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THE IMPACT OF SMARTPHONE USAGE ON STUDENTS' LIFESTYLES FROM THE PERSPECTIVE OF STUDENTS' LEARNING, PHYSICAL ACTIVITY, AND SOCIAL RELATIONSHIPS

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ABSTRACT

This study aimed to investigate the impact of students' use of smartphones on their lifestyles at the university stage. Using an analytical descriptive approach and data collected by self-administered questionnaires comprising 36 items, smartphone usage was measured by determining the type of smartphone, family and environment orientations toward smartphone usage, and the psychological motivations for using smartphones. Students' lifestyles were estimated by the learning, physical activity, and social relationships of students. The study's instrument reliability and validity were tested and then the questionnaire was distributed randomly to 285 students enrolled in Princess Rahma College of Al-Balqa Applied University, in different scientific fields. By using simple and multiple regression analyses, the study established that students are psychologically motivated to use smartphones and that their families' orientations and their environment orientations towards using smartphones significantly affect the students' lifestyles at the significance level of $\alpha \leq 0.05$. The type of smartphone device did not significantly affect the students' lifestyles at the level of $\alpha \leq 0.05$. According to the study's results, a set of recommendations were provided that include the responsibility of educational institutions, families and media to create awareness of the negative aspects of excessive smartphone use.

Contribution/Originality: The paper contributes the first logical analysis of family orientations, environment orientations, and psychological motivations of students' usage of smartphones. It also contributes to paving the fundamentals for suitable means and techniques to control behavior to counteract the damage that excessive smartphone use can cause to students' social relationships, their physical activity, and learning.

1. INTRODUCTION

In the last 20 years, the number of smartphone subscriptions has grown from 12.4 million to 5.6 billion worldwide, forming 70% of the global population (Mushroor, Haque, & Amir, 2020). This astounding increase in mobile phone subscriptions is due to the increased flexibility of mobile phones to use internet-based applications, especially those related to social media, such as Facebook, Twitter, TikTok, and Instagram. Students' use of digital technology has increased over the past two decades. Many questions have arisen concerning how much time is spent using these digital technologies and how it affects students positively and negatively. Using digital technology in moderation offers students many potential benefits. Some scholars (e.g., Davis, 2013; George & Odgers, 2015; Groarke, 2014) claim that digital technology brings great benefits to students, especially during the university stage, such as offering new opportunities for performance, creativity, and expression. However, using

digital technology excessively can hold a small negative impact. Over the last two decades, some researchers have indicated that using digital technology excessively might have some negative impacts on students' lifestyles in various aspects (educational, social, psychological, and physical) (Navied, Rashid, & Sultan, 2017; Youssef, Mansour, & Abdelsalam, 2016). Smartphones have significantly changed our lives in terms of communication, information accessibility, and entertainment. Specifically for students, smartphones have made mobile learning and e-learning easily accessible (Elsobeihi & Abu Naser, 2017; Gapsiso, 2015). These highly developed educational services, and other services provided by smartphones, are critically valuated in some human crises. We have been clearly witnessing how smart devices can be used to solve problems regarding learning during the recent Covid-19 crisis. Nowadays in Jordan, and in most countries throughout the world, e-learning using smartphones plays a very significant role in all stages of education (schools, universities, and training institutes). However, in parallel with these invaluable advantages, we also have to be aware of the negatives that affect our social lives, especially when smartphones are overused and we become addicted to them (Alqarni, Chauhdary, Malik, Ehatisham-ul-Haq, & Azam, 2020). Many studies have proved that there is no society with full immunity against the influence of digital technology, where it has become an effective power in the global social system because of its wide use as a means of communication, education, and entertainment (Al-Hamad, Al-Hamad, & Al-Omari, 2020; Ifeanyi & Chukwuere, 2018). Wide smartphone use by students has had many negative impacts on both psychological and physical aspects. This cumulative negative result of smartphone usage on human health paid scientists interested in medicine and health to establish guidelines and standards that may reduce excessive smartphone usage and reduce the associated negative effects on users (Kim, Kim, & Jee, 2015; Mushroor et al., 2020).

1.1. Problem Statement

The excessive use of smartphones by students has led to them exceeding their goals of communication and education. This behavior has become very common today and is seen as normal by family members. At the same time, several studies have been advising against the excessive use of smartphones. In this context, numerous studies (e.g., Dalgarno, Kennedy, & Bennett, 2014; Fernández-Silverio, Renukappa, & Suresh, 2018) have shown that families are exposed to many challenges and growing dangers by the excessive use of modern means of communication and smartphones. Many students across the world spend most of their time watching, playing, or practicing a vast number of subjects using smartphones, and do not care about their physical position, screen brightness, or screen distance from their eyes, which leads to many negative consequences, such as eye irritation or lack of memory and concentration (Aronson & Arfstrom, 2013; Bezinović, Roviš, Rončević, & Bilajac, 2015).

