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The Impact of COVID-19 Pandemic on Online Learning: Perspectives on Online Learning Adoption, Psychological Distress, and Stressors Among University Students and Instructors in Jordan

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Since the beginning of the COVID-19 epidemic, universities worldwide have taken actions to ensure students' learning continuity and protect their well-being. This study aims to investigate the level of psychological distress and the potential stressors among university students and instructors in Jordan due to the COVID-19 pandemic. To investigate these issues, an online questionnaire was distributed via Google Forms to 120 students and 14 instructors at two public universities in Jordan, followed by descriptive analysis. The survey included demographics, the 10-item Kessler Psychological Distress Scale (K10), and stressors related to online learning. The findings showed significant levels of stress and dissatisfaction among students and instructors due to shift to online learning. About half (51.7%) of the students experienced severe psychological distress, whereas 18.3% experienced no psychological distress, 11.7% experienced mild psychological distress, and another 18.3% displayed moderate psychological distress. In contrast, a significantly higher proportion of instructors 92.9%, experienced severe psychological distress, 7.1% showed moderate psychological distress, and notably, none displayed mild or no distress. The results also revealed that both students and instructors faced particular stressors. Major stressors

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for students were mainly isolation and lack of social interaction, unexpected transition to online classes, technical issues, using mobile phones to attend classes, lack of access to a computer at home, multiple assignments, frequent quizzes, and lack of flexible deadlines, balancing household chores, limited computer literacy, and uncertainty about academic progress due to limited feedback. Instructors encountered challenges such as adapting to the online teaching, concerns about students' technological abilities, lack of participation, increased workload, difficulty in building and maintaining connections with students, insufficient level of skills and knowledge related to the use of technology, and insufficient training. This study highlights the need for academic institutions and other stakeholders to address these challenges to enhance the online learning environment and support the well-being of both students and instructors.

Keywords: COVID-19; online learning; psychological distress; stressors; Jordan; university students; university instructors.

1 Introduction

Coronavirus disease 2019 popularly called (COVID-19) has rapidly spread worldwide, and it was officially declared to be a pandemic by the World Health Organization (WHO) on March 11, 2020 (Cucinotta and Vanelli, 2020; Olaimat et al., 2020; Yassine et al., 2022). The disease has drastically spread in different countries all over the world including Jordan. Jordan is one of the countries that has been struck by the COVID-19 pandemic and in response to that, the government has enforced many preventive and control strategies to impede the viral spread of the disease in the country following the World Health Organization's recommendations (Al-Tammemi et al., 2020).

This declaration by WHO affected so many spheres of life and social interactions worldwide, notably impacting the education sector. The majority of countries closed their schools as directed by their respective governments in order to stop the COVID-19 pandemic from spreading, which had a significant impact on education (Almajali et al., 2022; Crawford et al., 2020; Toquero, 2020). Many countries including Jordan have implemented an online instruction strategy and comprehensive virtual education methods to ensure students learning continuity and secure the well-being of their students (Almajali et al., 2022; Alsoud and Harasis, 2021). However, shifting from traditional or hybrid learning to an entirely digitalized education system did not occur without challenges. Among these challenges were issues such as absence of "home office" infrastructure for educators, inadequate internet connectivity, and difficulties faced by students in accessing online content from remote locations (Almajali et al., 2022; Crawford et al., 2020; Toquero, 2020).

Despite the COVID-19 epidemic's devastating impact on the world, higher education institutions had to navigate how to effectively carry out academic activities while ensuring the safety of faculty and support staff (Toquero, 2020). However, few studies

investigate the impact of post-COVID-19 pandemic on students' as well as instructors' psychological health who suffer from lack of knowledge regarding the use of technology and the difficulties of accessing online classes and materials due to weak connectivity and unavailability of appropriate educational tools and applications (Grubic et al., 2020; Thandavaraj et al., 2021). Moreover, potential stressors experienced by university students and instructors due to the COVID-19 pandemic, particularly those related to the sudden shift to online learning, remain underexplored. Additionally, the influence of age on the adoption of digital learning methods remains understudied in light of the literature already available in this regard. Therefore, this research aims to enrich existing literature by evaluating the effect of the post- COVID-19 pandemic and subsequent closures on the socio-psychological well-being of Jordanian students and instructors enrolled in institutions of higher education, as well as identifying the main stressors they faced.

1.1 Problem Statement

The spread of COVID-19 has created a great impact on many aspects of life including education. The pandemic has severely affected instructors, students and higher education institutions across the world particularly the Jordanian educational system. Schools, colleges, and universities were forced to close their doors and shift to online distance learning to follow the World Health Organization (WHO) recommendations for social distancing (Toquero, 2020). With the availability of numerous platforms and online educational tools, both educators and learners frequently face obstacles when using or referring to these tools. The quality of teaching and learning has deteriorated as many students as well as instructors suffer from lack of knowledge regarding the use of technology and the difficulties of accessing online classes and materials due to weak connectivity and unavailability of appropriate educational tools and applications (Thandavaraj et al., 2021).

According to Duraku and Hoxha (2020) and Zhao and Frank (2003), teachers' perspectives on teaching and technology skills have an impact on the integration of technology on the school culture. However, there is still a dire need to explore studies related to the utilization of technology by students and teachers alike especially that some former studies pointed to the need for further training of teachers regarding the use of technology in the virtual classroom studies (Nikian et al., 2013; Selvanathan et al., 2020). In addition, Nikian et al. (2013) stated that there is still a need to conduct studies on teachers' attitudes regarding applying technology in the classroom.

Fernández-Batanero et al. (2021) proposed that due to the present pandemic, investigating the relationship between the utilization of technology and the concepts of anxiety and stress in the virtual classroom is of tremendous interest to teachers and students alike. Therefore, a comparative study on how people's mental health has been affected by the use of technology throughout the pandemic might be conducted as a suggestion for further research. Building on this, Sundarasan et al. (2020) assert that the constant psychological and social effects of COVID-19 pandemic necessitate further research efforts, particularly focusing on the use of digital technology. However, (Grubic et al.,

2020) suggest the need to investigate further studies on the impact of COVID-19 on students and instructor's psychological health in the post COVID-19 era. Consequently, this study aims to address this gap by examining the psychological effects and stressors associated with online learning among university students and instructors in the post COVID-19 pandemic era at selected Jordanian Universities.

1.2 Research Objectives

The primary aim of this study is to investigate the impact of shifting to online education on the overall well-being of both students and instructors in the post COVID-19 pandemic era at selected Jordanian universities. Specific Objectives are:

RO 1: To measure the psychological distress related to the experience of online learning among university students and instructors due to COVID-19 pandemic at selected Jordanian Universities.

RO 2: To identify the potential stressors experienced by university students and instructors engaging in online learning due to COVID-19 pandemic at selected Jordanian universities.

1.3 Significance of the study

The COVID-19 epidemic has caused a global change in education toward online learning, which has highlighted the urgent need to comprehend its effects on university students' and instructors' psychological health. Studies conducted on the effect of coronavirus in Jordan provide essential insights into the challenges faced by educational institutions in potential future global crises, including the possibility of a second wave of the pandemic (Khraise et al., 2020; Odriozola-González et al., 2020).

