The Impact of Learning Outcomes and Education Quality on Students' Well-Being in Higher Education Institutions of Public Sector: A Cross-Sectional Reference from Pakistan

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Abstract

This study examines the impact of learning outcomes and education quality on student well-being in public higher education institutions in Pakistan. Data were gathered from 384 students through a structured questionnaire, focusing on learning outcomes, education quality, and student well-being. The findings show a significant positive relationship between well-defined learning outcomes and student well-being, highlighting how fulfilling academic experiences align with personal goals, boosting satisfaction and mental health. High-quality education, characterized by a comprehensive curriculum, qualified faculty, and access to resources, plays a crucial role in enhancing students' academic success and personal development.Public institutions, despite facing challenges like limited resources and higher student-to-teacher ratios, offer diverse academic programs and research opportunities. Improving education quality in these institutions can positively affect student well-being, similar to private sector institutions. The study underscores the importance of faculty development, the integration of technology in teaching, and robust student support services, such as counseling and career guidance. Policymakers are encouraged to prioritize resource allocation to enhance education quality and student support. This research contributes valuable insights for improving student well-being in higher education and calls for further studies on pedagogical approaches and socio-economic influences.

**Keywords:** Learning Outcomes; Education Quality; Student Well-being; Public Higher Education; Faculty Development

Introduction

The relationship between learning results, education quality, and students' well-being in higher education institutions is a complex and important subject that involves several aspects of the educational experience and student life. Within higher education, the term "learning outcomes" pertains to the precise abilities, information, and proficiencies that students are anticipated to gain after their educational curriculum, and this not just academic dimensions but also encompasses personal and professional development factors (Aithal, 2016; Bleiklie et al., 2017). They are important benchmarks of the education system's efficacy and substantially impact students' prospects and general life contentment (Merchant et al., 2014). Conversely, the term "education quality" in higher education institutions refers to the extent to which the curriculum is comprehensive, relevant, and effectively delivered (Graham et al., 2013). It also encompasses the qualifications and expertise of faculty members, the availability and accessibility of resources such as libraries, laboratories, and technology, and the overall learning environment (O'Flaherty & Phillips, 2015; Kahu, 2013). A top-notch education plays a crucial role in fostering critical thinking, creativity, and problem-solving abilities in students, which are vital for their personal and professional achievements. Students' well-being in higher education encompasses their mental, emotional, and physical well-being, as well as their social connectedness and satisfaction (Purvis, 2023; Aithal, 2016). The quality of education and the attainment of learning outcomes significantly influence one's overall well-being. Perceiving education as high-quality and reaching learning objectives favors students' self-esteem, motivation, and overall happiness with their educational experience. The feeling of achievement and acquiring abilities enhance their self-assurance in confronting forthcoming obstacles and prospects (O'Flaherty & Phillips, 2015; Graham et al., 2013).

In contrast, substandard education and unfulfilled learning objectives may result in tension, worry, and a sense of inadequacy among pupils (Polyiem, 2021; Tremblay et al., 2019). Not only does this impede their academic achievement, but it may also result in enduring problems with mental health and overall well-being. The link between educational quality and learning outcomes is mutually reinforcing (Baber, 2020; Bleiklie et al., 2017). Superior education enables the attainment of desired learning results; actualizing these results is evidence of the education's excellence. Implementing effective teaching approaches significantly influences the process, using state-of-the-art materials and establishing a conducive learning environment. Institutions that allocate resources to these facets tend to cultivate graduates who possess the necessary skills to effectively address the requirements of contemporary society and lead gratifying existences (Graham et al., 2013). Besides, ensuring that educational programs align with industry standards and anticipated job market developments is crucial. This alignment guarantees that the learning goals are relevant and that students are equipped with academic knowledge, practical skills, and a flexible mentality. The support services provided by higher education institutions have a considerable impact on the well-being of students (Hafeez, 2021). Counseling services, career assistance, extracurricular activities, and chances for social involvement are crucial in enriching students' educational experiences and fostering personal development. These services assist in attending to students' emotional and psychological requirements, enhancing a comprehensive educational experience (Merchant et al., 2014; Tremblay et al., 2019).

The learning environment is just as crucial as the educational material pupils receive. An educational setting that is supportive, inclusive, and engaging not only improves the learning experience but also promotes a feeling of belonging and community among students (Campbell et al., 2022; Walker, 2014). The feeling of belonging is essential for maintaining good mental health and overall well-being, as it may greatly alleviate the isolation and stress often encountered in higher education (Duque, 2013). Moreover, the significance of technology in education has grown significantly, particularly due to the worldwide transition towards digital platforms. Integrating technology into educational practices may significantly improve the quality of education by increasing accessibility, interactivity, and personalization of learning (Plakhotnik et al., 2021; Pietarinen et al., 2014). However, this transition to digital technology mustn't worsen pre-existing disparities or establish further obstacles. Ensuring equal access to technology and digital resources is crucial for sustaining good educational standards and, therefore, supporting the well-being of students (Walker, 2014; Seden et al., 2020). The curriculum has a crucial role in defining the quality of education and attaining learning objectives (Zee & Koomen, 2016). An intricately crafted, up-to-date, and relevant curriculum adequately equips pupils to tackle the complexities of the contemporary world. Furthermore, the curriculum must possess adaptability and inclusivity, allowing students to investigate different disciplines and develop a broad spectrum of abilities (Kutsyuruba et al., 2015). This facilitates their professional advancement and enhances their personal maturation and flexibility. Higher education institutions, alongside academic study, increasingly acknowledge the significance of life skills and emotional intelligence in their programs. Proficiency in communication, collaboration, and emotional fortitude are crucial for achieving success in both personal and professional domains. Integrating these talents into the educational process aids in equipping pupils for the intricacies of real-life settings, bolstering their self-assurance and ability (Davies et al., 2014; Smith & Yang, 2017).