Many Jordanian educational institutes as well as families have been suffering from the problem of excessive use of smartphones by students and are therefore searching for suitable means and techniques to help control the students' behavior to mitigate the associated risks.

1.2. Aim and Objectives

The study aims to investigate the impact of students' use of smartphones on their lifestyles at the university stage. From the aim, the following objectives can be extracted:

1. Identify the level of students' use of smartphones at the university stage in Jordan.
2. Investigate the impact of the type of smartphone on students' lifestyles at the university stage in Jordan.
3. Investigate the impact of psychological motivations to use smartphones on students' lifestyles at the university stage in Jordan.
4. Investigate the impact of students' families' orientations towards using smartphones on students' lifestyles at the university stage in Jordan.
5. Investigate the impact of environment orientations towards using smartphones on students' lifestyles at the university stage in Jordan.

1.3. Research Significance

The importance of the current study is manifested in the follows:

Theoretically, the current study provides an overview of smartphones and the relationship of students with this attractive and prominent technology. It then explains the positive aspects of their use, as well as the negative consequences of their use on the students, especially at the university stage. Consequently, the current study is considered an important addition to the Jordanian Library, as students and researchers can refer to it during their own studies. Practically, Jordanian families and institutes interested in students' education can benefit from the current study to work with students to reduce their use of smartphones or neutralize the negative effects as much as possible.

1.4. Research Hypotheses

Figure 1 below presents the conceptual model of the study. Students' use of smartphones is the independent variable in the model, which was measured through four facets, namely smartphone device type, family orientations toward using a smartphone, environment orientations, and the psychological motivation to use smartphones. The right block in Figure 1 presents the dependent variable in the model, students' lifestyles, which were gauged based on three main facets, namely learning, physical activity and social relationships. The following hypotheses are tested in the study and are projected in Figure 1 below.

(H0): Students' use of smartphones at the university stage does not have a significant impact on students' lifestyles at the significance level of $\alpha \leq 0.05$.

H0-1: The type of smartphone device does not have a significant impact on students' lifestyles at the significance level of $\alpha \leq 0.05$.

H0-2: "Students' psychological motivations for using smartphones" does not have a significant impact on students' lifestyles at the significance level of $\alpha \leq 0.05$.

H0-3: "Students' family orientations towards using smartphones" does not have a significant impact on students' lifestyles at the significance level of $\alpha \leq 0.05$.

H0-4: "Students' environment orientations towards using smartphones" does not have a significant impact on students' lifestyles at the significance level of $\alpha \leq 0.05$.

