To what extent are formal and non-formal university students self-regulated within their program of study?

LITERATURE REVIEW

Digital Literacy Skills

Throughout history, the acquisition of literacy skills, encompassing the abilities of reading and writing, has been widely regarded as a highly esteemed and advantageous aptitude for individuals. The growing prevalence and utilization of personal computers have underscored the escalating importance of computer literacy, which pertains to proficiency in effectively using computers for professional purposes. The concept of "computer literacy" was replaced by the term "digital literacy" due to the increasing prevalence of internet, information and communication technologies (ICT), online platforms, and digital media (Jabeen et al., 2020).

Contemporary students are sometimes called as "digital natives" owing to their extensive exposure and familiarity with technology. Many students possess a basic understanding of various technological gadgets, although they may lack the necessary skills to effectively utilize these technologies within an educational setting. According to Spante et al. (2018), the acquisition of technology skills by students facilitates their entry into the workforce. Sarfraz et al. (2020) stated that the concept of digital literacy encompasses more than simply instructing students on the usage of technology; it also involves imparting knowledge on the practical application of the technologies they acquire. Students have the opportunity to engage actively and adjust to the contemporary digital society by effectively using technology and employing digital literacy skills for the purposes of creation, evaluation, and dissemination. The acquisition and application of digital literacy skills are crucial at the early stages of education. It is imperative that students develop and employ these abilities within the school curriculum, as this will enable them to effectively prepare for future academic pursuits (McGuinness, 2019). In addition, it is essential to assess the students' proficiency in these skills and provide any necessary supplementary instruction in a controlled environment. Iordache et al. (2017) underscored the increasing significance of global digital skills, literacies, and competencies in light of stakeholders' utilization of diverse models for their policies. The establishment of a global standard for digital literacy skills can facilitate the fulfillment of educational requirements for both teachers and students. Santos & Serpa, (2017) underscored the necessity for developing novel digital literacy competencies in response to the advent of evolving technologies. According to Reddy et al. (2020), the term "digital literacy" refers to educational activities that enhance students' proficiency in utilizing digital technologies.

Signifance of Digital Literacy Skills for University Students

Students must be prepared for activities where knowledge is the most essential resource for social and economic development and where emerging jobs are defined by distributed expertise and networked activities. This is essential for future and existing schooling. Universities must use effective teaching methods to overcome these new challenges (Nand & Sharma, 2018). New information and communication technologies can help restructure the teaching-learning process and increase students' cooperation and knowledge-use skills. If properly taught and applied, these technologies could be useful in this situation (Rayendra, 2020). Erwin (2020) attributes metaphorical world technology in digital technology to digital literacy in education. This expansion of learning opportunities and tools accelerates and simplifies education. Digital literacy is the organization and facilitation of computing, internet software, and communication technologies for teaching, learning, and other educational activities using a variety of methods. Moreover, universities should taught these skills by arranging training workshops and seminars for their students and faculty members (Abrosimova. 2020).

According to Saxby (2018), a digitally literate individual can find, handle, analyze, and integrate digital information. Even though today's youth understand technology, many struggle to use it. He advised pupils to develop critical thinking, planning, monitoring, and regulating skills for information management. Digital literacy requires understanding concepts as well as technology.

Self-Regulated learning skills

According to Chelghoum (2017), self-regulation and self-regulated learning can be described as the cognitive control exerted by students and their own achievements in the process of learning (p. 124). Furthermore, Zimmerman (as cited in

Chelghoum, 2017) posits that it encompasses purposeful endeavors that empower students to engage actively in the process of acquiring knowledge, as opposed to passively receiving information from their instructors.

Zimmerman additionally draws a comparison between the characteristics of inexperienced learners and proficient self-regulated learners. He asserts that inexperienced learners find themselves ensnared in a detrimental cycle marked by ambiguous and distant objectives, diminished self-confidence, and lack of direction in their plans, avoidance of self-assessment, ascribing low ability to themselves, and exhibiting negative self-responses (as cited by Alexander, 2017). According to de la fuente et al. (2020), students who demonstrate academic achievement are characterized by their confident and diligent attitude to learning activities, as well as their ability to engage in self-regulated learning. Moreover, self-regulation facilitates the development of students' metacognitive awareness regarding their own competencies and knowledge gaps. Individuals that have a proactive disposition towards learning and achieve notable advancements in the acquisition of knowledge are the ones being referred to. Moreover, pupils adeptly navigate the obstacles posed by suboptimal study surroundings, ambiguous instruction from educators, and complex textual materials. Over time, individuals develop a perception of learning as a systematic and controllable process, leading them to take greater responsibility for achieving their objectives (Jabeen et al., 2019). Therefore, in order for students to achieve high levels of performance in various learning contexts, such as informal, formal, and non-formal settings, it is imperative that they possess the essential skill of self-regulated learning (Perera et al., 2018).