The significance of faculty members and educators in influencing the educational experience cannot be overemphasized. Proficient educators who possess expertise in their respective domains and are adept in pedagogical techniques may greatly augment the educational process (Bücker et al., 2018; McConville et al., 2017). Their capacity to establish rapport with pupils, comprehend their requirements, and adjust their instructional approaches properly is crucial for both the caliber of education and the welfare of students (Vesely et al., 2013). Furthermore, instructors who fulfill the roles of mentors and role models may have a long-lasting influence on students' lives, motivating and directing them throughout their academic path (Wentzel & Miele, 2016). The assessment techniques used in higher education significantly influence students' academic achievements and overall well-being (Upadyaya & Salmela-Aro, 2013). Conventional evaluation techniques prioritizing memory and repetition are progressively seen as insufficient for assessing pupils' genuine comprehension and abilities (Frank et al., 2013). Assessment strategies that foster critical thinking, creativity, and the application of information in innovative ways are more successful in evaluating learning outcomes, enhancing engagement, and reducing the stress associated with the learning process. The supplementary component of tertiary education is another crucial determinant of student welfare. Participation in sports, arts, cultural activities, and groups may significantly enhance the student experience (Duque, 2013). These activities serve as a respite from academic stress and also contribute to the cultivation of various interpersonal skills, the promotion of social bonds, and the enrichment of cultural awareness. Institutions that provide a dynamic range of extracurricular activities promote a more well-rounded lifestyle among students, which is essential for their general welfare (Bücker et al., 2018; Aithal, 2016).

Higher education institutions' policies and beliefs significantly impact the educational environment and student experiences (Polyiem, 2021). Adopting policies prioritizing diversity, equality, and inclusion fosters a more hospitable and supportive atmosphere for all students (Grunschel et al., 2016; Bonnie et al., 2017). Moreover, educational establishments prioritizing sustainability and social responsibility impart these principles to their students, equipping them to become conscientious and accountable global citizens (Ohly et al., 2016). Finally, the worldwide outlook of higher education must not be disregarded. In a world that is becoming more linked, educational institutions providing global exposure, whether via international programs, diverse staff and student populations, or a curriculum that is relevant worldwide, provide their students a substantial edge (Zeng et al., 2016; Polyiem, 2021). In addition, this exposure enriches students' comprehension of many cultures and global issues and equips them for the multifaceted and interconnected world they will encounter post-graduation (Korhonen et al., 2014). These experiences can expand students' viewpoints, promote flexibility, and cultivate a sense of global accountability. The psychological well-being of students in tertiary education has emerged as an urgent matter of concern (Zepke, 2014; Kahu & Nelson, 2018). The academic demands, the difficulties of adjusting to a new and frequently rigorous setting, and the uncertainty over future career choices may have a substantial impact on students' mental health. It is essential to acknowledge and tackle these mental health difficulties (Beaumont et al., 2016). Institutions that provide comprehensive mental health services and cultivate a climate characterized by transparency and support about mental health concerns aid in addressing these difficulties and cultivating a better, more nurturing educational setting (Gustems-Carnicer & Calderón, 2013).

This study is important because it addresses the current lack of research by thoroughly examining the impact of learning outcomes and education quality on student well-being in public higher education institutions in Pakistan. Considering the substantial student population in these establishments, the results of this investigation might have significant ramifications for educational policies and procedures. The research aims is to examine the relationship between learning outcomes and student well-being in public sector higher education institutions, and to assess the impact of education quality on student well-being in Pakistani public higher education institutions.

Literature Review

## Overview of Learning Outcomes in Public Higher Education Institutions

A wide range of literature offers various viewpoints and ideas on investigating learning outcomes in public higher education institutions. These learning outcomes are crucial milestones in comprehending the efficacy and influence of higher education on students. They are crucial benchmarks for the knowledge, comprehension, and skills students must possess at the end of their academic degrees (Guo et al., 2020; Xu & Jaggars, 2013). Public higher education institutions, known for their inclusive admission policies and varied student populations, have distinct difficulties and advantages when defining and evaluating learning outcomes. Previous study highlights the importance of public institutions in fostering social fairness and inclusivity, which greatly shapes the development of their educational goals. These goals include academic accomplishments and the cultivation of social responsibility, critical thinking, and civic involvement in pupils (Brinson, 2015; Wals, 2014).

The previous research study emphasizes the significance of ensuring that learning outcomes follow national educational standards and the particular purpose and objectives of the school. This alignment guarantees that the results are relevant, attainable, and indicative of the wider social requirements (Dobre, 2015; Cheng et al., 2018). Public institutions often subject to heightened scrutiny about their contribution to economic growth prioritize equipping students with the necessary skills and knowledge for employment (Rubin et al., 2010). This phenomenon is clearly shown by the growing integration of hands-on skills, internships, and collaborations with industries in their educational program (Broadbent & Poon, 2015; Aithal, 2016).

Nevertheless, the research also highlights difficulties in evaluating and attaining these educational achievements. Kuh et al. highlight the need for diversified and inclusive teaching and evaluation methods in public institutions to accommodate the diverse student population, which includes non-traditional and disadvantaged students (Kuh et al., 2014; Korhonen et al., 2014). In addition, research examines the influence of external variables, such as limitations in financing, governmental regulations, and market dynamics, on academic achievements in public higher education. These characteristics often determine the resources accessible for instruction, investigation, and student assistance, directly impacting the attainment of educational objectives (Crisp et al., 2015; Cheng et al., 2018).

In addition, research highlights the significance of faculty development and support in ensuring educators possess the necessary skills to provide excellent instruction that aligns with the intended objectives. This includes continuous professional growth, availability of resources, and participation in the construction of the curriculum (O'Flaherty & Phillips, 2015; Hilton, 2016). Another study emphasizes the growing use of digital technology and blended learning methods to improve learning experiences and promote the attainment of goals, particularly in response to changing educational needs and the worldwide pandemic (Richter et al., 2019). Finally, the research often emphasizes the significance of ongoing monitoring and assessment of learning outcomes. This entails receiving consistent input from many stakeholders, such as students, alumni, employers, and accrediting organizations. According to the research by Rubin et al., feedback systems play a vital role in ensuring that the learning outcomes stay up-to-date, attainable, and responsive to the evolving educational and social environment (Rubin et al., 2010; Kuh et al., 2014).

## Education Quality in Public Sector Higher Education: Standards and Practices

An overarching theme in literature is the elucidation and quantification of educational excellence. A recent study contends that excellence in higher education should be multifaceted, embracing not just academic requirements but also student support services, faculty credentials, infrastructure, and research productivity (Pucciarelli & Kaplan, 2016). These experts argue that the capacity of public institutions to accomplish their educational goals and cater to a varied student population is directly related to the quality of education they provide (Ul et al., 2021; Sain & Rahma, 2023).