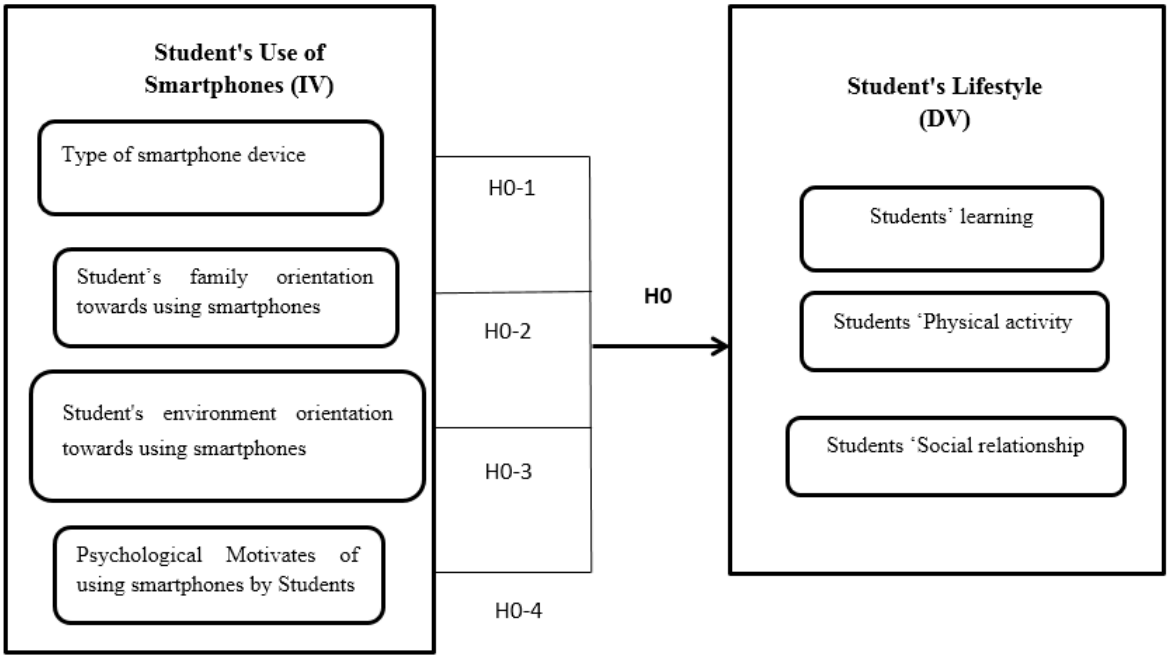

Figure-1. The conceptual model for the study.

2. THEORETICAL BACKGROUND

2.1. The Concept of Smartphones

The smartphone is a mobile phone with highly developed features (Technorati, 2019), which include a high-resolution touch screen, Wi-Fi connectivity and web browsing capabilities, among others. Tuncay (2016) defined the smartphone as a smart device that can be used for fast access to knowledge.

Haydon et al. (2012) defined the smartphone as a device that includes memory storage that enables people to save files, pictures, and videos. In addition, smartphones are easy to hold, easy to move from one place to another, and they can easily connect to the internet. Davis (2013) defined the smartphone as a device that works by a running system giving the owner the ability to use the internet and many different applications. He also defined the smartphone as a device that offers phone services, such as short message service (SMS), phone calls, and camera functionality, which satisfies the needs of humans from learning to entertainment in addition to developed applications that enable humans to communicate and access information from many different sources.

2.2. The Relationship between Smartphones and Students' Lifestyles

Smartphones are considered to be the most commonly used technology among all types of current technology (Alqarni et al., 2020). Education is a critical stage in which students must focus their efforts to determine their futures (Chouk & Mani, 2019). This always invokes searching for ways to direct students in this stage to use technology effectively to enhance their learning abilities and avoid being victims of any negative effects which will limit their abilities.

Despite the negative impacts of the excessive use of smartphones by students of varying ages, their wide range of smartphone uses in many different fields, such as practical use, learning and entertainment, has increased their importance and they are inevitably used in many areas of work and scientific fields (Chukwuere, Mavetera, & Mnkandla, 2016). The distribution of smartphones worldwide is attributed to their most common and unique properties, such as their speed of navigation, size flexibility and accessibility to link communication networks.

In addition to the original phone calling and SMS exchange services provided by earlier phones, smartphones today offer highly developed features and properties that enable people to access new, reliable, responsive, integrative, and rapid online services, such as online shopping, e-banking, and e-playbills. Abu-Shanab & Haddad. (2015). Furthermore, smartphones integrate with other e-media providing newly developed services (Alson & Misagal, 2016). For instance, smartphones have digital cameras that can take pictures and record videos using Facebook, WhatsApp, Skype, and other social media applications without the need to refer back to personal computer (PC) (Price, 2011).

The usage of smartphones has become innovative and unlimited. People today can easily find out the latest weather forecast, general news, tourism services, etc. Such quick and easy access to up-to-date information means that people are aware of current events, and enable them to live in the real world by providing in-the-moment information in any field they choose (Chukwuere, Mbukanma, & Enwereji, 2017; Miller, 2015). These highly developed services lead to saving time, money, and effort.

On the other hand, using smartphones also has negative consequences, particular regarding education. For instance, Al-Azzam (2017) indicated that using smartphones excessively could have a negative impact on students' mental and physical well-being and on their social lives. Al-Azzam also posited that the usage of smartphones may undermine and weaken students' imaginations. This may be attributed to students using smartphones to find information easily within a short space of time. This particular use of smartphones to get answers quickly without much thought may put the brain in an idle state.

The excessive use of smartphones is also likely to cause lethargy, laziness, and poor concentration caused by watching fast-moving scenes and pictures that may include games and applications. This leads students to save and

store these pictures or actions in their minds and recall them, even after they stop playing and watching (Al-Hamad et al., 2020).

Using smartphones excessively also causes students to lack social skills, such as talking with others, social physical communication (e.g., shaking hands when greeting someone) and gestural social communication (smiling), that may lead them to do the opposite, which may lead to feeling ashamed and becoming introverted (Bezinović et al., 2015; George & Odgers, 2015). Furthermore, if a student continues watching these scenes, he or she may be more inclined to show an increase in aggressive social behavior (Masiu & Chukwuere, 2018). Since 1990, Jordanian universities have witnessed unprecedented aggression among their students, especially during the first and second years of university. Many of the aggressive students had been charged with the significant effect of smartphones' abuse on their personalities, such as failure to comply with university instructions, absence of lectures' attendance, low-level learning behavior, etc.