Moreover, the findings of this study might provide guidelines for policymakers on possible mechanisms to mitigate the impacts of anxiety on students and instructors during similar pandemics in the future, thereby enhancing the resilience of educational systems (Sundarasan et al., 2020). Furthermore, by contributing to the exiting body of literature on psychological distress among college students ,this study emphasizes the need to address this issue to improve students' general well-being and academic performance (Al-Tammemi et al., 2020).

By examining anxiety levels among Jordanian university students and instructors as well as the identification of potential pandemic-related stressors, this study seeks to provide important information that will guide future crisis management strategies. These insights not only help policymakers create efficient systems to assist both instructors and students during crisis, but also emphasize the importance of addressing psychological well-being to improve overall academic performance. Additionally, it will provide educational institutions in Jordan and other developing countries with valuable insights into sentiments and experiences of students and instructors regarding the implementation of e-learning (Almajali et al., 2022).

2 Literature Review

2.1 Anxiety among Students and Instructors

There is no doubt that the concept of anxiety and stress contribute significantly to the level and quality of performance in the academic environment. Anxiety as a subcategory of the psychological impact may be defined as a dynamic emotional state of tension, uneasiness, concern, and other uncomfortable feelings induced by the coming and potential danger of a person (Bauer, 1965). Lazarus and Folkman (1984) defined stress as “a particular relationship between the person and the environment that the person considers to be taxing or exceeding his or her resources and putting his or her well-being at risk.” Anxiety is fueled by feelings of uncertainty, fear of harming an individual’s self or other people (Brawman-Mintzer and Yonkers, 2004; Sundarasan et al., 2020).

Anxiety among students happens due to lock downs and the closure of education institutions as a preventive action to control the dangers of the COVID-19 pandemic. This required students to stay at home while change in teaching mode took part virtually and in turn raised the level of anxiety and pressure on most people. Students suffered from social distancing and separation and thus affecting them mentally and emotionally (Duraku and Hoxha, 2020; Nasir, 2020; Sundarasan et al., 2020; Thandavaraj et al., 2021; Tian et al., 2020).

Utilization of the educational technology has been increasingly significant in education and teachers’ professional development over the last few decades. Furthermore, technology has brought several mental effects that came out as a result of a variety of factors such as lack of training ,which led to anxiety and stress to be among online virtual classroom educators (Amarilla and Vargas, 2009a).

Fernández-Batanero et al. (2021) observe that the issue of teacher stress and anxiety caused by educational technology has grown tremendously over time. Furthermore, they explain how new questions and circumstances have arisen which pose a danger to the integrity with which teachers employ technology and the level of the educational process. Accordingly, they suggest that this is the road to follow for purposes of minimizing the tension, worry, and frustration that teachers experience when they use educational technology. They emphasized that training is required to establish a professionalization of instructors with the effective ability to face the obstacles and challenges of instructional processes. They add that due to the present pandemic, investigating the relationship between the utilization of technology and the concepts of anxiety and stress in the virtual classroom is of tremendous interest to teachers and students alike. Therefore, a comparative study on how people’s mental health has been affected by the use of technology throughout the pandemic might be conducted as a suggestion for further research. Furthermore, one of the challenges facing teachers include passing on the required skills to students in addition to overcoming their problems, thus their emotions may not interfere with their academic level. According to the researchers, this may require a high degree of perfection and self-determination to improve the teachers’ teaching practice. Moreover, outstanding levels of technology management performance may be harmful to the mental health of teachers causing problems like anxiety and stress. Therefore, a need

for extra research is evident especially that dealing with various prevention techniques of stress and anxiety that may come as from using technology in the virtual classroom.

Anxiety is a significant outcome of much research related to students' adoption of new technology in the educational sector. In addition, lack and inadequate experience may result in a lack of interest in using technology. As a result, teachers and educators should consider the psychological aspects related to the use of technology and should provide adequate training to students and teachers in that regard. A further stimulus fear is the lack of preparation and inappropriate measures which may impact the adoption of technology in a negative manner (Mac Callum and Jeffrey, 2014; Nchunge et al., 2012; Thatcher and Perrewe, 2002).

2.2 Students' Attitudes towards Online Learning

The impact of remote online learning on students' well-being has two contrasting views whether online learning influences students' mental health or not. Thandavaraj et al. (2021) explain that learning activities that were previously conducted in a regular classroom settings were moved to an online learning environment as a result of the epidemic. Such changes may cause slight disruptions in students' well-being and capacity to cope with new changes in the online classroom. Duraku and Hoxha (2020) claim that the COVID-19 circumstances have prompted a lot of anxiety among students, parents, and teachers concerning evaluation, online learning inadequacy, and students' overload.

However, Toquero (2020) argue that the global pandemic has provided opportunities for different countries and for a wide range of people including teachers and students to update their current educational practices and focus on using technology instead. The transition to remote online learning has also been seen as a good chance for students and teachers to become more innovative (Haider and Al-Salman, 2020). Online teaching and learning via a variety of devices such as laptops, computers, mobile phones, and tablets connected to the internet in both asynchronous and synchronous situations has become a viable option because of the dangers of COVID-19 and the discontinuation of traditional classroom teaching. Students have more learning flexibility and can connect with instructors and educators easily and anywhere through remote learning and teaching methods (Singh and Sagar, 2021).

Zaheer et al. (2015) show that many students express satisfaction with online learning indicating that e-learning could aid higher education in countries with small -size education institutions. Furthermore, Nasir (2020), Chisega-Negrila (2015) and Popovici and Mironov (2014) observe that it becomes obvious that students are acutely aware of the changes brought about by digital technology as a result of its impact on the learning experience. They add that the use of technology encourages students to think (out of the box) and enhance their ideas by thinking critically and creatively by Implementing online learning tools. Once students think they have the knowledge and information they need, they will be more likely to use the program (Alghamdi et al., 2020; Yakubu and Dasuki, 2019).

Sufian et al. (2020) investigate the attitudes of students towards the online learning system because of the COVID-19 epidemic. Despite constant network connection issues,

students find that learning with online tools is interactive in nature. Students point out that using online tools is simple and helps them in the completion of their tasks. This represents a positive outcome in terms of students' use of online learning tools. [Agung et al. \(2020\)](#) and [Dhawan \(2020\)](#) state that online learning has different levels of impact on learners. For example, some students discover that their literacy regarding the utilization of technology improved dramatically as because of their online instruction. Students benefit from the experience of using online learning in the sense that it develops their ability to find information easily. Also, it assists them in becoming self-independent and more responsible in completing their tasks. Learners have stated that the utilization of technology represents a challenge for them since it demands more independent reading.

2.3 The Use of Technology in the Classroom

There are two contrasting perspectives regarding the use of technology in the classroom: one that supports it and another that opposes it, reflecting both constructive and critical viewpoints. [Duffy and Jonassen \(2013\)](#) define constructivism as a concept that refers to the way how students learn and the knowledge that is subject to learning. [Gooden \(1996\)](#), a constructivist, views technology that represents a toolbox full of skills for creating new resources rather than a tool used to complete a certain task. Constructivists identify the positive effects of utilizing classroom technology while critical theorists view technology as a tool, an agent of change and a means with politically-oriented causes that result in isolation. They are confident that the utilization of classroom technology has an important role to play in the clarification of materials used by students.

