

# Exploring the relationship between usage of social networking sites, cyberbullying and academic performance: Evidence from the higher education sector of Saudi Arabia

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**Abstract:** *The aim of this study is to investigate the relationship between the use of social networking sites (SNS), cyberbullying (CB) and academic performance (AP). Firstly, we investigate the direct relationship between the use of social networking sites (Instagram, Facebook and TikTok) and academic performance. Secondly, the relationship between the use of social networking sites (Instagram, Facebook and TikTok) and cyberbullying is explored. Thirdly, linkages between cyberbullying and academic performance are examined. Lastly, the mediating effect of cyberbullying in the relationship between the use of social networking sites and academic performance is tested. In this study, we used quantitative survey analysis. We collect data using the research questionnaire from the graduate and postgraduate students enrolled in the universities located in Riyadh, Kingdom of Saudi Arabia. The data were analyzed using the structural equation modeling through SmartPLS 3.2.2. The findings demonstrate that in direct relationships, Facebook and TikTok have a significant relationship with academic performance. However, in the direct relationship, Instagram has an insignificant relationship with academic performance. Similarly, the outcomes confirmed that Instagram, Facebook, and TikTok have a significant relationship with cyberbullying. Furthermore, the outcomes indicate that cyberbullying has a negative impact on academic performance. Finally, the results of this study indicate that cyberbullying negatively mediates the relationship between the use of social networking sites and academic performance. At the end of the study, we have toughly discussed the conclusion, limitations and future research directions.*

**Keywords:** *Use of social networking sites, Instagram, Facebook, TikTok, cyberbullying and academic performance.*

**JEL Classification:** *M10, M15, M19.*

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## Introduction

The education sector is very important for society. Previously, when the COVID-19 pandemic disturbed the education systems worldwide (Chaudhry et al., 2023; Mohammed et al., 2022), the education system closures occurred, leading to a swift shift to remote learning. To resolve this issue, most educational institutions in the world shifted their education system from offline classes to online classes (Zhu & Liu, 2020). In this regard, educational institutes started frequently using information technology capabilities. Many universities around the world use video conferencing apps and platforms such as Google Meet, Zoom, Skype and Microsoft Teams. Social networking sites (SNS) and social media such as Facebook, Instagram and WhatsApp are used by educational institutes to stay in touch with their faculty and students (Cavus et al., 2021). As a result, post-pandemic, the use of social media and SNS increased exponentially for academic purposes. At the same time, the use of SNS also affects student's academic performance (Raza et al., 2020).

Nwosu et al. (2020) demonstrate that the rapidly increasing use of social media has progressively decreased students' academic performance. The use of SNS has increased its horizons and is becoming more popular amongst students. Social media acts as an important tool that helps make connections (Kietzmann et al., 2011). Many parents have shown concern that their children study less and spend more time using social media and constantly gain exposure to these sites, according to the results of several researchers (Jha et al., 2016; Owusu-Acheaw & Larson, 2015; Upadhyay & Guragain, 2017). Prior studies indicate that social media interaction has doubled over the last few years (Junco, 2012; Lambić, 2016). Especially with popular social media sites such as Facebook, Twitter and WhatsApp, the use of these sites has increased among university students (Lambić, 2016). This has made students use and check their cellular phones more often, after every 5 minutes. Students often distract themselves using their phones; doing

homework decreases their focus and performance (Ala'a et al., 2022; Verduyn et al., 2022).

Iqbal et al. (2021) argue that CB has also increased with the increase in social media use. Cyberbullying is one such crime, and it means posting bad thought-related messages, often done with anonymity and anybody knowing. However, students use the internet for multiple reasons, such as educational content and recreational activities to kill time. Similarly, CB has become a recreation factor for students. It involves posting and expressing opinions on personal information. Some even make pages where they troll them for being bullied (Giumetti & Kowalski, 2022). Being anonymous and having access to the internet, which facilitates bullies with large instant audiences, can affect the students during the time they study (Chan et al., 2021). Furthermore, the extensive uses of SNS have their own significance in the digital era and CB. The 21st century has numerous challenges; among these challenges, digital threats or CB is one of the challenges facing the world. Currently, more than 82% of residents in Saudi Arabia use the SNS as part of their daily lives. In the modern age, digital threats, or CB, spread all over the world. Saudi Arabia is also facing CB challenges as the rest of the world is facing them. So, many people, especially young students, face CB, which increases the stress and depression among the young people of Saudi Arabia.