From previous literature, it can be said that using smartphones excessively has many impacts on students, both negative and positive, from educational, physical, social and mental perspectives. However, these impacts are not limited to students; they also impact students' environments, especially family members.

2.3. Impact of Time Spent Using Smartphones on Students' Learning

Smartphones are not exclusively used for making phone calls, they are also widely used for coordinating our everyday lives. Using smartphones extensively has encouraged the development and improvement of several information technology applications that provide multiple services, especially those related to learning. On the other hand, the emergence of smartphones has changed the style of students' learning, whereby they no longer rely on paper-based materials. Masiu & Chukwuere (2018) emphasized that smartphones simplify students' lives by enabling them to access educational information, follow up on lessons and complete their assignments.

Smartphones have led to a new paradigm called mobile learning (Halder, Halder, & Guha, 2015). Students can use smartphones to access content on websites, find information, and share and collaborate with their peers to create rich material for their teachers (Utulu & Alonge, 2012). Maximizing the use of smartphones in the educational process can change our perspective and lead us to see them as troublesome devices and continually strive to use them more effectively for learning (Masiu & Chukwuere, 2018).

The successive development in smart devices has introduced integrated smart tools and applications that facilitate the process of learning, such as remotely listening to a lecturer, watching online learning videos, sending and receiving emails, and recording teaching videos (Elsobeihi & Abu Naser, 2017; Gapsiso, 2015). Furthermore, smart devices have the capacity to download applications that facilitate e-learning (Tuncay, 2016). For instance, the Microsoft Teams application allows a group of people to communicate online, with each member of the session able to share his or her information synchronously.

2.4. Impact of Time Spent Using Smartphones on Students' Social Relationships

It is generally found that students' social relationships are stimulated by digital technology; students use digital technology to enhance their existing relationships and stay in touch with friends and family. Vandana & Singh (2016) mentioned that university students are more inclined to use smartphones for social communications than older people because they are often passionate about changing their lifestyle, which is typically presented in mobile technology. However, smartphones are useful to a certain extent, but increasing their use unconsciously can lead to introversion and isolation from other people, even in the same family (Elsobeihi & Abu Naser, 2017).

Smartphones are characterized by their internet-based connectivity associated with the capability to install a wide range of social media applications. This characteristic has spurred students in the same class or group, even in remote sites, to communicate on many social matters. Accordingly, this social behavior has decreased students' engagement in face-to-face communications with their families, peers and friends (Groarke, 2014). It is evident that

students today are suffering from loneliness and isolation due to the Covid-19 pandemic. Although smartphones play a major role in supporting online communication between people across the world and reinforcing e-learning, this persistent and inevitable communication has created a significant lack of face-to-face interaction leading to isolation and distraction, even among family members (Gapsiso, 2015).

Some studies (e.g., Gapsiso, 2015; Samaha & Hawi, 2016) have asserted that the impact of digital technology on students' social relationships follow four main hypotheses, some of which predict positive outcomes, while others predict negative ones. The first hypothesis is called the displacement hypothesis, which confirms that online social interaction replaces to face-to-face interaction. The second hypothesis is the rich-get-richer hypothesis, which suggests that those who have strong social networks and skills benefit from digital technologies more than those who don't. The third hypothesis is called the compensation hypothesis, which is related to socially anxious and isolated people, where those people feel more comfortable making friends online. The fourth hypothesis is the simulation hypothesis, which suggests that online communication stimulates communication with existing friends, leading to mostly positive outcomes and stronger friendships overall.

2.5. Impact of Time Spent Using Smartphones on Students' Physical Activity

It is known that smartphones emit microwave radiation and radiofrequencies. When an individual is exposed to this type of radiation they are more likely to suffer from health problems, including nausea, dizziness, poor memory and concentration, sleep disturbance, headaches, and electroencephalographic activity (Mushroor et al., 2020).

Activities carried out on smartphones, such as sending and receiving messages, browsing the internet and following up on social networking sites are defined as sedentary behaviors (Rosenberg et al., 2010). Many health problems, especially obesity, are attributed to sedentary behavior because of the low level of body energy expenditure (Kim et al., 2015). Sedentary behavior is mostly caused today by spending too much time on mobile technology usage, especially smartphones (Tammelin, Ekelund, Remes, & Näyhä, 2007).

The relationship between time spent using digital technology and physical activity has attracted a great deal of attention. The more time spent on digital technology, the less time spent on physical activity, which might be a contributing factor to student and adolescent obesity and physical health problems (Haug et al., 2015). However, evidence regarding the impact of time spent using digital technology on physical activity is mixed and inconclusive. Some studies have suggested that this relationship is not direct, and that reducing time spent using digital technology does not necessarily motivate students to spend more time on physical activity.