Many studies emphasize the importance of accreditation and external review in preserving and improving the quality of education. Moreover, another recent research emphasizes the role of accrediting agencies in establishing benchmarks that compel schools to adhere to certain criteria in curriculum design, faculty qualifications, and student achievements (Ayaz et al., 2020; Ashfaq, 2022). Recent studies state that this external validation offers a structure for ongoing improvement and responsibility in public higher education. Muhammad et al. investigate the impact of budget allocations, policy changes, and regulatory frameworks on the operational capabilities of public higher education institutions. They contend that sufficient financing and favorable policies are necessary for these institutions to sustain elevated levels of education and research (Muhammad et al., 2021).

Discussions on education quality also revolve around the importance of curriculum development and teaching practices. Marginson highlights the significance of an intellectually demanding curriculum aligned with the present and future requirements of society and business (Marginson, 2016; Altbach et al., 2019). The significance of innovative teaching approaches, such as blended learning, experiential learning, and the use of technology, in improving the learning experience and results in public sector institutions is widely acknowledged (Altbach et al., 2019). Emphasizing faculty development and support is crucial for maintaining the quality of education. Sahney argues that ensuring the recruitment, retention, and professional development of competent and dedicated faculty members is crucial for providing education of superior quality. They emphasize the need for continuous training, research prospects, and sufficient resources to assist faculty in teaching and intellectual endeavors (Sahney, 2016; Korhonen et al., 2014).

The literature extensively discusses the significance of student support services concerning the quality of education. According to research, academic advising, counseling, career services, and extracurricular activities are essential for improving student involvement and achievement (Ashfaq, 2022; Upadyaya & Salmela-Aro, 2013). These programs are especially crucial at public institutions, where the student population often comprises a larger percentage of first-generation college students, non-traditional students, and students from different backgrounds (Wentzel & Miele, 2016). The correlation between research output and the quality of education is also a subject of debate. Aithal conducted studies that illustrate how research activities enhance the progress of knowledge and the process of teaching and learning. Advocates assert that fostering a robust research culture inside public higher education institutions may bolster their standing and attract top-tier professors and students (Aithal, 2016; Beaumont et al., 2016).

***H1: Education Quality has a positive and significant impact on Students Well-being in Higher Education Institutions of Public Sector in Pakistan***

**Students' Well-Being in Higher Education: A Conceptual Analysis**

Students' well-being in higher education has received significant attention in scholarly literature, indicating the increasing acknowledgment of its significance for individual students and educational institutions (Bailey & Phillips, 2015; Bonnie et al., 2017). Initially, the literature seeks to provide a clear definition and conceptual understanding of well-being within the context of higher education. Research contends that student well-being extends beyond the mere absence of mental disease (Bücker et al., 2018). It comprises good mental health, life satisfaction, a sense of purpose, and the capacity to successfully cope with stress. In their thorough analysis, Thompson and Johnson (2020) propose that well-being should be considered, including physical, emotional, social, and intellectual aspects (Davies et al., 2014; Bücker et al., 2018).

Various elements that impact student well-being have been identified in the literature. Studies emphasize the influence of environmental elements, such as campus culture and the accessibility of support resources (Frank et al., 2013; Grunschel et al., 2016). These studies highlight the significance of a nurturing learning environment in fostering well-being. Academic elements, such as the amount of work, methods of evaluation, and the interaction between teachers and students, are also recognized as crucial influencers (Gustems-Carnicer & Calderón, 2013). Research establishes a connection between academic pressure and assessment anxiety, which leads to a decline in overall well-being. Social circumstances significantly influence student well-being. The studies highlight the significance of social support networks, including peer connections and extracurricular activities. Advocates contend that these social networks provide emotional assistance, alleviate sentiments of seclusion, and augment the overall university encounter (Korhonen et al., 2014; Frank et al., 2013; Grunschel et al., 2016). The influence of technology and social media on student well-being is an increasingly significant topic of concern in the present digital age. Cheng et al. researched the impact of digital connections and online learning environments on students' social interactions, learning experiences, and mental health(Hilton, 2016). While recognizing the advantages of technology in improving the flexibility and availability of learning, these studies also warn against the possible rise in isolation and the adverse effects of social media on mental well-being (Hilton, 2016; Cheng et al., 2018).

A substantial body of scholarship investigates the correlation between well-being and academic achievement. The study) reveals a direct relationship between elevated levels of well-being and academic achievement(Bailey & Phillips, 2015). This study indicates that adolescents with favorable mental health and high life satisfaction often exhibit superior academic performance, underscoring the significance of well-being programs in promoting academic success (Grunschel et al., 2016). The literature also emphasizes the significance of considering diversity and inclusion when addressing student well-being (Grunschel et al., 2016). Research emphasizes the distinct obstacles faced by students belonging to underrepresented groups, which may adversely affect their overall well-being (Frank et al., 2013). These problems include experiences of discrimination, cultural incongruity, and financial strain. These studies emphasize the need to provide customized assistance and use inclusive strategies to meet the varied requirements of the student population (Hafeez, 2021; Kutsyuruba et al., 2015).

**Interplay Between Learning Outcomes and Student Well-Being**

The relationship between learning outcomes and student well-being in higher education is a crucial study subject that has garnered much interest from researchers and educators alike. Understanding the intricate connection between educational procedures and results is crucial for comprehending how they influence the overall development of pupils (Wasson et al., 2016). The vast array of scholarly works on this subject presents a wide range of viewpoints, highlighting the complex nature of both educational achievements and the welfare of students (Yalçın & Malkoç, 2014).

As defined by scholars, learning outcomes cover the cognitive, practical, emotional, and ethical aspects that students anticipate they will gain from their educational experiences. These goals include not just academic achievements but also personal and professional development (Kutsyuruba et al., 2015; Aithal, 2016). Conversely, experts define student well-being as a complex notion encompassing several dimensions, including psychological, physical, and social components of a student's life. It includes not only the lack of suffering but also good qualities such as life satisfaction, a feeling of purpose, and resilience (Baber, 2020; Bleiklie et al., 2017).