Significance of Self-Regulated Learning for University Students

When determining the boundaries of the self-regulated learning research field, the level of education should also be taken into consideration. Learners of different ages have very diverse ways of retaining their focus and staying motivated, as well as very different ways in which they process the information they learn and the strategies that are used to help them get ready for their classes (Jabeen et al., 2020). The aspects of self-regulated learning (SRL) learning that are classified as initiating and supporting differ according to age group, as well. When it comes to children and the various educational environments, it is generally agreed that the instructor has a defining role in the SRL effectiveness of the students. When it comes to adult learners, on the other hand, instructional design is regarded as a motivating factor (Vosniadou, 2020). In addition, it has been found that implicit approaches are an efficient means of assisting university students in the process of constructing their SRL skills (Howard et al., 2017). It has been discovered that more direct techniques are beneficial for treating adults (Loeffler, 2019). Academic demands and expectations also vary by age group at the university level; learners are expected to be more independent and to take charge of their own learning process while also handling more "high-stakes" tasks (such as tests, interviews, and job preparation), and they require specific SRL skills to be able to manage their learning behaviour as well as their motivation and emotions (Anthonysamy, 2020; Ullah et al., 2022). It has been found that adult learners experience higher degrees of anxiety throughout the learning process. Because of this there is a need to emphasize on effective and long-lasting ways to help in this area (Hooshyar et al, 2020).

Role of Digital Literacy and Self-regulated learning in Formal and Non-Formal mode of education

In the latest educational setting, which is marked by incorporation of information and communication technologies and their increasing dependence on non-formal mode of education, the attainment of self-regulated learning skills and digital literacy skills has become a vital requirement for achieving academic excellence among students.

The above mentioned skills equips students to successfully traverse the intricacies of contemporary education, promoting self-reliance, flexibility, and academic achievement.

Self-regulated learning is a concept rooted in the field of educational psychology, which refers to the capacity of learners to assume responsibility for their own learning processes. According to Balk, & Englert (2020), students that demonstrate strong self-regulated learning abilities demonstrate increased levels of enthusiasm, engagement, and personal investment in their educational pursuits. In the realm of distance education, where students frequently assume the onus of organizing their learning endeavors, these competencies assume paramount importance.

The importance of self-regulated learning in distance learning contexts is emphasized by research. According to Vosniadou (2020) , students who possess the ability to proficiently establish objectives, closely track their advancement, and regulate their study approaches are more adept at succeeding in the context of distance education, which often involves a certain degree of isolation. The individuals in question exhibit heightened levels of tenacity and adaptability, which are crucial qualities for surmounting the obstacles inherent in the context of distance education.

Digital literacy abilities refer to the capacity to engage in a critical evaluation, comprehension, and effective utilization of digital information and technologies. According to the study conducted by Martin et al. (2018), it was observed that students who possess proficient digital literacy skills demonstrate enhanced abilities in terms of accessing, evaluating, and effectively using digital tools. Digital literacy abilities are essential in both formal and distance education contexts, since digital platforms and online materials are widely available.

Digital literacy in non-formal education enables students to develop the necessary skills to proficiently navigate learning management systems, actively participate in online collaboration, and successfully utilize the vast array of digital resources at their disposal. Moreover, the acquisition of these abilities empowers learners to assess the authenticity of

online sources and discern between trustworthy and untrustworthy information, which is a pivotal factor in the era of excessive information (Churchill, 2020).

METHODOLOGY

The study was carried out in ex-post facto research design, where researchers compared students' digital literacy and self-regulated learning skills in formal and non-formal modes of education.

Population

All the general category HEC recognized formal and non-formal universities as the population of the study.

Sampling

The sample size was chosen in two stages of sampling. At the first stage, four universities two formal and two non formal were selected by using purposive sampling. In Pakistan, only two universities, are offering non-formal-mode of education i.e., Allama Iqbal Open University and Virtual University of Pakistan. Others formal universities were selected from the district Lahore i.e., University of Punjab and Government College University, Lahore. These formal universities have all disciplines from which researchers intend to collect data. These disciplines are mentioned below.