According to [Yan and Zhao \(2006\)](#), The goals of teachers and attitudes have an important role to play in the adoption of the kind of technological devices to be used in the virtual classroom. Teachers are more pessimistic about the utilization of classroom technology because of inadequate training related to the use of new technology. Teachers' beliefs and principles combined with their teaching methodology and ability to utilize new technology have a great impact on the inclusion of classroom technology in the educational culture and environment ([Zhao and Frank, 2003](#)).

Personal beliefs are not easy to modify or tackle in the development of employees and is certainly time consuming. Even if employees achieve a high level of improvement, it might take years for these improvements to take place ([Nikian et al., 2013](#)). [Cuban \(1990\)](#) points out that teachers will apply technology based on their personal viewpoints about curriculum and instructional practices. The obstacles related to the implementation of technology are divided into two categories: First-order or extrinsic factors and second-order or intrinsic barriers ([Brickner, 1995](#); [Ertmer, 1999](#)). Environmental or institutional concerns as well as resources are first-order barriers while second-order barriers are tied to a teachers' personal instructional views, experiences, and techniques or strategies. Teachers encounter numerous challenges due to these intrinsic factors which influence their decision-making processes and classroom practices ([Ertmer, 1999](#)). Time, support, models, infrastructure, and culture, according to [Brzycki and Dudt \(2005\)](#), are only some of the obstacles and issues that continue to exist and appear again with the use of new classroom technology.

Abas (1995) suggests that students in a teacher education program at one of Malaysia's higher educational institutions had positive attitudes towards using computers. According to the findings, students who have a low level of computer anxiety, feel fairly confident while using computers, enjoy using computers and consider computers to be useful. They also expressed their willingness and readiness to use computers in schools.

2.4 Online Learning Experience in Jordan

Since 2015, Jordanian universities have been making moderate attempts to incorporate distance learning into their curriculum. However, because of numerous barriers, this approach has been regarded as a "challenging pedagogy" of the educational system in the country (Al-Jaghoub et al., 2009; Atoum et al., 2017; Al Nawas, 2020). Decision-makers in the higher education sector and Jordanian universities took more serious measures during the COVID-19 pandemic, realizing the necessity of implementing an emergency distance learning strategy and trying to ensure both a smooth transition process and a high-quality education (Al-Tammemi et al., 2020).

Building on these efforts, the adoption of distance learning in Jordan, also referred to as e-learning, is gaining popularity in Jordan due to its positive impact on students' learning experience. E-learning offers students the flexibility to learn at their own pace, fostering proficiency, and opening up new career opportunities. In addition, the integration of technology into education stimulates students' curiosity in new learning methodologies and promotes self-learning through the use of successful e-learning teaching strategies that establish a connection between students and their teachers (Almajali et al., 2022).

In order to enable inclusive e-learning with high levels of student interaction and to bridge the digital divide, COVID-19 has created a great need for dynamic e-infrastructure. For educational purposes, students showed that they could accept digital technology in situations where traditional learning was either unavailable or impractical, such as during the COVID-19 pandemic. Therefore, in order to facilitate students' learning, the quality of the e-learning that has been implemented needs to be improved. Already, an excellent endeavor has been started. The Jordanian government has proposed a new education program for 2021. The draft included a legislative framework for improving learning outcomes through the use of digital technologies to help students overcome obstacles (Almajali et al., 2022).

However, the outbreak of the epidemic has forced educational institutions in Jordan to shift to online learning in an effort to stop the spread of the virus. The effects of COVID-19 were felt in Jordan a little later. While the effects of the pandemic were felt slightly later in Jordan compared to other regions, they nonetheless had severe repercussions on the nation's economy and public health. In fact, Jordan experienced the pandemic's effects alongside those of other developing countries due to globalization. Despite the benefits of online learning, universities in Jordan have been cautious in fully embracing it due to concerns over program quality and students' readiness (Almajali et al., 2022). Almajali et al. (2022) identified various obstacles affecting the education system in Jordan, including financial constraints, poor internet access, and communication barriers. Moreover, the influence of COVID-19 on education has been investigated;

however, there remains a lack of research on COVID-19 in developing nations including Jordan (Baticulon et al., 2021). Additionally, limited research has been conducted on Jordanian students' perceptions of online education, highlighting the need for further investigation (Almusairat et al., 2021; Mosa, 2021). Therefore, the present study aims to explore the ongoing effects of the COVID-19 pandemic on online learning from the perspectives of both university students and instructors in Jordan. Specifically, the study aims to examine anxiety levels and stressors in the context of online learning to provide valuable insights into the challenges and opportunities associated with the widespread adoption of online education in Jordan.

This section emphasizes the importance of improving the quality of online education in Jordan to address existing challenges and optimize the potential advantages for both students and instructors. Further research is required to gain a deeper understanding of the impact of online learning in the nation and guide future initiatives.

2.5 Theoretical Framework

2.5.1 Continuance Commitment Theory and Other Related Theories

The theory of continuance commitment is a psychological state which describes the relationship of the employees with the company at their workplace as well as the understanding of the consequences of leaving that establishment. A continuance commitment maybe defined as the extent to which an employee feels committed to the establishment in accordance with their own financial situation (Meyer and Allen, 1984). The theory was further developed by Meyer et al. (1990) who theorized a conceptual model that organizational commitment includes three dimensions namely affective commitment (AC), normative commitment (NC), and continuance commitment (CC). In education and human establishments, the theory of continuous commitment has been researched. Guoyan et al. (2021) clarify that different studies are linked to the academic commitment with traditional teaching. However, their study stressed the importance of continuance commitment in virtual teaching because it plays a vital role in higher education.

Meyers et al. (2019) and Farid et al. (2015) argue that “teacher empathy” improves students' learning and suggests ways to improve teacher empathy. Teacher empathy refers to how well a teacher tries to comprehend his or her students' personal and social situations, to feel care and worry in reaction to their positive and negative emotions and to respond compassionately without losing sight of the students' learning. An instructor's empathy has a direct influence on students' long-term continuance commitment. They add that it is simple to develop a great level of long-term commitment if the teacher understands students' concerns and level of difficulty. Moreover, continuance commitment contributes to the growth and sustainability of e-learning programs. During COVID-19, two theories have been incorporated into the concept of continuance commitment (Sariwulan et al., 2019). These theories are namely Psychological Contract Theory and Organizational Support Theory.

According to the first theory, employees develop a generalized sense of how a company appreciates their achievements and expresses concern about what is in their best interest

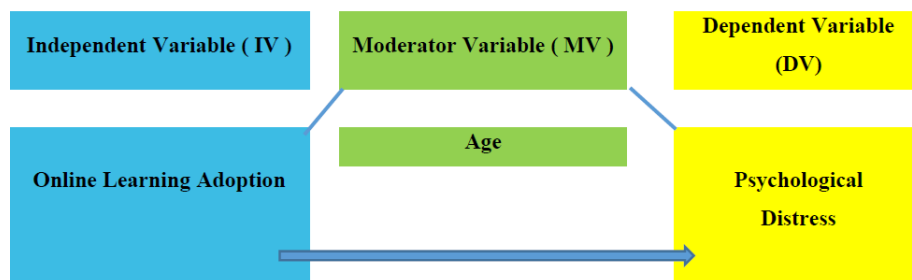
(Guoyan et al., 2021). According to the second theory, employees have been found to form overall perspectives related to the level to which the specific establishment appreciates their achievements and efforts regarding their well-being (Eisenberger et al., 1986). In recent years, the phenomenon of psychological contract has been viewed primarily through the perspectives of employees (De Cuyper and De Witte, 2006). According to Argyris (1960) who coined the term "psychological labor contract", employers respect the culture and conventions of their employees. He asserts that employees display good performance when employers express concerns towards autonomy in the workplace. He claims that the link between teachers' efficient work and effective schools raises the value that teachers give to their jobs and job satisfaction. The ability of administrators to meet teachers' expectations is related to teachers' attitudes towards their professions as important and their readiness to work actively, effectively and efficiently. As a result, it is vital to think about psychological contract which involves mutual responsibilities between teachers and administrators and the level of leadership that supports instructors in virtual classrooms.