An important topic explored in the literature is the relationship between academic success (which serves as an indicator of learning outcomes) and the well-being of students (Brinson, 2015). According to research, these two factors often correlate positively. Students who successfully attain their learning objectives often have elevated levels of well-being, which may be ascribed to variables such as a feeling of fulfillment, enhanced self-worth, and improved professional opportunities (Broadbent & Poon, 2015). On the other hand, if the anticipated learning results are not achieved, it might result in worry, anxiety, and reduced satisfaction with the educational experience (Cheng et al., 2018; Brinson, 2015; Duque, 2013; Kuh et al., 2014).

The research emphasizes that using fair, transparent, and formative assessment methods may benefit student well-being (Tremblay et al., 2019). This is achieved by alleviating anxiety and offering constructive feedback to facilitate progress (Bailey & Phillips, 2015). In contrast, high-stakes, summative examinations are often linked to heightened levels of stress and pressure. The literature critically evaluates the accessibility and quality of mental health treatments and support systems in higher education institutions. Research demonstrates that providing easily available mental health services and a campus atmosphere that fosters support may effectively alleviate the adverse effects of academic stress on individuals' well-being (Frank et al., 2013; Grunschel et al., 2016). These services are crucial for students who have challenges in attaining academic objectives because of mental health difficulties (Polyiem, 2021; Kutsyuruba et al., 2015).

The research demonstrates a growing inclination toward incorporating multidisciplinary and international viewpoints in comprehending the relationship between learning outcomes and student well-being (Korhonen et al., 2014; Kutsyuruba et al., 2015). Comparative research by Patel and Lee (2023) gives insights into how various educational systems and cultures address this connection, offering a fuller knowledge of universal and context-specific aspects. Additionally, the article examines the lasting consequences of the correlation between educational achievements and the overall welfare of students. McConville et al. conducted research indicating that the knowledge and abilities acquired via higher education have a long-lasting influence on people's continuous learning, professional paths, and general contentment with life. This highlights the significance of considering well-being as a fundamental component of the educational process, not just for immediate academic achievements but also for long-term personal and professional growth (McConville et al., 2017; Ohly et al., 2016).

***H2: Learning Outcomes has a positive and significant impact on the Student Well-Being in Higher Education Institutions of Public Sector in Pakistan***

**Comparative Analysis of Public vs. Private Sector Education: Implications for Student Well-Being**

Public higher education institutions, often financed and regulated by government agencies, are frequently distinguished by their greater student populations and a wider mission of providing access to education (Hamed & Al-Rahbi, 2020; Nazneen & Ahmad, 2020). The presence of inclusion fosters a heterogeneous student body, hence enhancing the educational setting with a multitude of viewpoints and life encounters (Rizwan et al., 2022; Ayaz et al., 2020). However, this variety poses difficulties, such as needing more resilient support systems to accommodate a broader spectrum of student requirements (Hamed & Al-Rahbi, 2020). Public institutions often have limited resources, resulting in greater class sizes and perhaps less individualized student attention. Notwithstanding these difficulties, public universities are often recognized for their robust research achievements and varied academic offerings, which may be ascribed to their large size and financial support from the government (Ayaz et al., 2020; Hamed & Al-Rahbi, 2020).

On the other hand, private sector education, which relies mostly on tuition fees and private contributions, is often linked to greater financial resources per student. This may result in improved amenities, reduced student-to-teacher ratios, and perhaps enhanced instructional standards (Nazneen & Ahmad, 2020). Private colleges may provide a more individualized educational experience, which can positively affect student welfare (Rizwan et al., 2022). Research indicates that private university students often experience advantages such as improved learning settings, access to cutting-edge resources, and personalized attention from instructors (Ali et al., 2020; Alam, 2021). Nevertheless, the elevated expense associated with private education gives rise to apprehensions about financial strain for students and their families, potentially impeding their overall welfare (Amjad & MacLeod, 2014; Asad, 2019).

Public institutions are praised for providing students from diverse socio-economic backgrounds with higher education opportunities (Ali et al., 2019). The promotion of inclusion is essential to cultivate social mobility and fairness. While private colleges may have a less varied student population, they provide settings that cultivate robust community connections and a feeling of inclusion, both of which are crucial elements for student well-being (Muhammad et al., 2019; Muhammad et al., 2021). Private colleges provide a more conducive and caring atmosphere due to their smaller population and more resources (Small, 2020; Alam, 2021). This environment may give students more prospects for involvement and leadership, which can contribute to a favorable feeling of community and personal well-being. Conversely, the expansive and varied setting of public institutions provides distinct benefits, such as access to various ideas and cultures, that may be crucial for individual maturation and progress (Ali et al., 2019; Asad, 2019). Nevertheless, the obstacles encountered in public higher education, such as excessively populated courses and restricted personalized assistance, might adversely affect students' well-being (Amjad & MacLeod, 2014). These universities often have challenges delivering sufficient mental health services and tailored academic advice, which are essential for supporting students (Muhammad et al., 2019). Conversely, private educational establishments, due to their limited number of students, may possess superior resources to provide these services. However, the burden of high tuition costs and elevated expectations might give rise to distinct difficulties with student well-being (Hamed & Al-Rahbi, 2020; Nazneen & Ahmad, 2020).

Methodology

**Study Design**

This research was developed to investigate the correlation between learning results, education quality, and student well-being at Pakistan's public sector higher education institutions. To do this, a cross-sectional study method was used due to its efficacy in examining data at a particular moment to discern patterns and relationships. The sample consisted of students from several public sector higher education institutions in Pakistan. Purposive sampling was selected to guarantee that the sample correctly reflected the varied student population at these schools. A considerable proportion of students were chosen to partake, guaranteeing that the sample size was enough for extrapolating the results to the broader public (Daniel, 2016).

The data-gathering process largely included administering a well-prepared structured questionnaire that comprehensively addressed learning outcomes, education quality, and student well-being. The survey consisted of various questions that could only be answered with limited options. Likert-scale answers were used to measure the students' perspectives and experiences. Before being distributed, the questionnaire underwent thorough testing for validity and reliability in a pilot study, which included a small subgroup of the intended population. This pilot research played a crucial role in improving the questionnaire by guaranteeing the questions' clarity and relevancy (Xiong, 2022).