Social sciences

Natural sciences

Computer sciences

Arts & Humanities.

In the second stage first, permission was sought by using a permission letter from universities, and lists of students who enrolled in the final semester, both graduates and postgraduates, were collected from all aforementioned disciplines. After receiving lists, researchers randomly selected 24 students (12 males, 12 females) from each discipline using random digit tables.

A total of 192 students were selected from all four universities and 48 students from each university.

Tools of Research

The researcher used the following two standardized tools of research for collecting data.

Digital Literacy Scale (DLS)

This scale was developed by Wardhani et al. (2019) and it is based on Likert Scale with following dimension

- Information and CommunicationTechnology Literacy (17 statements)
- Media Literacy (5 statements)
- Information Literacy (12 statements)

Source: (Wardhani et al., 2019)

Scale for Self-Regulated Learning (SSRL)

Scale for Self-Regulated Learning (SSRL) designed by Erdogan (2016) which has two sections; one section included statements to check self-regulation skills, while the other section has statements regarding checking motivation. Here, the researcher will only take the self-regulated learning skills section, which consists of 45 statements. Furthermore, this section has the following dimensions that are

- Routine Setting and Planning
- Environmental Regulation
- Organizing and transforming
- Seeking appropriate information
- Repetition and memorizing
- Self-observation
- Seeking peer teacher or adult assistance,
- Self-evaluation
- Self-consequences after success and self-consequences after failure.

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Both scales also passed through all socio-metric techniques and proved to be a good fit.

Data Collection

Data collection was done in both ways, online and physical. From non-formal universities i.e., Allama Iqbal Open University and Virtual University, data were collected online. The researchers made questionnaires on Google Docs and sent them to the students of Allama Iqbal Open University students as, the first and fourth authors already takes online workshops of these students. Conversely, for Virtual University students, the second author administered the questionnaires by email, directed to the university's lecturers and instructors. These emails included accompanying cover letters to provide context and purpose.

In contrast, data collection from formal universities, such as the University of Punjab and G.C University, Lahore, was carried out through in-person visits. During these visits, researchers personally obtained data.

Data Analysis

The collected data were analyzed using SPSS software, where the Mean was calculated in descriptive statistics while MANOVA and Two- way ANOVA were calculated in inferential statistics. The findings of this study are mentioned below.

FINDINGS / RESULTS

The findings of the study are mentioned in the tables below.

Table 1: Inferential Statistics MANOVA

Multivariate Tests							
Effect		**Value**	**F**	**Hypothesis df**	**Error df**	**Sig.**	**Partial Eta Squared**
Intercept	Pillai's Trace	.840	489.717[b]	2.000	187.000	.000	.840
	Wilks' Lambda	.160	489.717[b]	2.000	187.000	.000	.840
	Hotelling's Trace	5.238	489.717[b]	2.000	187.000	.000	.840
	Roy's Largest Root	5.238	489.717[b]	2.000	187.000	.000	.840
Mode of Education	Pillai's Trace	.076	2.491	6.000	376.000	.022	.038
	Wilks' Lambda	.924	2.516[b]	6.000	374.000	.021	.039
	Hotelling's Trace	.082	2.540	6.000	372.000	.020	.039
	Roy's Largest Root	.076	4.788[c]	3.000	188.000	.003	.071

The results in the table indicate a significant difference between formal and non-formal university students in terms of their digital literacy skills and self-regulated learning skills. This conclusion is drawn from the statistical significance level (sig. value) of .021, which is less than the commonly accepted alpha level of .05, denoting that the observed differences are not likely due to random chance. Additionally, the F-statistic (F = 2.516) also supports the presence of significant differences. Wilk's Λ, a multivariate test statistic, is .924, suggesting that there is a significant difference between the two groups. The effect size, as measured by partial η^2, is .039, indicating a small but noteworthy impact of the educational mode on these skills. These findings emphasize that formal and non-formal university students differ significantly in terms of their digital literacy and self-regulated learning skills, with non-formal students exhibiting a notable advantage in this regard.