This becomes obviously vital to determine the influence of virtual classes adoption on performance of instructors and students due to the covid-19 pandemic era.

2.5.2 Dependent and Independent Variables

Cohen et al. (2007, p. 504) defined an independent variable as "an input variable, that which causes, in part or in total, a particular outcome; it is a stimulus that triggers a response" while a dependent variable is the outcome variable or the consequence of the input or the independent variable. Figure 2.1 shows the theoretical framework of the present research.

Figure 1: Theoretical Framework of the Present Research



(a) Source: Researchers' own compilation (2023)

Online learning adoption represents the independent variable (stimulus) while the psychological distress related to online learning among university students and instructors represent the dependent variable (response). However, age represents the moderator variable which influences the relationship between the dependent variable and the independent variable i.e., influences the relationship between online learning adoption and psychological distress among students and instructors.

2.6 Previous Studies

This review will be divided into two parts:

- 1- Teachers'-Students' Attitudes and Challenges
- 2- The Psychological Impact and Stressors of Online Learning Adoption Amidst COVID-19.

2.6.1 Instructors'-Students' Attitudes and Challenges

According to [Duraku and Hoxha \(2020\)](#) and [Zhao and Frank \(2003\)](#), teachers' perspectives on teaching and technological skills have an impact on the inclusion of technology in the school's educational environment. However, there is still a dire need to explore studies related to the utilization of technology by students and teachers alike especially that some former studies pointed to the need for further training of teachers regarding the use of technology in the virtual classroom ([Nikian et al., 2013](#); [Selvanathan et al., 2020](#)).

[Selvanathan et al. \(2020\)](#) conducted a study to evaluate the students' online learning practice during COVID-19 pandemic in Malaysia. Data were collected from 328 participants (155 males and 173 females) of 12 different public and private universities. The instruments for this study were modified from [Naaaj et al. \(2012\)](#) and were divided into five dimensions including interaction, instruction, instructor, course management, and technology. The questionnaire used for customer satisfaction was ranked from 1 to 5. The IBM SPSS statistics version 25.0 was applied using descriptive statistics in which data were represented and analyzed by showing frequencies, percentages, means (the average score), and standard deviations (variance of distribution in relation to the mean). Research findings revealed that online teaching and learning in Malaysia need development to be implemented particularly with regard to the quality of instruction and accessibility and the availability of teachers during virtual teaching even though they were convinced with management of the course and technology. Overall, the results revealed that students continue to deal with the work from home but still dissatisfied with specific issues that are worth to be taken into consideration by the universities.

[Nikian et al. \(2013\)](#) conducted a study to investigate the perceptions of Malaysian teachers at different schools in Johor Bahru towards the utilization of technology in the virtual classroom and the obstacles they face in utilizing technology in the virtual classroom. A survey questionnaire was the main research instrument used to collect data. It was developed by [Venkatesh et al. \(2003\)](#) and modified for the purposes of this study. The questionnaire included two parts: The first contained personal data regarding informants while the second part included questions about using new technological devices in virtual classroom teaching. The informants were seven local English teachers (6 females and one male) and their age ranged from 20 to 29 years while some were in their 30s. The findings revealed that the informants (English language teachers) are very skillful in utilizing innovative technological devices and they did not have any problems regarding the use of technology in the classroom. This study also concluded that unsatisfactory time duration in the preparation of learning and teaching resources for use by students,

insufficient number of available computers as well as inadequate technological support were the main obstacles in utilizing technology in the virtual classroom. However, teachers had positive attitudes towards using technology in the classroom, and they felt that it was essential to undergo training on the implementation of technological devices in the classroom. They added that there is still a need to conduct further studies on teachers' attitudes regarding using innovative technological devices in the virtual classroom.

2.6.2 The Psychological Impact and Stressors of Online Learning Adoption Amidst COVID-19

Recent studies on the impact of COVID -19 and lock downs on university students reflect significant consequences on the students' mental well-being and a high level of anxiety (Cao et al., 2020; Sundarassen et al., 2020; Wang et al., 2020). To date, much research has been conducted on the effect of COVID-19 and lockdowns on teachers and students from a psychological perspective (Duraku and Hoxha, 2020; Sundarassen et al., 2020).

Sundarassen et al. (2020) conducted a study to examine the impact of COVID -19 and closures on the socio-psychological health and anxiety level on university level students in Malaysia, the main stressors affecting their anxiety during the peak of the pandemic and closures between April and May 2020, and the directly related demographic characteristics influencing their anxiety. An investigative study using an online survey that crosses between sections was conducted from public and private colleges and universities from all states in Malaysia using Zung's self-rating anxiety scale (SAS). The Zung's SAS employs a four- alternative Likert scale (Never or very rare, sometimes, often and very often or always). The questionnaire involves 20 questions where the first five questions emphasized on the emotional signs of anxiety and the rest of the questions identify the actual symptoms of anxiety. Moreover, an open -ended question was sent through Google forms via WhatsApp messages to express their major concerns and worries during this time. IBM SPSS version 22 software, Chi-square and ordinal regression procedures were used to analyze the data. Out of 983 responses found usable, 20.4%, 6.6% and 2.8% of the students experienced minimal to moderate, marked to severe and most extreme anxiety levels, respectively. Based on the chosen narrative responses by the participants in the survey through Google forms revealed that the most common stressors were economic constraints, remote online classes, and uncertainty about the future career prospects and their academic performance. The study also reveals that gender, age, field of study, and living conditions are significantly connected to the level of anxiety.

Haider and Al-Salman (2020) investigates the benefits of switching to online learning, difficulties encountered, and recommendations for enhancing the teaching-learning process. The study highlights several benefits reported by instructors who embraced online teaching. These benefits included access to new and useful teaching resources, opportunities for acquiring new skills, efficient problem-solving, flexible scheduling and communication, and saving time and effort. However, the transition to online learning was not without its difficulties. Instructors encountered various challenges, primarily related to technical and internet issues, course-related issues and workload, inadequate tools for students' assessment, student commitment, a lack of clear guidelines and reg-

ulations, as well as psychological factors such as awareness and motivation. In response to these challenges, the study's participants provided a comprehensive set of recommendations aimed at enhancing the online teaching-learning process. These suggestions encompassed the need for improved technical support, the integration of online and traditional teaching methods, increased training opportunities for instructors, provision of psychosocial support, enhancements to assessment tools, and the establishment of clear regulations and guidelines. Furthermore, the study emphasized the importance of considering the long-term implications of the shift to e-learning, particularly in the context of the COVID-19 pandemic. The researchers recommended that future studies should delve into the enduring effects of this transition. Based on this recommendation, the present study aims to explore the ongoing effects of the COVID-19 pandemic on university students and instructors in Jordan, particularly regarding anxiety levels and stressors.