3. LITERATURE REVIEW

Mushroor et al. (2020) evaluated the effect of smartphones and mobile devices on human health. The study was applied to 440 individuals whose ages ranged between 17 and 70 years of age using interviews and semi-structured questionnaires. The results showed that 22.7% of the respondents have ear-related problems, 50.7% lacked memory and concentration, and 47.3% confirmed that their increased use of mobile devices has hampered their family relations.

A study by Masiu & Chukwuere (2018) investigated the impact of smartphones on the learning process in South Africa. Data was collected from 375 students at Mafikeng University using a structured questionnaire. The results showed that the usage of smartphones by university students have a positive impact on their academic progress as well as their social networking.

Ifeanyi & Chukwuere (2018) applied a study to examine the impact of smartphones on the academic performance of students. The data were collected from 375 undergraduate students at North-West University in South Africa using a structured questionnaire. The results showed that most students use smartphones to engage with lecturers and their colleagues, and that smartphones distract students from their studies in certain aspects.

A study conducted by Elsobeihi & Abu Naser (2017) aimed to examine the effect of using smartphones on face-to-face communication. The data were collected from 120 students at Al-Azhar University. It was found from the results that mobile technology harms both the quality and quantity of face-to-face communication.

Kim et al. (2015) investigated the impact of excessive use of smartphones on human physical activity. The study was applied to 110 Chinese students using a structured questionnaire. The results showed that users of excessive use of smartphones engaged in less physical activity.

It can be noted from the literature review that smartphones can be used to support the students in their learning and thus enhance their academic performance. Yet, using smartphones for a wide range of activities mostly lowers the levels of social communication and physical activity.

4. METHODOLOGY

4.1. Population and Sample of the Study

The targeted population of the study included all 1100 students of Princess Rahma University College in Balqa University, Al-Salt city, in 2020. The study sample was randomly selected without bias. For an error level of 5%, and confidence of 95%, the sample comprised 285 students from different scientific fields. Out of the sampled 285 members, only nine students (3.15%) did not use smartphones. This indicates that the level of smartphone usage by university students is very high in Jordan. The number of students that were selected for data collection is 276, as they use smartphones in their daily lives.

4.2. The Study Instrument

The questionnaire was prepared based on the literature review of the current study topic and concepts, and it was composed of a total of 36 items measuring seven different variables. Each variable was measured by a number of items adopted from previous studies and adapted to fit the current study environment. Table 1 shows the number and sources of the study variables' items.

Table 1. Number and source of the instrument's items.

(IVs)			(DVs)		
Variable	**No. of items**	**Source**	**Variable**	**No. of items**	**Source**
Type of smart device	5	Al-Azzam (2017)	Students' learning	4	Chukwuere et al. (2016); Darko-Adjei (2019)
Students' psychological motivations for using smartphones	6	George & Odgers (2015)	Students' physical activity	6	Kim et al. (2015); Rosenberg et al. (2010)
Students' environment orientations towards using smartphones	5	Al-Azzam (2017); Al-Hamad et al. (2020)	Students' social relationships	5	Gapsiso (2015); Navied et al. (2017)
Students' family orientations toward using smartphones	5	Navied et al. (2017); Abu-Shanab & Haddad (2015)			
Total	21			15	

The five-point Likert scale was used to provide a more flexible response for the study sample (1 = Strongly Disagree to 5 = Strongly Agree). Then sample responses were classified into three levels (Sekaran & Bougie, 2012): Length of category = (5 − 1) / 3 = 1.33, with 1 to < 2.33 indicating a low level, 2.33 to < 2.66 indicating a medium level, and 2.66 to 5 indicating a high level.

4.3. Testing Validity

4.3.1. Content Validity

The initial copy of the questionnaire, which comprised 41 items, was presented to a number of academic arbitrators for evaluation of its appropriateness regarding the variables, language structure, overlapping of items, etc. Accordingly, the items were modified to give a total of 36 items in the final version.

4.3.2. Construct Validity

Pearson's correlation was used to determine the correlation among all the instrument variables (see Table 2). For each correlation less than 0.25, it was recommended that one of the two variables should be removed (Attia, 2016).

The correlation coefficients between the two variables of smartphone use range between 0.608 and 0.487, and the correlation coefficients between the two variables of smartphone use and the main variable (use of smartphones) range between 0.765 and 0.848. The correlation coefficients between the variables of students' lifestyles range between 0.524 and 0.7459, and the correlation coefficients between the variables of students' lifestyles and the main variable (students' lifestyles) range between 0.646 and 0.816.