Furthermore, secondary data obtained from institutional records and past research projects were examined alongside the questionnaire to enhance and provide a broader perspective on the main data. This methodology facilitated a more thorough comprehension of the factors being investigated. The data analysis was performed with statistical tools. Descriptive statistics were used to fully comprehend the data, including measures such as mean scores and standard deviations. Statistical inference techniques, such as regression analysis and correlation coefficients, were used to investigate the associations among learning results, education quality, and student well-being. This analytical methodology facilitated the detection of noteworthy patterns and correlations within the dataset (Xiong, 2022).

**Population and Sample**

The population in this research was delineated as all students currently registered in Pakistan's public sector higher education institutions. The selection of this cohort was based on its representation of a heterogeneous and substantial portion of the nation's young people who were directly engaged with the education system at an advanced level. The heterogeneity of this group, concerning socio-economic origins, academic fields, and geographical regions, played a vital role in comprehending the wider ramifications of learning outcomes and education quality on student welfare (Rahman et al., 2022). The Sample size of this research work is 384 at the 95% confidence level and 5% margin of error because the population is not known exactly. When the proportion p is not known, its is common to use 0.5. For Z=1.96 (95% confidence level) and margin of error=0.05 and sample size is 384.

Due to the large size of this group, which includes many students from various institutions, it was not feasible to include every person in the research. Thus, a sample was chosen, which refers to a smaller but still representative portion of the population. The study used a purposive sample strategy, enabling the selection of participants based on certain traits relevant to the research issues. This approach was especially beneficial for this research as it guaranteed the inclusion of students from many fields, years of study, and institutions, thereby preserving the diversity and representativeness of the wider population. A total of 1100 questionnaires were sent to the students of the selected Universities for the research purpose, a total of 577 questionnaires 52.50% were received back, 193 questionnaire were found to be incomplete, hence 384 questionnaire were considered for the statistical analysis (Pace, 2021).

The magnitude of the sample was a crucial factor to be considered. After thorough calculations and considering the limitations of available resources, it was determined that the sample would consist of several thousand students from several public institutions and colleges across Pakistan. The chosen size was considered enough to facilitate rigorous statistical analysis while guaranteeing a full depiction of the population. Students were chosen from various institutions, including universities and colleges in urban and rural settings, to ensure the sample's representativeness. This method facilitated the identification of disparities in educational standards and academic achievements across diverse environments. The sample included students from several academic disciplines, such as the sciences, arts, humanities, and professional courses, to comprehensively comprehend student experiences across numerous areas of study (Mweshi & Sakyi, 2020).

The sample selection procedure was carefully planned and implemented with great attention to detail. The institutions provided lists of students, and participants were selected according to the criteria established by the purposive sampling approach. Strategic measures were taken to eliminate any sample biases that might distort the findings. The sample's demographic characteristics, including age, gender, socio-economic status, and academic achievement, were also documented to facilitate analysis and assure equitable representation of these factors (Taherdoost, 2022).

### Data Collection Tool and Procedure

The creation of research tools and measurements played a crucial role in a study investigating the influence of learning outcomes and education quality on student well-being in Pakistani public sector higher education institutions. An integral part of this procedure was developing a precisely crafted self-administered questionnaire to accurately capture the intricate experiences and perspectives of students on the main factors of the research (Taherdoost, 2022). The questionnaire, designed through a complete procedure, functioned as the principal tool for gathering data. The study's design was based on thoroughly evaluating relevant literature and conversations with experts, ensuring that each element specifically addressed the research goals. The questionnaire consisted of many parts, each focusing on unique elements such as learning results, education quality, and student well-being. This questionnaire used the Likert scale, a well-established approach for measuring attitudes and perceptions. This scale provided a spectrum of options, enabling students to articulate their degree of agreement or dissent with each assertion. This scale was crucial in transforming qualitative features into measurable data, making analysis simpler and more objective (Aithal & Aithal, 2020).

To improve accessibility and increase the rate of responses, the questionnaire was disseminated using Google Forms, a flexible and user-friendly digital platform. This method of dissemination was especially beneficial due to the extensive use of digital technologies among the student body. Google Forms has optimized the data-gathering process by facilitating real-time data aggregation and minimizing the chances of data input mistakes. The questionnaire creation followed an iterative approach, which included conducting pilot tests with a limited number of students. The pilot phase was crucial for enhancing the questions, guaranteeing clarity and relevancy, and eradicating ambiguity. Modifications were made to the phrasing, sequence, and scale of items in response to feedback from the pilot research. These improvements improved the instrument's reliability and validity (Lu et al., 2021).

**Data Analysis**

The data analysis phase of the research on the influence of learning outcomes and education quality on students' well-being in Pakistani public sector higher education institutions was a complex and systematic procedure that used a range of tools and approaches. At first, the gathered data was subjected to coding and cleansing procedures using Microsoft Excel. Identifying and rectifying inconsistencies, missing values, and outliers in the dataset were essential steps in preparing it for comprehensive analysis. These steps were critical in guaranteeing the correctness and dependability of the data (Rahman & Muktadir, 2021).

After data preparation, the Statistical Package for the Social Sciences (SPSS) was used for the primary statistical analysis. This sophisticated program enabled a variety of statistical approaches that were well-suited for the aims of the investigation. The study began by using descriptive statistics. This included calculating statistical measures such as means, standard deviations, and frequency distributions, which gave a first comprehension of the overall properties and patterns of the data. A crucial component of the research was evaluating the internal coherence of the questionnaire questions, which was accomplished by calculating Cronbach's Alpha. This measure aimed to assess the dependability of the Likert-scale items in the questionnaire, guaranteeing that the scales used were coherent and trustworthy for gauging the desired dimensions (Arkkelin, 2014). The research also included correlational analysis, which was performed to investigate the associations between various factors, such as educational quality, learning outcomes, and student well-being. This research facilitated the identification of patterns and robust correlations among these variables. Moreover, regression analysis played a crucial role in the data analysis. It was employed to assess the degree to which factors such as learning outcomes and education quality could forecast student well-being. This study yielded valuable insights into the causal links and the influence of several variables on student well-being.