[Almajali et al. \(2022\)](#) investigated how e-learning might impact the higher education sector in the post-COVID-19 era. The study employed the qualitative method of interpretative phenomenological analysis (IPA) to examine the lived experiences of the participants. Semi-structured interviews were used to gather data from the respondents, who were selected from a private university in Jordan. The study identified factors influencing the acceptance of e-learning, including high-quality instruction, technological convenience, instructor accessibility, and the utilization of online learning resources. However, despite the benefits, students expressed challenges such as a lack of prompt feedback, technological addiction, security concerns, and a sense of isolation, particularly exacerbated by poor connections with instructors. These findings assert the complexities of online learning and the need for further investigation.

In addition to exploring the perspectives of students, [Almajali et al. \(2022\)](#) advocate for conducting a similar study on other stakeholders, such as lecturers. This broader investigation would provide valuable insights into integrating e-learning effectively in students' learning. Therefore, this study aims to fill this gap by examining the perspectives of both students and instructors towards online learning, seeking to inform future developments in online learning implementation.

[Odrizola-González et al. \(2020\)](#) investigated the psychological health of Spanish university members (university students and workers) amidst the COVID-19 epidemic. A total of 2530 members from the University of Valladolid in Spain completed an online survey comprising 66 multiple-choice questions. To assess the symptoms of anxiety, stress, and depression, two scales were used; the Depression Anxiety Stress Scale (DASS-21) and the Event Scale. Students' assessments for anxiety, depression, and stress were significantly higher than those of university staff. In comparison to students, who appeared to have experienced a significant psychological impact during the initial weeks of the COVID-19 lockdown, university workers demonstrated lower scores in all measures. The findings also revealed notable differences across academic disciplines, with students from Engineering and Architecture demonstrated lower scores in relation to anxiety, depression, stress, and the impact of the event compared to those from Arts and Humanities and Social Sciences and Law. Of the participants, 34.19% showed moderate to extremely severe symptoms of depression, 21.34% reported moderate to extremely severe

feelings of anxiety, and 28.14% experienced moderate to extremely severe symptoms of stress. However, these percentages varied among student and staff populations.

Early literature has documented the negative influence of pandemics on students' psychological well-being, which has led to acute depression and anxiety. Cao et al. (2020) investigated the psychological impact of COVID-19 on university students from Changzhi medical college in China using cluster sampling. Data were collected using a questionnaire that included the 7-item Generalized Anxiety Disorder Scale (GAD-7). Out of 7,143 students studied, 0.9% of the respondents experienced severe anxiety, 2.7% experienced moderate anxiety, and 21.3% experienced mild anxiety. Additionally, the results found that living in urban areas, living with parents, and having a family income stability were protective factors for college students against anxiety. In contrast, having relatives or acquaintances infected with COVID-19 was an independent risk factor for experienced anxiety among college students. The findings of the study also revealed that the COVID-19-related stressors that included economic effects, effects on daily-life, and delays in academic activities were positively associated with anxiety symptoms of Chinese college students during the epidemic, whereas social support was negatively correlated with the level of anxiety.

Moving along the same theme, Thandavaraj et al. (2021) investigate some shortcomings related to the psychological effect on students' virtual learning during the COVID-19 pandemic crisis in Malaysia. They assert that students and teachers were not fully prepared for a full online experience due to internet and technological issues, lack of technological devices and social support because of anxiety and stress. In addition, the review emphasizes the role of the government sector in taking initiatives to assist students with weak internet connectivity and technological devices which are the key requirement to be able to take part in online courses.

Similarly, Al-Tammemi et al. (2020) conducted a cross-sectional study to investigate the prevalence of psychological distress among university students and the factors associating with it, motivation for distance learning, coping activities and pandemic related concerns among university students in Jordan in the midst of COVID-19 pandemic. The study aimed to shed light on this population's mental health status, given the increasing concerns about psychological well-being in academic settings.

The researchers collected data from a sample of 381 undergraduate university students (aged 18–38 years) using an online self-administered questionnaire. The questionnaire consisted of three sections, with a total of 24 questions. The first section comprised of seven questions about sociodemographic information along with two questions about any history of pre-existing psychiatric conditions and related medication use. The second section included an Arabic version of the 10-item Kessler Psychological Distress Scale (K10). The third section of the questionnaire included five questions about the following topics: one question about coping activities during COVID-19 pandemic and the nationwide curfew in Jordan. Two questions about the use of medications to cope with COVID-19 related distress. Additionally, one question about students' motivation for online distance learning. A question about major pandemic related concerns as perceived by the students. They analyzed the data to determine the prevalence of psychological distress and explore its association with various factors such as gender, age, academic

year, field of study, and socioeconomic status.

The findings revealed a significant severe prevalence of psychological distress among university students, indicating the pressing need for mental health interventions and support services within academic institutions. The study identified several factors correlated with higher levels of distress, including female gender, younger age, specific academic majors, and lower socioeconomic status. Older age and having a strong motivation for distant learning were two of the variables that were identified to act as protective factors against greater levels of anxiety. On the other hand, the students' current smoking status and lack of interest in remote learning served as risk factors for their greater psychological distress levels. Moreover, 209 students reported that they had no motivation for distance learning. Additionally, the results showed that the most common coping activity reported was spending more time on social media platforms.

In [Al-Tammemi et al. \(2020\)](#) study, the majority of respondents were undergraduate students. However, this study also included postgraduate students and instructors. Similarly, an online self-administered questionnaire consisting of closed-ended questions was adapted to collect the needed data. Additionally, the 10-item Kessler Psychological Distress Scale was used to measure psychological distress, with modifications made to address the objectives of this study.

[Akdeniz et al. \(2020\)](#) conducted a study aiming at assessing the prevalence and frequency of protective practices as well as the emotional and anxiety status among the university students living in Turkey using a rapid survey during the COVID-19 pandemic. Data were collected from 3,040 participants with ages ranging from 18 to 30. The Turkish version of the Abbreviated Beck Anxiety Inventory was used to measure the participants' level of anxiety. The findings revealed that 44% of the participants showed a moderate level of fear of catching COVID-19 compared to 80% of participants who reported a severe level of fear and worries about their relatives' health. The authors expected that the respondents' anxiety might be attributed to shifting to online learning, work from home as much as possible in their careers, cut lower on their working hours, distance themselves from others, and other pandemic control actions across the nation.

Furthermore, stress and anxiety levels were assessed among Sudanese university students during the COVID-19 pandemic through an online self-administered questionnaire using the Beck Anxiety Inventory (BAI). Of the 478 participants, 75.1% experienced a low anxiety levels, 15.5% moderate anxiety levels, and 9.4% potentially concerning anxiety levels. The majority of responders reported low anxiety and no COVID-19-related symptoms. Moreover, the participants' low anxiety levels were also associated with experiences such as fever, headache, sore throat, myalgia, or fatigue over the previous 14 days. Additionally, Low anxiety levels were correlated with having a friend or relative with diagnosed or suspected COVID-19 and the need for advice on COVID-19 prevention. However, potentially problematic levels of anxiety were linked to noncompliance with the curfew and the preventive behaviors like covering one's mouth when sneezing or coughing. Researchers suggested that the higher percentages of students experiencing moderate to severe anxiety may be attributed to economic difficulties, university closures, and Sudan's limited availability of online learning—particularly given that only a small number of universities, in contrast to other nations, have adopted online education

(Abas et al., 2021).