Table 2: Descriptive Statistics for digital literacy

Program of study	**Mode of Education**	**Mean**	**N**
Natural Sciences	**Formal**	**124.4167**	**24**
	Non-Formal	127.2917	24
	Total	125.8542	48
Computer Sciences	Formal	121.3750	24
	Non-Formal	130.0833	24
	Total	125.7292	48
Social Sciences	Formal	119.7917	24
	Non-Formal	128.7917	24
	Total	124.2917	48
Arts & Humanities	Formal	126.0000	24
	Non-Formal	119.6250	24
	Total	122.8125	48
Total	Formal	124.2708	96

	Non-Formal	125.0729	96
	Total	124.6719	192

The mean values from the table reveal variations in digital literacy skills among students of different academic disciplines and modes of education. Specifically, non-formal education students in the natural sciences discipline exhibit a higher mean value (M = 127.2917) in digital literacy skills compared to their formal education counterparts (M = 124.4167). Similarly, students in the computer sciences discipline in the non-formal mode demonstrate a greater awareness of digital literacy skills (M = 130.0833) in contrast to formal mode students (M = 121.3750).

Furthermore, students pursuing social sciences in the non-formal mode display more substantial knowledge in digital literacy skills (M = 128.7917) compared to students in the formal mode (M =119.7917). In contrast, students from the Arts & Humanities discipline in the formal mode show a higher mean value (M = 126.0000) than their non-formal mode peers (M = 119.6250).

Overall, students in the non-formal mode of education exhibit higher digital literacy skills (M = 125.0729) compared to students in the formal mode (M = 124.2708).

These findings suggest that the mode of education and academic discipline influence students' digital literacy skills, with non-formal education students generally demonstrating higher levels of proficiency in this regard.

Table 3: Descriptive Statistics for self-regulated learning

Program of study	**Mode of Education**	**Mean**	**N**
Natural Sciences	Formal	153.2917	24
	Non-Formal	160.3333	24
	Total	156.8125	48
Computer Sciences	Formal	151.1250	24
	Non-Formal	161.0417	24
	Total	156.0833	48
Social Sciences	Formal	151.1667	24
	Non-Formal	159.2500	24
	Total	155.2083	48
Arts & Humanities	Formal	153.0833	24
	Non-Formal	142.9583	24
	Total	148.0208	48
Total	Formal	153.9271	96
	Non-Formal	154.1354	96
	Total	154.0312	192

The table provided above displays the mean values of students in both formal and non-formal education modes across four distinct academic disciplines: Natural Sciences, Computer Sciences, Social Sciences, and Arts & Humanities. The aim of this analysis was to assess self-regulated learning skills among students from these disciplines.

The findings from the table demonstrate significant variations in self-regulated learning skills based on the mode of education and the specific discipline. Students majoring in Natural Sciences who are enrolled in the non-formal mode exhibit a notably higher level of self-regulated learning skills (M = 160.3333) compared to their formal education counterparts (M = 153.2917).

Similarly, students in the Computer Sciences (M of formal = 151.1250 < M of non-formal = 161.0417) and Social Sciences disciplines (M of formal = 151.1667 < M of non-formal = 159.2500) , who pursue non-formal education, display greater self-regulated learning skills in comparison to their counterparts in the formal mode of education. However, students in the Arts & Humanities discipline who are in the non-formal mode exhibit lower self-regulated learning skills (M = 142.9583) in contrast to students in the formal mode (M = 153.0833).

Additionally, when considering the overall mean values, it is observed that non-formal education mode students possess slightly higher self-regulated learning skills (M = 154.1354) than students in the formal education mode (M = 153.9271).

Consequently, the results of this analysis suggest that students in non-formal education modes tend to be more self-regulated learners compared to their counterparts in formal education modes, with variations observed across different academic disciplines.

DISCUSSION / ANALYSIS

The main aim of this study was to examine the effect of formal and non-formal modes of education on university students' digital literacy skills and self-regulated learning skills. To address this, the research questions were as follows:

1. Is there any significant effect of modes of education on digital literacy and self-regulated learning skills?

2. To what extent are formal and non-formal university students digitally literate within their program of study?

3. To what extent are formal and non-formal university students self-regulated within their program of study?

To address the first research question, the data extracted from Table 1 of inferential statistics reveals that both formal and non-formal educational methods exert a notable effect on students' digital literacy proficiency. Conversely, when assessing students' aptitude for self-regulated learning, neither mode of education demonstrates a substantial effect. In simpler terms, this signifies that the manner in which students are educated, whether through formal mode or non-formal educational settings, does indeed play a discernible role in shaping their digital literacy skills. However, in the context of students' capacity for self-regulated learning, neither educational mode exhibits a statistically significant effect.