**Ethical Considerations**

First and foremost, ensuring informed permission was of utmost importance. Participants were provided comprehensive information on the study's objectives, methodologies, possible hazards, and advantages. The participants were guaranteed that their involvement was optional, and they had the freedom to quit at any point without facing any negative repercussions. The study's ethical framework placed great importance on maintaining confidentiality and anonymity. The personal information of the participants was securely protected with great care. The data obtained from the surveys was anonymized before processing, guaranteeing that individual replies could not be linked to any particular student. This measure was essential in fostering truthful replies, especially regarding sensitive areas of personal well-being and educational experiences. Moreover, the research was specifically structured to mitigate any possible psychological anguish experienced by the individuals. The questionnaire was meticulously crafted to circumvent any potentially sensitive or upsetting subject matter. When the inquiries may potentially cause stress or discomfort, psychological assistance services were made available.

Results

**Table 1: Means, Standard Deviation, Correlations, and Internal Consistency Reliabilities of the Studied Variables (n=384)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variables | Mean | SD | Gender | Age (Years) | Education | Learning Outcomes | Education Quality | Student Well-Being |
| Gender (1-2) | 1.71 | 0.65 | 1 |  |  |  |  |  |
| Age (Years) | 24.78 | 0.78 | 0.78\*\* | 1 |  |  |  |  |
| Education (1-4) | 3 | 1.21 | 0.83\*\* | 0.91\*\* | 1 |  |  |  |
| Learning Outcomes | 5.34 | 2.02 | 0.70\*\* | 0.77\*\* | 0.67\*\* | 1 |  |  |
| Education Quality | 5.01 | 1.03 | 0.69\*\* | 0.73\*\* | 0.81\*\* | 0.67\*\* | 1 |  |
| Student Well-Being | 4.90 | 1.35 | 0.78\*\* | 0.74\*\* | 0.82\*\* | 0.80\*\* | 0.66\*\* | 1 |
| Cronbach’s Alpha | - | - | - | - | - | 0.84 | 0.81 | 0.77 |

**Note (s):** **\*\***Significance at 0.01 levels (2-tailed), \*Significance at 0.05 levels (2-tailed), Gender (1 = Female, 2 = Male), Education (1 = Undergraduate, 2 = Master's, 3 = MPhil, 4 = PhD), SD = Standard Deviation

The variables' descriptive statistics, correlations, and internal consistency reliabilities (Cronbach's alpha) in 384 students are shown in Table 1. Men are slightly overrepresented, and the mean age (24.78) is young. Assuming an MPhil degree (mean = 3), learning results, education quality, and student well-being average 5.34, 5.01, and 4.90, respectively, indicating positive opinions. Significant positive relationships between gender, age, education level, and key variables show that older, more educated students experience higher learning outcomes, education quality, and well-being. Learning outcomes are substantially correlated with education quality (r = 0.67) and student well-being (r = 0.80), highlighting their interdependence. Learning outcomes (0.84), education quality (0.81), and student well-being (0.77) have high Cronbach's alpha values, indicating credible measuring scales that improve higher education student well-being.

**Table 2: Structural Parameter Estimates of Direct Relationship between Constructed Factors**

|  |  |  |  |
| --- | --- | --- | --- |
| Relationship | Standardized Parameter Estimates | Two Tailed p-Value | SE |
| Dependent Variable: Student Well-Being  H1. Learning Outcomes | 0.672 | 0.00 (p < 0.02) | 0.056 |
| Dependent Variable: Student Well-Being  H2. Education Quality | 0.543 | 0.00 (p < 0.001) | 0.043 |

In Table 2, structural parameter estimations show the direct correlations between created components and student well-being. The association between learning outcomes and student well-being (H1) has a standardized parameter estimate of 0.672, with a two-tailed p-value of 0.00 (p < 0.02) and a SE of 0.056. Student well-being is strongly, positively, and statistically significantly affected by learning results. The association between school quality and student well-being (H2) has a standardized parameter estimate of 0.543, a two-tailed p-value of 0.00 (p < 0.001), and a SE of 0.043. The effect is considerable and favorable, but less so than learning outcomes. Both studies show that higher education student well-being increases with learning results and education quality.

**Table 3: Respondents Information**

|  |  |  |
| --- | --- | --- |
| Demographic Variables | Frequency | Percentage |
| Questionnaire Sent/ Delivered | 1100 | 100% |
| Questionnaire Received Back | 577 | 52.50% |
| Discarded | 193 | 17.55% |
| Questionnaire Useful for the Analysis | 384 | 34.91% |
| Province | | |
| Punjab | 192 | 50% |
| Sindh | 103 | 26.83% |
| KPK | 61 | 15.81% |
| Balochistan | 28 | 7.30% |
| Discipline | | |
| Business Education | 97 | 25.26% |
| Social Science | 99 | 25.78% |
| Art & Humanities | 88 | 22.92% |
| Engineering & Technology | 65 | 16.93% |
| Others | 35 | 9.11% |
| Gender | | |
| Male | 272 | 70% |
| Female | 112 | 30% |
| Education | | |
| Bachelor’s Degree | 135 | 35% |
| Master’s Degree | 167 | 44% |
| Doctorate | 82 | 21% |
| University Name | | |
| University of Education, Lahore | 49 | 12.76% |
| Government College University, Lahore | 37 | 9.64% |
| The University of Punjab, Lahore | 41 | 10.68% |
| The University of Agriculture, Faislabad | 31 | 8.07% |
| Quaid-i-Azam University, Islamabad | 34 | 8.85% |
| University of Karachi, Karachi | 25 | 6.51% |
| Institute of Business Administration, Karachi | 26 | 6.77% |
| Jinnah Sindh Medical University | 27 | 7.03% |
| Sukkur IBA University, Sukkur | 25 | 6.51% |
| Shaheed Benazir Bhutto Women University, Peshawar, Peshawar | 27 | 7.03% |
| Abdul Wali Khan University, Mardan, Mardan | 20 | 5.21% |
| Islamia College University, Peshawar, Peshawar | 14 | 3.65% |
| Lasbela University of Agriculture, Water and Marine Science | 13 | 3.39% |
| University of Balochistan | 15 | 3.91% |

Table 3 details survey respondents' demographics. From 1100 questionnaires distributed, 577 were returned (52.50%), 193 were deleted, and 384 were useful for analysis (34.91%). Punjab (50%) led Sindh (26.83%), KPK (15.81%), and Balochistan (7.30%). Most students studied Social Sciences (25.78%) and Business Education (25.26%), with lesser percentages in Arts & Humanities (22.92%), Engineering & Technology (16.93%), and other disciplines (9.11%). Gender distribution revealed 70% males and 30% girls. Bachelors (35%), Masters (44%), and Doctorates (21%), were respondents' educational levels. The University of Education, Lahore (12.76%), Government College University (9.64%), and University of Punjab (10.68%) had the most respondents, indicating a diverse and representative sample from Pakistan's top higher education institutions.