Likewise, [Alsoud and Harasis \(2021\)](#) investigates the impact of the COVID-19 pandemic on the e-learning experience of students in Jordan, learning methods as well as the main challenges faced by students utilizing a structural online questionnaire. The findings revealed that students from remote and disadvantaged places primarily faced enormous challenges such as lack of access to technology, poor internet connectivity, and harsh study environments. The study also revealed a number of obstacles that students encountered during the epidemic, mainly being anxiety, lack of a device to access online courses, lack of a dedicated study space at home, the poor economic conditions, and problems with internet connectivity.

Although [Alsoud and Harasis \(2021\)](#) offer insightful information about the application of e-learning among university students. However, university faculty members' perspectives are absent from their study. It is crucial to comprehend the perspectives of instructors in order to gain a comprehensive understanding of the challenges related to distance education, especially in light of the COVID-19 epidemic. Therefore, the purpose of this study is to find out the main stressors university instructors face due to transition to online teaching in the COVID-19 era.

2.7 Literature Gaps

While extensive research has examined the global impact of COVID-19 on education systems, there has been a notable lack of focus on developing nations in the Middle East, including Jordan ([Haider and Al-Salman, 2020](#)). Although studies have highlighted increased anxiety among students due to the rapid shift to online learning during the pandemic ([Sundarasan et al., 2020](#)), there is a dearth of research specifically addressing the mental health and stressors faced by both instructors and students in Jordan. This gap in literature is echoed by calls for more precise psychological assessments and inclusion of faculty perspectives in research studies ([Alsoud and Harasis, 2021](#); [Al-Tammemi et al., 2020](#)). Additionally, while existing literature emphasizes the importance of technology integration in education, particularly during the pandemic ([Duraku and Hoxha, 2020](#); [Zhao and Frank, 2003](#)), there remains a need to explore the impact of age on the adoption of digital teaching methods among students and instructors in Jordan. Further investigation into the ongoing psychological and social effects of the pandemic, as well as interventions to promote resilience, is also warranted ([Sundarasan et al., 2020](#); [Grubic et al., 2020](#)). Therefore, this study seeks to address these gaps by empirically evaluating the psychological impact of online learning adoption and stressors faced by students and instructors at selected Jordanian Universities in post-COVID-19 era.

3 Methods

The methodology adopted techniques similar to previous studies, employing online self-administered questionnaires distributed via Google Forms to students and instructors ([Al-Tammemi et al., 2020](#)). The questionnaire was distributed randomly among university students and instructors at selected Jordanian universities. Academic staff at

universities assisted in distributing and motivating students to complete the survey. An online -based survey was used due to the relative ease and faster speed of data collection compared to other traditional means of data collection (Alsaid and Harasis, 2021; Maymone et al., 2018; Singh and Sagar, 2021).

The 10-item Kessler Psychological Distress Scale (K10) was utilized, with response options ranging from "None of the time" to "All of the time" on a 5-point Likert scale (Easton et al., 2017). Scores were converted into an "Anxiety Index" ranging from 10 to 50, categorizing distress levels accordingly (Al-Tammemi et al., 2020). The survey consisted of 3 sections: demographics, K10 scale, and stressors associated with online learning.

Survey invitations were sent via WhatsApp, with participation being voluntary and confidentiality assured. Stressors listed were derived from the author's own observations, personal experience with online teaching, and studies (Almajali et al., 2022; Haider and Al-Salman, 2020; Sundarasan et al., 2020) with a Likert scale used for proficiency assessment (Cohen et al., 2007). Statistical analysis followed data collection, with ethical considerations addressed, and limitations acknowledged.

3.1 Sample of the Study

The data for this study is derived from the responses of 14 instructors and 120 students representing two public universities in Jordan. The limited duration of data collection may have contributed to the small sample size, and may limit the generalizability of the findings to a broader population. All students and instructors had ample experience in the use of online learning in Jordanian public universities who are associated with universities from two distinct academic fields; the Humanities and the Sciences. Such a choice of students allowed the researcher to achieve a vast array of perspectives on e-learning adoption.

3.2 Data Analysis

The data was collected by the author using a self-administrated e-questionnaire created with Google Forms. After collection, the data was coded and transformed into distinct types of variables: nominal (binary), nominal (categorical), and ordinal. The data was then analyzed using the statistical package PASW 25, which is formally known as SPSS (version 25). Descriptive statistics were generated for each variable by using frequency analyses. Descriptive statistics provide a comprehensive summary of the data without making any inferences or predictions (Cohen et al., 2007).

4 Results

4.1 Respondents' demographic characteristics

The demographic and selected characteristics of the study population are summarized in Table 1 for students and Table 2 for instructors. Participants' demographic characteris-

tics were analyzed to provide context for the study findings. The survey was completed by a total of 143 participants comprising 120 university students and 14 instructors from two public universities in Jordan. The age distribution of students ranged from 18 to 28 and beyond, while instructors' age ranged from 30 to 61 and beyond. In terms of field of study, 10.8% students were enrolled in Humanities, with the majority 89% enrolled in Sciences. Among students, 89.2 were undergraduates, 8.3% were postgraduates, and 2.5% held other degrees. Instructors were predominantly holding doctoral degrees 71.4% with the remaining 28.6% holding master's degree. Years of experience for instructors varied, with 7.1% having 1-10 years, 57.1% having 11-20 years, and 35.7% having 21-30 years of experience. Proficiency in using technology was assessed on a specific metric. Among students, 15.8% reported being at a novice level, 69.2% at an intermediate level, and 15.0% at an advanced level. Instructors, on the other hand, reported varying levels of expertise; 50.0 reported an intermediate level and 50.0% an advanced level. None of the instructors identified as novice users.

Table 1: Students' demographic characteristics

Variable	Category	Frequency (N=120)	Percentage (%)
Age	18 - 22	92	76.7
	23 - 27	19	15.8
	28 and above	9	7.5
Level of Education	Undergraduates	107	89.2
	Postgraduates	10	8.3
	Others	3	2.5
Field of Study	Humanities	13	10.8
	Sciences	107	89.2
Familiarity with technology	A Novice user	19	15.8
	An intermediate user	83	69.2
	An advanced user	18	15.0

Table 2: Instructors' demographic characteristics

Variable	Category	Frequency (N=14)	Percentage (%)
Age	30 - 50 years	6	42.9
	51 - 60	7	50.0
	61 and above	1	7.1
Years of teaching experience	1 - 10 years	1	7.1
	11 - 20 years	8	57.1
	21 - 30 years	5	35.7
Level of Education	Masters	4	28.6
	Ph.D.	10	71.4
Familiarity with technology	A novice user	0	0.0
	An intermediate user	7	50.0
	An advanced user	7	50.0

4.2 Levels of distress related to the experience of online learning among university students and instructors using the 10-item Kessler Psychological Distress Scale

Tables 3 and 4 illustrate how the mental well-being of both university students and instructors was affected to varying degrees following the experience of online learning post-COVID-19. Among the 120 university students surveyed, about half (51.7%) reported severe psychological distress, whereas the proportions of students with no psychological distress, mild psychological distress, and moderate psychological distress were 18.3%, 11.7%, and 18.3%, respectively. In contrast, a significantly higher proportion of instructors, 92.9%, experienced severe psychological distress. Moreover, 7.1% of instructors showed moderate psychological distress. Notably, none of the instructors displayed mild or no psychological distress.