For the second research question, the findings indicated that non-formal students in the natural sciences discipline exhibited higher digital literacy skills (mean value: 127.2917) compared to their formal mode counterparts (mean value: 124.4167). Similarly, non-formal students in computer sciences demonstrated greater digital literacy skills (mean value: 130.0833) compared to formal students (mean value: 121.3750). In social sciences, non-formal students possessed more digital literacy skills compared to formal students. Notably, students in the formal mode from Arts & Humanities displayed a higher mean value (126.0000) than non-formal students (mean value: 119.6250). These findings align with research conducted by (Bibina & Kabir, (2019) suggesting that students in social sciences tend to possess more technical, communication, critical thinking, problem-solving, and other digital abilities compared to humanities students.

Overall, non-formal mode students demonstrated higher digital literacy skills when compared to their formal mode counterparts (total mean value: 125.0729 > 124.2708). However, it is imperative to emphasize the need for both formal and non-formal mode students to enhance their digital literacy skills, particularly in the wake of the COVID-19 pandemic. As Abrosimova (2020) argued, universities should transition from traditional education to digital methods, as digital skills have become indispensable for all students. Additionally, findings from studies by Rayendra (2020), underscore the importance of digital learning skills in facilitating effective learning.

Addressing the third research question, the results indicated that non-formal mode students in the Natural Sciences discipline exhibited higher self-regulated learning skills than their formal mode counterparts. Moreover, students in Computer Sciences and Social Sciences disciplines in the non-formal mode demonstrated greater self-regulated learning skills than those in the formal mode of education. Conversely, students in Arts & Humanities in the non-formal mode displayed lower self-regulated learning skills than formal mode students. Overall, the mean value of non-formal mode students was slightly higher than that of formal mode students (Mean value of non-formal = 154.1354 > mean value of formal = 153.9271), suggesting that non-formal mode students tend to be more self-regulated learners.

Self-regulated learning skills play a significant role in the education of university students, regardless of whether they are in formal or non-formal settings. Numerous researchers, such as Perera et al. (2018), Vosniadou (2020), Anthonysamy (2020), and Hooshyar et al. (2020), have stressed the significance of self-regulated learning skills for university students.

CONCLUSION

This study has highlighted that formal and non-formal mode of education have a significant effect on digital literacy skills and self-regulated learning skills. Moreover, it also showcased the competencies of university students in digital literacy and self-regulation, either learning through formal and non-formal universities. The results exposed that students learning through non-formal universities of Pakistan tend to have higher digital literacy skills and self-regulated learning skills, particularly in the natural and computer sciences disciplines. However, both formal and non-formal students should focus on enhancing their digital literacy skills, especially in light of the COVID-19 pandemic. As after Covid-19, traditional mode shifted towards online mode. Moreover, for building an excellent career these skills are also substantial. Additionally, self-regulated learning skills are also crucial for the success of university students, regardless of their mode of education. Researchers have consistently emphasized the importance of these skills in the academic journey of students.

LIMITATION AND STUDY FORWARD

The study's scope was constrained to a specific geographic area, with a primary emphasis on formal universities. Additionally, the research was constrained by a relatively small sample size, primarily due to time constraints. Furthermore, this investigation was primarily designed as causal-comparative research, but certain limitations prevented it from being conducted within an experimental setting. Notably, the presence of two lengthy scales in the study led to students experiencing boredom, and consequently, providing responses that were less accurate. This served as another notable limitation of the study.

In summary, the study was limited in geographical scope, focused on formal universities, had a restricted sample size due to time limitations, was primarily causal-comparative in design, and was hindered by the extended scales that resulted in students becoming disengaged and offering less precise responses.

CONFLICT OF INTEREST AND ETHICAL STANDARDS

The authors of this study disclose their lack of financial or personal affiliations with any entities or organizations that might have the potential to exert influence on the research's results. In addition, the research received no external financial support, grants, or sponsorships, establishing the research's autonomy and objectivity. Furthermore, the authors assert their absence of competing interests, encompassing patents, employment relationships, consultancies, or any other affiliations that could lead to conflicts of interest in connection with the subject matter addressed in this research paper.

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AUTHOR'S CONTRIBUTION

Zeema Salim: Data Collection, Introduction, Abstract and Conclusion writing, review of the article after completion.

Dr. Sadaf Jabeen: Data Collection, Data Analysis and it's interpretation, working on literature, writing references and after completion of research review the article.

Dr.:**Tahira Batool:** Working on literature and after completing research, its review.

Mahwish Shehzadi: Data Collection and after completing research, its review.

Dr. Rabia Tabassum: Writing references, working on literature and review after completion.

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