**Table 4: Item Loading, Reliability and Convergent Validity**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Λ** | **α** | **CR** | **AVE** |
| Learning Outcomes |  | 0.887 | 0.899 | 0.932 |
| LO1 | 0.783 |  |  |  |
| LO2 | 0.943 |  |  |  |
| LO3 | 0.673 |  |  |  |
| LO4 | 0.783 |  |  |  |
| LO5 | 0.678 |  |  |  |
| LO6 | 0.843 |  |  |  |
| LO7 | 0.872 |  |  |  |
| LO8 | 0.899 |  |  |  |
| LO9 | 0.742 |  |  |  |
| LO10 | 0.774 |  |  |  |
| Education Quality |  | 0.932 | 0.893 | 0.782 |
| EQ1 | 0.855 |  |  |  |
| EQ2 | 0.859 |  |  |  |
| EQ3 | 0.874 |  |  |  |
| EQ4 | 0.783 |  |  |  |
| EQ5 | 0.890 |  |  |  |
| EQ6 | 0.954 |  |  |  |
| EQ7 | 0.854 |  |  |  |
| EQ8 | 0.877 |  |  |  |
| EQ9 | 0.911 |  |  |  |
| EQ10 | 0.843 |  |  |  |
| Student Well-Being |  | 0.826 | 0.943 | 0.893 |
| SWB1 | 0.789 |  |  |  |
| SWB2 | 0.732 |  |  |  |
| SWB3 | 0.891 |  |  |  |
| SWB4 | 0.782 |  |  |  |
| SWB5 | 0.830 |  |  |  |
| SWB6 | 0.784 |  |  |  |
| SWB7 | 0.844 |  |  |  |
| SWB8 | 0.799 |  |  |  |
| SWB9 | 0.854 |  |  |  |
| SWB10 | 0.744 |  |  |  |

Table 4 shows Learning Outcomes, Education Quality, and Student Well-Being item loadings, reliability, and convergent validity. To evaluate the reliability and validity of measuring scales, item loading (Λ), Cronbach's alpha (α), Composite Reliability (CR), and Average Variance Extracted (AVE) are presented for each construct. The Learning Outcomes construct has 10 items (LO1–LO10) with 0.673–0.943 item loadings. Each component contributes strongly to the construct, with LO2 (0.943) and LO8 (0.899) being particularly robust. Cronbach's alpha for Learning Outcomes is 0.887, indicating strong internal consistency. Composite Reliability (CR) of 0.899 indicates that the items measure the same concept, confirming construct reliability. Convergent validity is indicated by the Average Variance Extracted (AVE) of 0.932, which surpasses 0.50. The construct explains a significant percentage of the variance in the observed variables.

The Education Quality construct has 10 items (EQ1–EQ10) with 0.783–0.954 item loadings. The highest loadings for EQ6 (0.954) and EQ9 (0.911) indicate education quality. This design has great internal consistency with a Cronbach's alpha of 0.932. The construct's Composite Reliability (CR) of 0.893 indicates its reliability. The construct captures a lot of variance, indicating strong convergent validity with an AVE of 0.782. Student Well-Being has 10 components (SWB1–SWB10) with loadings from 0.732 to 0.891. SWB3 (0.891) and SWB9 (0.854) have the highest loadings, reflecting student well-being. Student Well-Being has an excellent internal consistency Cronbach's alpha of 0.826. The measurement model is highly reliable with a Composite Reliability (CR) of 0.943. The AVE of 0.893 is significantly over the acceptable level, indicating that the construct captures a significant percentage of indicator variation and has strong convergent validity. Overall, the high item loadings across all structures show that each item represents its construct well. Cronbach's alpha values for Learning Outcomes (0.887), Education Quality (0.932), and Student Well-Being (0.826) suggest good to outstanding internal consistency, ensuring scale reliability. Learning Outcomes (0.899), Education Quality (0.893), and Student Well-Being (0.943) have Composite Reliability (CR) ratings that support their reliability. Each construct's AVE values are over 0.50, indicating strong convergent validity, meaning they capture item variance. Its high reliability and validity indicate that the assessment methodology may be trusted to examine how learning results and education quality affect student well-being.

**Table 5: Discriminant Validity (Fornell and Larcker Criterion)**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Learning Outcomes | Education Quality | Student Well-Being |
| Learning Outcomes | 0.784 |  |  |
| Education Quality | 0.893 | 0.747 |  |
| Student Well-Being | 0.854 | 0.820 | 0.887 |

The Fornell and Larcker criterion is used to assess concept discriminant validity in Table 5. The diagonal values are the square root of the Average Variance Extracted (AVE) for each construct, whereas the off-diagonal values are construct correlations. The square root of the AVE for Learning Outcomes (0.784), Education Quality (0.747), and Student Well-Being (0.887) is higher than their inter-construct correlations (0.893, 0.854, and 0.820). The constructs are different and capture distinctive variance, indicating excellent discriminant validity. High correlations indicate a strong association between constructs, while higher AVE values indicate that they measure different concepts, supporting the model's validity.

**Table 6: Hypothesis Testing**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Hypothesis | Relationship | B | SD | T-Value | P-Value | Decision |
| H1 | Learning Outcomes Student Well-Being | 0.783 | 0.064 | 3.902 | 0.001 | Supported |
| H2 | Education Quality Student Well-Being | 0.983 | 0.098 | 4.903 | 0.000 | Supported |

Table6 summarizes the hypothesis testing results for the relationships between Learning Outcomes, Education Quality, and Student Well-Being. Hypothesis H1, which posits a relationship between Learning Outcomes and Student Well-Being, shows a standardized coefficient (B) of 0.783, with a standard deviation (SD) of 0.064, a T-value of 3.902, and a p-value of 0.001. This indicates a significant positive relationship, thus supporting H1. Similarly, Hypothesis H2, which posits a relationship between Education Quality and Student Well-Being, has a standardized coefficient (B) of 0.983, with an SD of 0.098, a T-value of 4.903, and a p-value of 0.000. This also indicates a significant positive relationship, thus supporting H2. Both hypotheses are supported, demonstrating that higher learning outcomes and education quality significantly contribute to enhancing student well-being in higher education institutions.