Table 3: Level of distress among university students based on Kessler's classification

Anxiety	Frequency (N=120)	Percentage (%)
No psychological distress	22	18.3
Mild psychological distress	14	11.7
Moderate psychological distress	22	18.3
Severe psychological distress	62	51.7

Table 4: Level of distress among university instructors based on Kessler's classification

Anxiety	Frequency (N)	Percentage (%)
No psychological distress	0	0
Mild psychological distress	0	0
Moderate psychological distress	1	7.1
Severe psychological distress	13	92.9

4.3 Stressors among the respondents due to online learning experience in the post COVID-19 era

Tables 5 and 6 show the main challenges faced by both university students and instructors due to online learning transition. Based on the selected relevant narrative feedback given by the students and instructors in the survey, students were suffering from several challenges, mainly isolation and lack of social interaction, unexpected transition to online classes, technical issues while attending online classes, using mobile phones to attend classes, lack of access to a computer at home, multiple assignments, frequent quizzes, and lack of flexible deadlines, the need to manage household chores and take care of siblings while attending online classes, limited computer literacy for learning processes, and uncertainty about academic progress due to limited feedback. Notably, the most

frequent challenge was technical issues while attending online classes, reported by 71.67% of students. This was followed by the need to manage household chores and take care of siblings while attending online classes and using mobile phones to attend classes, both reported by 70.00% of students. In addition, uncertainty about academic progress due to limited feedback was reported by 61.67% of respondents, while 60.00% expressed concerned about multiple assignments, frequent quizzes, and lack of flexible deadlines. Unexpected transition to online classes affected 55.00% of students. Additionally, feelings of isolation and lack of social interaction were reported by 49.17% of participants, while the lack of access to a computer at home and limited computer literacy for learning processes were reported by 46.67% and 44.17% of students, respectively.

In contrast, Instructors encountered distinct challenges mainly related to shifting teaching to the online format and doubts about students' ability to use technology, both reported by 92.9% of the participants. Moreover, lack of students' participation or cooperation and increased workload and time demands were cited by 85.7% of instructors. Difficulty in building and maintaining connections with students was reported by 78.6%, while insufficient level of skills and knowledge related to the use of technology, and lack of training and experience in distance or online learning were each reported by 57.1% of instructors.

Table 5: Main stressors faced by university students

Stressors	Frequency (N = 120)	Percentage (%)
Isolation and lack of social interaction	59	49.17
Unexpected transition to online classes	66	55.00
Technical issues while attending online classes	86	71.67
Using mobile phones to attend classes	84	70.00
Lack of access to a computer at home	56	46.67
Multiple assignments, frequent quizzes, and lack of flexible deadlines	72	60.00
The need to manage household chores and take care of siblings while attending online classes	84	70.00
Limited computer literacy for learning processes	53	44.17
Uncertainty about academic progress due to limited feedback	74	61.67

Table 6: Main stressors faced by university instructors

Stressors	Frequency (N)	Percentage (%)
Shifting teaching to the online format	13	92.9
Doubts about students' ability to use technology	13	92.9
Lack of students' participation or cooperation	12	85.7
Insufficient level of skills and knowledge related to the use of technology	8	57.1
Lack of training and experience in distance or online learning	8	57.1
Difficulty in building and maintaining connections with students	11	78.6
Increased workload and time demands	12	85.7

5 Discussion

The present study aimed to determine the level of anxiety among university students and instructors in Jordan, particularly in light of the COVID-19 pandemic, and to identify stressors that impede online learning adoption. Recent studies on the impact of COVID-19 and lockdowns on university students has highlighted significant consequences on the students' mental well-being, including a high level of anxiety (Cao et al., 2020; Sundarasan et al., 2020; Wang et al., 2020).

In this study, a majority of the students experienced varying degrees of psychological distress, ranging from mild to severe because of transitioning to online learning in the post-COVID-19 pandemic era. Specifically, about half of the students (51.7%) reported severe psychological distress, whereas 18.3% showed no distress, 11.7% showed mild distress, and another showed 18.3% moderate distress. These findings are consistent with those reported by Al-Tammemi et al. (2020) and Akdeniz et al. (2020), who observed similar levels of distress. However, studies conducted by Abas et al. (2021), Cao et al. (2020), and Sundarasan et al. (2020) reported different distress proportions, which might be attributed to the use of different scales; the Beck Anxiety Inventory (BAI), the 7-item Generalized Anxiety Disorder Scale (GAD-7), and Zung's self-rating anxiety scale (SAS) vs. K10 scale in addition to the smaller sample size in this study.

Additionally, based on K10 scale's categories, instructors were found to experience severe distress, followed by moderate distress similar to students. Notably, none of the instructors displayed mild or no psychological distress compared to university students. However, significantly higher distress scores were observed in instructors compared to university students. This finding contrasts with the study conducted by Odriozola-González et al. (2020), which reported lower distress scores among university staff compared to students, indicating a significant psychological impact on students during the COVID-19 lockdown.

Furthermore, the higher levels of psychological distress observed among university students in this study compared to previous research may be attributed to several factors

inherent to the post-COVID-19 online learning environment. According to the selected narrative feedback from students in the survey (Table 4.5), the most commonly highlighted stressors included isolation and lack of social interaction, unexpected transition to online classes, technical issues while attending online classes, using mobile phones to attend classes, lack of access to a computer at home, multiple assignments, frequent quizzes, and lack of flexible deadlines, the need to manage household chores and take care of siblings while attending online classes, limited computer literacy for learning processes, and uncertainty about academic progress due to limited feedback.

Moreover, the majority of students (71.67%) expressed dissatisfaction with technical issues, particularly unreliable internet connectivity, which makes online learning more challenging for them. Similar findings reported by [Alnusairat et al. \(2021\)](#), [Almajali et al. \(2022\)](#), [Alsoud and Harasis \(2021\)](#), [Haider and Al-Salman \(2020\)](#), [Nikian et al. \(2013\)](#), and [Thandavaraj et al. \(2021\)](#). [Bond and Goodchild \(2013\)](#) also noted a significant amount of anxiety associated with technology use, ranging from technical problems to academic performance concerns.

A key component of online learning is feedback, and the influence of feedback on the quality of online learning has been the subject of numerous research. It has been noted that students' satisfaction with their online courses is impacted when they receive prompt, helpful feedback ([Howland and Moore, 2002](#); [Vonderwell, 2003](#)). Conversely, students who receive delayed feedback report feeling more stressed, frustrated, and confused, especially concerning discussion posts, submitted assignments, and exams or tests ([Almajali et al., 2022](#)). In the present study, students reported that uncertainty about academic progress due to limited feedback 61.67% is also one of the main stressors they faced when engaging in online learning. The results in this study are similar to that of [Almajali et al. \(2022\)](#) and [Cao et al. \(2020\)](#).