4.3.3. Testing Reliability

The coefficient of Cronbach's alpha, that should be ≥ 0.60, (Sekaran & Bougie, 2012) was used to evaluate the reliability of the instrument (see Table 4).

Table 2. Cronbach's alpha values for the dimension of smartphone usage.

Variable	(Cronbach's Alpha)	No. of items
Type of smartphone device	0.921	5
Students' psychological motivations for using smartphones	0.876	6
Students' family orientations towards using smartphones	0.845	5
Students' environment orientations towards using smartphones	0.901	5
Total	0.871	21

Table 2 confirms that Cronbach's alpha coefficients for smartphone usage range between 0.845 and 0.921, indicating that the data collected are reliable.

Table 3. Cronbach's alpha values for the dimension of students' lifestyles.

Variable	Cronbach's Alpha	No. of items
Students' learning	0.812	4
Students' physical activity	0.828	6
Students' social relationships	0.911	5
Total	**0.831**	**15**

Table 3 confirms that Cronbach's alpha coefficients for "students' lifestyles" range between 0.812 and 0.911, and Cronbach's alpha for students' lifestyles as a whole is 0.831, indicating that the data collected are reliable.

5. RESULTS

5.1. Testing the Main Hypothesis

(H0): Students' use of smartphones at the university stage does not have a significant impact on students' lifestyles at the significance level of $\alpha \leq 0.05$.

This hypothesis was tested using multiple linear regressions. The results are shown in Table 4 and Table 5.

Table 4. ANOVA test and model summary.

Model Summary			ANOVA		
Model	**R**	**R-Squared**	**df**	**F**	**Sig.**
1	0.816[a]	0.666	5/276	56.742	0.000[b]

Predictors: (Constant), Type of smartphone device, psychological motivations for using smartphones, students' family orientations towards using smartphones, students' environment orientations towards using smartphones.

Table 4 shows that "students' use of smartphones" has a strong relationship with "students' lifestyles" (R = 0.81), and the variance coefficient (R^2) explains that 66.6% of the variance in "students' lifestyles" is related to "students' use of Smartphones". It has also been found that "students' use of smartphones" has a significant and positive impact on "students' lifestyles" (F = 56.742, P = 0.00).

Table 5. Coefficients of "students' use of smartphones" (IV) and "students' lifestyles" (DV).

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	**Std. Error**	**Beta**		
(Constant)	0.205	0.299		0.686	0.494
Students' environment orientations towards using smartphones	0.205	0.095	0.172	2.164	0.033
Students' psychological motivations for using smartphones	0.435	0.089	0.448	4.889	0.000
Students' family orientations towards using smartphones	0.288	0.083	0.279	3.465	0.001
Type of smartphone device	0.010	0.047	0.012	0.218	0.828

The results of the coefficients in Table 5 indicate that the variables of "students' psychological motivations for using smartphones", "students' family orientations towards using smartphones", and "students' environment orientations towards using smartphones" have significant and positive impacts on "students' lifestyles", with β = 0.448, P = 0.00, β = 0.279, P = 0.001, β = 0.172, P = 0.033, respectively, whereas the "type of smartphone device" does not have a significant impact on "students' lifestyles". The t-value indicates that "students' psychological motivations for using smartphones" has the most effective impact on "students' lifestyles" with a t-value of 4.88, followed by "students' family orientations towards using smartphones" and "students' environment orientations towards using smartphones" with t-values of 3.465 and 2.16, respectively.This indicates that the main null hypothesis should be rejected and replaced with the alternative hypothesis which states that:

H1: There is a significant impact of students' use of smartphones on students' lifestyles at the significance level of $\alpha \leq 0.05$.

5.2. Testing Sub-Hypotheses

The sub-variables of "students' use of smartphones" have been tested independently against "students' lifestyles" using a simple regression analysis.

5.3. Testing the First Sub-Hypothesis

H0-1: The type of smartphone device does not have a significant impact on students' lifestyles at the significance level of $\alpha \leq 0.05$.

Table 6. Coefficients of "type of smartphone device" (IV) and "students' lifestyles" (DV).

	Model Summary		Coefficients		
	R	**R^2**	**Std. Error**	**t**	**Sig.**
(Constant)	0.404	0.163	5.281	3.185	0.154
Type of smartphone			1.282	0.65	0.122

Note:
a. Dependent Variable: Students' lifestyles.
b. Predictors: (Constant), Type of smartphone.

Table 6 shows that "type of smartphone device" does not have a significant impact on "students' lifestyles".