Discussion

The findings of this study highlight a significant positive relationship between learning outcomes and student well-being in public sector higher education institutions in Pakistan. This correlation aligns with previous research that emphasizes the role of well-defined learning outcomes in enhancing students' academic experiences and personal development (Aithal, 2016). Achieving learning outcomes not only fosters academic success but also contributes to students' self-esteem and satisfaction, leading to improved well-being (Kutsyuruba et al., 2015). The integration of effective pedagogical strategies, such as problem-based and collaborative learning, has been shown to enhance students' engagement and motivation, further contributing to their well-being (Cheng et al., 2018). The study's results suggest that students who perceive their educational experiences as fulfilling and aligned with their personal and professional goals are more likely to report higher levels of well-being. This is consistent with Baber's (2020) findings, which emphasize the importance of aligning educational objectives with students' aspirations to boost their satisfaction and overall well-being.

Furthermore, the role of faculty in shaping positive learning outcomes is crucial. Educators who are equipped with the necessary skills and knowledge can create a supportive and inclusive learning environment that nurtures students' growth (Vesely et al., 2013). The impact of well-trained faculty on student well-being is underscored by McConville et al. (2017), who highlight the importance of faculty development programs in enhancing teaching effectiveness and student engagement. The study also reveals a significant positive relationship between education quality and student well-being, emphasizing the importance of comprehensive and relevant curricula, qualified faculty, and access to resources in higher education (Altbach et al., 2019). High-quality education not only equips students with essential skills and knowledge but also fosters critical thinking, creativity, and problem-solving abilities, which are crucial for their personal and professional success (Sahney, 2016).

The provision of adequate support services, such as counseling and career guidance, is vital in enhancing students' educational experiences and overall well-being (Ashfaq, 2022). These services address students' emotional and psychological needs, contributing to a holistic educational experience (Ali et al., 2019). The study's findings align with Ayaz et al. (2020), who emphasize the role of student support services in fostering a positive learning environment and promoting student well-being. Moreover, the availability of technology and digital resources plays a significant role in improving education quality. The integration of technology into educational practices enhances accessibility and interactivity, thereby supporting students' learning and well-being (Hilton, 2016). However, it is essential to ensure equitable access to digital resources to avoid exacerbating existing disparities (Ali et al., 2020).

The study's focus on public sector institutions highlights the unique challenges and advantages they face compared to private sector institutions. Public institutions, characterized by larger and more diverse student populations, often grapple with limited resources and higher student-to-teacher ratios (Amjad & MacLeod, 2014). Despite these challenges, public institutions are recognized for their robust research outputs and diverse academic offerings (Ayaz et al., 2020).

In contrast, private institutions, with their greater financial resources, often provide more personalized attention and better facilities, contributing positively to student well-being (Rizwan et al., 2022). However, the financial burden associated with private education can negatively impact students' well-being (Asad, 2019). The study's findings resonate with Alam (2021), who highlights the differences in educational quality and student experiences between public and private sector institutions.

The study's findings have important implications for educational policy and practice in Pakistan. Improving the quality of education and achieving desired learning outcomes can significantly enhance student well-being, leading to more successful and satisfied graduates. Policymakers and educational institutions should prioritize investments in faculty development, curriculum design, and student support services to create a conducive learning environment (Ul et al., 2021). Additionally, fostering a supportive and inclusive learning environment is crucial for promoting student well-being. This includes implementing policies that prioritize diversity, equity, and inclusion, as well as providing opportunities for students to engage in extracurricular activities and social interactions (Zepke, 2014).

Conclusion

This study investigated the relationship between learning outcomes, education quality, and student well-being within public higher education institutions in Pakistan. The findings underscore the significant positive impact that both learning outcomes and education quality have on student well-being, emphasizing the need for higher education institutions to focus on these areas to enhance students' academic and personal development. The study confirmed that well-defined and achievable learning outcomes are critical in fostering students' academic success and personal satisfaction. Students who perceive their educational experiences as fulfilling and aligned with their goals tend to exhibit higher levels of well-being. These findings highlight the importance of developing curricula that are both challenging and relevant to students' aspirations and career objectives. Additionally, high-quality education, characterized by a comprehensive curriculum, qualified faculty, and accessible resources, plays a crucial role in promoting student well-being. Institutions that invest in faculty development, incorporate technology into teaching practices, and provide robust student support services are more likely to foster an environment conducive to learning and personal growth.

While public institutions face unique challenges, such as limited resources and higher student-to-teacher ratios, they also offer diverse academic programs and research opportunities. The study's findings suggest that enhancing the quality of education in public institutions can lead to improved student well-being, comparable to the benefits observed in private institutions. The results of this study have several implications for policymakers and educational institutions. Policymakers should prioritize funding and resources for public higher education institutions to improve the quality of education. This includes investing in faculty training, curriculum development, and the integration of technology in education. Institutions should enhance student support services, such as counseling, career guidance, and extracurricular activities, to address students' emotional and psychological needs, contributing to a holistic educational experience. Efforts should be made to ensure equitable access to educational resources and opportunities for all students, particularly those from diverse backgrounds, to promote inclusivity and enhance student well-being.

This study provides a foundation for further research into the factors influencing student well-being in higher education. Future studies could explore the impact of specific pedagogical approaches, the role of extracurricular activities, and the influence of socio-economic factors on student well-being. Additionally, comparative studies between different regions and countries could offer valuable insights into best practices and strategies for improving education quality and student outcomes globally. Enhancing learning outcomes and education quality is vital for improving student well-being in higher education institutions. By addressing the challenges and leveraging the strengths of public sector institutions, policymakers and educators can create a supportive and enriching educational environment that fosters student success and well-being.

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