Another potential stressor identified is the feeling of isolation and lack of social interaction as reported by 49.17% of students in this study due to the abrupt transition to distance learning, which may have disrupted social connections, leading to feelings of isolation and loneliness among students. Online learners have expressed difficulty in interacting and conversing with peers and instructors in person, with some becoming unfamiliar with both their teacher and peers ([Almajali et al., 2022](#)). Many students have stated that studying alone is uninteresting ([Price, 2009](#)). However, the accessibility of the internet while alone can tempt students to engage in more appealing activities like playing online games, chatting with friends, or conducting other web searches, potentially hindering their ability to learn effectively ([Almajali et al., 2022](#)). Additionally, the idea of self-learning and self-doing may reduce students' motivation, particularly if they are not familiar with the system ([Abbad et al., 2009](#)). Using e-learning as a teaching approach has been found to isolate students and reduce their interaction and interpersonal connections, according to a relevant report by [Arkorful and Abaidoo \(2015\)](#). Students believe that online education will enable them to excel; however, some students oppose educational technology because they feel it limits their interaction with others ([Almajali et al., 2022](#)).

Furthermore, the rapid transition to online classes, using mobile phones to attend classes, and the need to manage household chores and take care of siblings while at-

tending online classes have further contributed to insurmountable distress. Similarly, [Sundarasan et al. \(2020\)](#) found that some students attending 6–8 hours of online classes daily using their mobile phones experienced heightened stress levels and health problems. In addition, overwhelming expectations from instructors, including several assignments and no flexible deadlines, and the need to manage household chores and take care of siblings while still attending online classes added to the students' anxiety levels.

Moreover, lack of access to a computer at home and limited computer literacy for learning processes may have exacerbated the impact on students' psychological well-being, which further increasing distress levels. These results align with studies conducted by [Thandavaraj et al. \(2021\)](#) and [Nikian et al. \(2013\)](#), which highlighted the unavailability of appropriate educational tools, insufficient number of available computers, and inadequate technological support as primary obstacles in utilizing technology in the virtual classroom.

Additionally, instructors have identified several factors that makes online teaching more challenging, as outlined in Table (6). These factors predominantly include shifting teaching to the online format, doubts about students' ability to use technology, lack of students' participation or cooperation, increased workload and time demands, difficulty in building and maintaining connections with students, insufficient level of skills and knowledge related to the use of technology, and lack of training and experience in distance or online learning. Similar challenges were reported by [Thandavaraj et al. \(2021\)](#), who noted that teachers faced anxiety and stress because they were not fully prepared for a full online experience. Moreover, [Haider and Al-Salman \(2020\)](#) found that the transition to online teaching was not without its difficulties. Instructors encountered various challenges, primarily related to technical and internet issues and student engagement. Similarly, [Amarilla and Vargas \(2009b\)](#) asserted that technology has brought several mental effects resulting from factors such as lack of training, which led to anxiety and stress among online virtual classroom educators. Nevertheless, [Nikian et al. \(2013\)](#) found that teachers demonstrated high levels of skill in utilizing innovative technological devices, with minimal problems in integrating technology into their teaching practices.

Overall, the results revealed that both students and instructors still feel stressed and dissatisfied because of the transition to online learning with other specific issues that are worth to be taken into consideration by the universities and stakeholders to improve the online learning environment by taking into account the perspectives and obstacles of both groups. Additionally, integrating discussions on anxiety levels and potential stressors provide a deeper understanding of the psychological effect of online learning among students and instructors in the post COVID-19 pandemic.

6 Conclusion, Recommendations and Limitations

This study investigates the perceptions of students and instructors regarding online learning adoption, especially in the post - COVID-19 pandemic era. The findings of this study confirms that remote learning has contributed to significant anxiety among students and instructors alike. Moreover, the results highlight the importance of addressing

the diverse demands and challenges that both groups encounter in order to establish a helpful and encouraging online learning environment.

Building upon these findings, decision-makers in the domains of mental health and higher education should give more consideration and observation to the mental well-being of college students and instructors. Additionally, faculty members should put into practice practical strategies to make distant learning more engaging and student-friendly through the adoption of modern, interactive asynchronous methods and the reevaluation of course structures and evaluation methods (Alsoud and Harasis, 2021; Al-Tammemi et al., 2020; Holmes et al., 2020).

Furthermore, it is essential for stakeholders in the education sector to recognize the urgent need for comprehensive policies to manage the psychological impacts of transitioning to online learning. This includes implementing mental health support services such as hotlines to provide guidance and assistance to students and instructors coping with academic stressors and other mental health concerns (Al-Tammemi et al., 2020). In light of potential future transitions, it is essential to consider such as student-faculty interaction and peer engagement to ensure a successful online learning environment (Haider and Al-Salman, 2020). Similarly, as previously suggested, immediate action should be taken to enhance the online learning experience and address any related technostress issues among students and instructors (Al-Tammemi et al., 2020).

Despite efforts to choose participants with ample experience in online learning, especially in the Humanities and Sciences fields, the limited sample size may limit the generalizability of the results. It is recommended that larger and more varied sample sizes be used in future studies to better validate the findings and improve their generalizability across various contexts.

Furthermore, the study was limited to university students and instructors; therefore, the findings cannot be generalized to high school students and instructors. There could be differences in experiences and results between university and high school settings due to variations in curriculum structures, educational environments, and demographic factors. Additionally, future research could investigate other variables such as gender, level of education, field of study, familiarity with technology, and years of teaching experience, which were not explored in this study due to its limitations. Moreover, research indicates that university students seemed to find the transition to online learning easier than high school students, with rural students facing greater challenges than those in urban areas (Almajali et al., 2022). Consequently, future studies should focus on investigating the experiences of school students, especially those living in rural regions.

According to Johnson et al. (2020), COVID-19 had a swift and significant impact on higher education globally, causing a shift to emergency remote teaching. Faculty members who had never taught online before were forced to get the required training and adjust to the new teaching-learning paradigm. It is clear that not all instructors were capable of working well online, as it was their first time teaching online. Additionally, this transition emphasizes the increasing reliance on technology in education and its impact on instructors and students of different ages. Students and instructors of different ages may have had varying levels of familiarity with digital tools. The findings of this study indicate that both students and instructors had limited computer literacy for learning

processes and lacked training and experience in distance learning. These factors were identified as significant stressors during the transition, which might contribute to their psychological distress.

Understanding the relationship between age and the adoption of digital learning methods among students and instructors in the context of the COVID-19 epidemic holds significant implications for educators and policymakers. Understanding how different age groups engage with digital technologies can help educators and policymakers developing specific methods to support effective learning experiences as the pandemic necessitated a rapid transition to online learning. Future research should investigate the relationship between age and the adoption of digital learning and teaching methods among students and instructors due to COVID-19 pandemic at selected Jordanian universities. This is particularly relevant given that this study could not explore this relationship in the context of Jordanian universities due to the small sample size of both students and instructors. Moreover, future studies with larger, more diverse samples are vital to gain a deeper understanding of the impact of age on the adoption of digital learning and teaching methods.

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