5.4. Testing the Second Sub-Hypothesis:

H0-2: "Students' psychological motivations for using smartphones" does not have a significant impact on students' lifestyles at the significance level of $\alpha \leq 0.05$.

Table 7. Coefficients of "students' psychological motivations for using smartphones" (IV) and "students' lifestyles" (DV).

	Model Summary		Coefficients		
	R	R^2	Std. Error	t	Sig.
(Constant)	0.670[a]	0.448	0.334	1.974	0.051
Students' psychological motivations for using smartphones			0.081	9.794	0.000

Note:
a. Dependent Variable: Students' lifestyles.
b. Predictors: (Constant), Students' psychological motivations for using smartphones.

It can be noted from Table 7 that there is a strong relationship (R = 0.67) between "students' psychological motivations for using smartphones" and "students' lifestyles". The variance coefficient (R^2) explains that 44.8% of the variance in "students' lifestyles" is related to "students' psychological motivations for using smartphones". Table 7 also shows that "students' psychological motivations for using smartphones" has a significant and positive impact on "students' lifestyles", where t = 9.794 and $p = 0.00 \leq 0.05$.

5.5. Testing the Third Sub-Hypothesis

H0-3: "Students' family orientations towards using smartphones" does not have a significant impact on students' lifestyles at the significance level of $\alpha \leq 0.05$ level.

Table 8. Coefficients of "students' family orientations towards using smartphones" (IV) and "students' lifestyles" (DV).

Model		Model Summary		Coefficients		
		R	R^2	Std. Error	t	Sig.
1	(Constant)	0.778[a]	0.605	0.224	4.164	0.000
	Student's family orientations towards using smartphones			0.056	13.382	0.000

Note:
a. Dependent Variable: Students' lifestyles.
b. Predictors: (Constant), Students' family orientations towards using smartphones.

Table 8 indicates that there is a strong relationship (R = 0.77) between "students' family orientations towards using smartphones" and "students' lifestyles". The variance coefficient (R^2) explains that 60.5% of the variance in "students' lifestyles" is related to "students' family orientations towards using smartphones". Moreover, it can also be noted that "students' family orientations towards using smartphones" has a significant and positive impact on "students' lifestyles", where t = 13.382 and $p = 0.00 \leq 0.05$.

5.6. Testing the Fourth Sub-Hypothesis

H0-4: "Students' environment orientations towards using smartphones" does not have a significant impact on students' lifestyles at the significance level of $\alpha \leq 0.05$.

Table 9. Coefficients of "students' environment orientations towards using smartphones" (IV) and "students' lifestyles" (DV).

Model		Model Summary		Coefficients		
		R	R^2	Std. Error	t	Sig.
1	(Constant)	0.708[a]	0.502	0.261	4.202	0.000
	Students' environment orientations towards using smartphones			0.067	10.900	0.000

Note:
a. Dependent Variable: Students' lifestyles.
b. Predictors: (Constant), students' environment orientations towards using smartphones.

Table 9 indicates that students' environment orientations towards using smartphones have a strong relationship with students' lifestyles, with a correlation coefficient of 0.708. Also, it can be noted that 52.2% of the variance in "students' lifestyles" is attributed to "students' environment orientations towards using smartphones". Table 9 also shows that "students' environment orientations towards using smartphones" has a significant impact on "students' lifestyles", where $t = 10.900$ and $p = 0.00 \leq 0.05$.

6. DISCUSSION

First, the results of the study have proved that "students' psychological motivations for using smartphones" significantly affects "students' lifestyles" at $\alpha \leq 0.05$.

This may be attributed to the fact that students in university are more inclined to watch entertainment programs and play online games on their smartphones. Entertainment programs have a positive impact on students' mental well-being, especially if they become bored with their study routine, or if they face challenges from their peers. The entertainment and interaction created by these entertainment programs result in students spending a significant part of the day engaged in smartphone use, unaware of the effect this may have on their health. The psychological motivations for using smartphones are considered to be the factor that causes the most negative effects in students' lives.

When a student finds himself more inclined to use smartphones while in a stressed state, he will be more likely to spend many hours of the day transferring from one e-location to another, or from one e-game to another. This time spent on a smartphone may deactivate effective mental thinking compared to time spent reading or writing academic reports or engaging in research projects.

Also, students who are psychologically attracted to watching entertainment programs on smartphones are not inclined to practice physical activities, compared to those who practice physical activities regularly.

Social relationships are highly correlated with psychological motivations. Therefore, a student who has become isolated from others caused by excessive smartphone use may find himself unable to build good social relationships with others. This negative behavior may stick with the student, even into the later stages of life.

Second, it has been found by the study results that "students' family orientations towards using smartphones" significantly affected "students' health" at $\alpha \leq 0.05$. This effect reflects the extent to which students' families have on students' behavior. It is known that students' family members are considered a part of his small community, and therefore, students are often affected by their family members' behavior. This indicates that if a student's siblings also use their smartphones excessively, he may be more likely to use his smart device without fear of control coming from his parents. However, if his family members use smartphones in a balanced way, this helps him to control his own smartphone use.

Ignoring the importance of a student's time on his smartphone by himself may create mental lethargy. This negative result may affect the level of creativity and innovation at university. This may be more effective for students accustomed to using smartphone programs that do not encourage them to think and plan. This means that many smartphone programs may direct a student to take a specific action electronically without encouraging independent thought. Nevertheless, not all smartphone programs are alike in their negative effects on students' minds; rather some of them may encourage intelligent and independent thought.

Unawareness of a student's use of smartphones by his family leads to further negative results that may not be in the family's considerations. If a student finds himself enjoying entertainment programs for a long period throughout the day without his family's control, he may not be interested in taking part in physical activities.

Using smartphones for a long time with the absence of family control may lead to self-introversion. When students frequently feel affected by self-introversion, they may lack the ability to build social relationships with people in their communities.

Third, the study's results confirm that "students' environment orientations towards using smartphones" significantly affects "students' health" at $\alpha \leq 0.05$. This result confirms the effect of surrounding environments on students' behavior. It is known that students, especially in university, need to interact with their peers, and thus may be affected by their behavior. This interaction may be more effective when watching entertainment programs on smartphones. It is more enjoyable for students, especially in the first years of university, to mimic his friends by possessing a smartphone with high functionality. The continual development in smartphone technology supported by continual development in their applications motivates students to possess the newest smartphones to benefit from the latest functions. Commonly, this behavior of having newly developed smartphones spurs other students in the same community to have the same type of mobile technology.

From an educational and learning perspective, students' attempts to have the newest smartphones has the advantage of enhancing their academic performance. Some academic materials, especially those related to science and engineering, need more developed technological applications by which students can continue their learning, as these developed applications have a significant role in the learning process. Additionally, nowadays, during the current Covid-19 crisis, students in Jordan, and many other countries, need highly developed applications to attend online lectures and complete their course assignments.

From the social perspective, when a student tries to imitate his peers in his community, he may find himself more attracted to using entertainment-based applications. These applications may gradually cause a student to become isolated. When this behavior is commonly adopted by many students in the same community, this result will be reflected in their social relationships, creating self-introversion as a social phenomenon in the community.

Using smartphones to observe social media, watch videos, or play games cause students to neglect conventional physical activities, as these activities require students to organize their time and prepare for physical activities regularly.

Fourth, the results of the study proved that the "type of smartphone" does not significantly affect "students' lifestyles". This indicates that the use smartphones does not depend on the type of technology used (i.e., Apple, Samsung, Huawei, etc.) because students are more interested in applications that can be downloaded to the device to meet his requirements than his interest in the type or brand of technology.

7. CONCLUSION

Generally, mobile technology has greatly affected our lifestyles. Students in all stages of education are considered as a major part of a community that is highly affected by digital technology, especially in university, where students use mobile technology widely for various purposes. Smartphones represent the most active component of mobile technology, which has made a significant change in students' lifestyles in terms of learning, physical activity and social relationships. A review of previous studies emphasized that smartphones are regarded as a two-edged sword, with positive and negative aspects. Smartphones can be very useful for university students in all their lifestyle dimensions when their use is controlled. On the contrary, when smartphones are used excessively, the students' lifestyles will be negatively affected. For "type of smartphone", "students' psychological motivations for using smartphones", "students' family orientations towards using smartphones" and "environment orientations towards using smartphones", it was found that the type of smartphone is the only factor that does not significantly impact students' lifestyles.

8. LIMITATIONS

The current study focused on students in university. However, each individual has their own psychological and physical traits, which are reflected in their behaviors and activities. This indicates that the results of the current study may not apply to students in different stages of their education. The current study used a questionnaire which

was filled out by the students of Princess Rahma University College in Balqa University, which may cause the collected data to be exposed to bias and partiality.

9. RECOMMENDATIONS

According to the study results, we offer following recommendations:

1. Educational institutes need to focus more on helping their students to be more aware of the proper use of smartphones; this could be done through seminars, lectures, or workshops.
2. Students should regulate their smartphone usage and reduce the time spent watching entertainment programs.
3. Families in Jordan have a great opportunity to direct students during the university stage toward the proper use of smartphones. University students should not be fully independent of their families in their behavior.
4. Audio and visual media have a great responsibility and the means to increase users' awareness of the negative effects of using mobile technology excessively.

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