Saudi Arabia is a developed economy and the fourth largest country in the Middle East (El Mallakh, 2015). The population of Saudi Arabia is 36 million, and the people of Saudi Arabia actively use SNS. Saudi Arabia's youth (14–35 years) represent 35% of the total population. Therefore, more than 70% of the youth population of Saudi Arabia are students. The students enrolled in Saudi Arabian universities are massive users of SNS (Alamri, 2019). Recently, Alwagait et al. (2015) revealed that social media use increased in Saudi Arabia by 6% (1.5 million) in 2022 compared to 2021. Saudi Arabia has 30 million social media users (82.3% of the population). However, 11.4 million

are Facebook users, 15.5 million are Instagram users, and 22.5 million TikTok users (Alamri, 2019). The above statistics highlighted that many SNS are used in the Kingdom of Saudi Arabia, but Facebook, TikTok and Instagram are messily used compared to other SN.

Previously, few studies investigated the direct association between SNS and AP (Alamri, 2019; Alwagait et al., 2015; Fati, 2022), but the three-way relationships between USNS, CB and AP are unexplored. Similarly, these studies were conducted in Europe, the USA, South Asia and African countries (Junco, 2012; Kalam et al., 2023; Karpinski et al., 2013). This is the first novel study conducted in Saudi Arabia. However, it is a novelty of the research to explore the impact of SNS on the youth of Arab society. Moreover, in previous studies, authors did not use Instagram, Facebook and TikTok as independent variables. So, this is the first study that investigates the connection between Instagram, Facebook, TikTok and AP in Saudi Arabia. Furthermore, the novelty of this study is to test CB as a mediating variable in the relationship between the use of SNS and AP. This research aims to find the association between the use of SNS, CB and AP. First, we investigate the direct relationship between SNS (Instagram, Facebook and TikTok) and AP. Secondly, this study explores the relationship between the use of SNS (Instagram, Facebook and TikTok) and CB. Third, this study examines the relationship between CB and AP. Fourth, we examine the mediating effect of CB in the association between SNS (Instagram, Facebook and TikTok) and AP. So, based on the above discussion, we proposed two research questions (RQ) below, to fulfil this study's objective and aims.

*RQ1: How does using social networking sites affect students' academic performance in Saudi Arabia?*

*RQ2: Does cyberbullying mediate the relationship between the use of social networking sites and academic performance?*

The structure of this research is as follows. The hypothesis development and conceptual framework are presented in the first section. The second section focuses on the research methods. The third section describes the results and analysis. The fourth section contains a discussion and conclusion. The last section describes the implications and future research directions.

## 1. Theoretical background

### 1.1 Use of social networking sites and academic performance

Researchers define social network sites as online platforms people use to build social relationships with others who share similar personal or career content, interests, activities, backgrounds, or real-life connections (Foroughi et al., 2022). However, the concept of AP means the individual achievement of students from different academic subjects. Educationists are concerned about SNS effect on learners' AP and achievements. Students are spending too much time on USNS, such as Instagram, Facebook and TikTok. Therefore, the use of SNS has become an essential part of student's daily life (Chang et al., 2018; Foroughi et al., 2022). Similarly, Giunchiglia et al. (2018) demonstrate that the use of SNS is easily accessible on smartphones, which attracts students to engage with the use of SNS. So, students spend most of their time on social media instead of studying. Matt et al. (2015) argue that young students spend a lot of time on the use of SNS, and as a result, it affects their sleeping time, which also affects their AP (El Abiddine et al., 2022). Another study by Slot and Oprea (2021) noted that students' unnecessary allocation of time to Facebook, TikTok and Instagram is inversely correlated to their grade point achievements, time management, and concentration on their studies. Similarly, Liao et al. (2021) discovered that the AP of the students who use SNS extensively (Facebook, Instagram, and TikTok) is weaker than that of those who do not use SNS extensively. It is also noted that the extensive use of SNSs also increases students' stress, ultimately decreasing their learning ability. However, poor learning ability decreases the students' performance (Hosen et al., 2021). Backed by these arguments, we propose the following hypotheses:

*H1a: Use of Instagram has a negative relationship with academic performance.*

*H1b: Use of Facebook has a negative relationship with academic performance.*

*H1c: Use of TikTok has a negative relationship with academic performance.*

### 1.2 Use of social networking sites and cyberbullying

Beran and Li (2005) define CB as using online resources to harm others in a hostile, repetitive, and conscious manner. These days, technological advancements have made our lives

easier. However, positive uses of technologies bring innovations and work efficiently to perform any task. Similarly, the users who are not utilizing technologies purposefully also get negative outcomes. The extensive use of SNS may lead to physical, psychological and personal security-related issues. Abaido (2020) highlights in their study that the extensive use of social media increases cyberbullying. Therefore, the victims of cyberbullying may face stress, depression and anxiety-related issues. The essential negative aspects of these online technologies' usage are aggressive behaviours such as insults, stalking, verbal abuses, and threats through the use of SNS such as Facebook, Instagram, and TikTok. Especially the use of social media by juveniles has become a big problem for CB. Robers et al. (2015) found that most students of the age 12–18 years reported that they were the victim of CB at least twice a year. Ding et al. (2020) noticed many people face CB in social media environments such as Instagram, Facebook, and TikTok. Extensive use of social media networks enhances the interaction of individuals with people of fake profiling and abusive behaviour. These abusive behaviours include sharing other people's personal information, stalking, threats and spreading rumors. Therefore, we have posed the following hypotheses based on discussion:

*H2a: Extensive uses of Instagram upsurge the cyberbullying.*

*H2b: Extensive uses of Facebook upsurge the cyberbullying.*

*H2c: Extensive uses of TikTok upsurge the cyberbullying.*

### 1.3 Cyberbullying and academic performance

Academic performance is a variable based on quantitative and qualitative measures that reflect the learners' knowledge, skills, values, and attitudes as a result of the teaching-learning process (Navarro, 2003). Prior studies represent indecisive results of CB and AP (Al-Rahmi et al., 2022; Clark-Gordon et al., 2017; Malik et al., 2020). The outcome of Macías (2010) found a negative relationship between CB and AP. However, CB has a more negative influence on the AP of learners. Torres et al. (2020) conducted the study in Spain, and the findings of their study demonstrate that university students in Spain with lower self-esteem suffered from CB in Facebook environments,

which resulted in poor AP. Research by Martínez-Martínez et al. (2020) investigated different social media network sites such as TikTok, Facebook, and Instagram and found that United States universities have shown a negative influence of CB on their AP. Okumu et al. (2020) conducted a study among university students, and their study results suggest that young students are using the SNS extensively. Hence, these young students also become the victims of CB, increasing their stress, depression, and anxiety level, negatively affecting the AP of these students. Therefore, we have posed the following hypotheses based on discussion:

*H3: Cyberbullying has a negative relationship with academic performance.*

### 1.4 Mediating effect of cyberbullying

Social media is a very important aspect of the modern age. Modern communication among young people mostly relies on the use of SNS such as Facebook, WhatsApp, Instagram, and TikTok. Social media networks provide various benefits, but their extra use also causes various negative impacts (Maftai et al., 2022; Plaisime et al., 2020). Among the various negative impacts of the extra use of social media networks, CB is a typical one, causing not only mental but also social and economic problems (Chan et al., 2021). Prior studies suggest that CB is characterized by a transformation from traditional bullying forms to online forms through the use of social media platforms (Bastiaensens et al., 2014). Recent research conducted in the UAE has revealed that CB is a considerable problem for the users of social media platforms, especially adolescents, which leads to low AP (Ercag, 2021). Alotaibi (2019) conducted a study in Saudi schools, and the outcomes of their study indicate that the CB negatively affects the student's academic achievement. Earlier studies demonstrate that extensive uses of SNS (i.e., Facebook, TikTok, WhatsApp, and Instagram) increase CB, ultimately affecting students' academic achievement (Brody et al., 2016; Gahagan et al., 2016). However, the above discussion has proven that CB mediates the relationship between the use of SNS and AP. Therefore, we propose the hypotheses based on the above literature. Moreover, Fig. 1 presents the comprehensive theoretical framework of this study.

*H4a: Cyberbullying mediates the relationship between the use of Instagram and academic performance.*

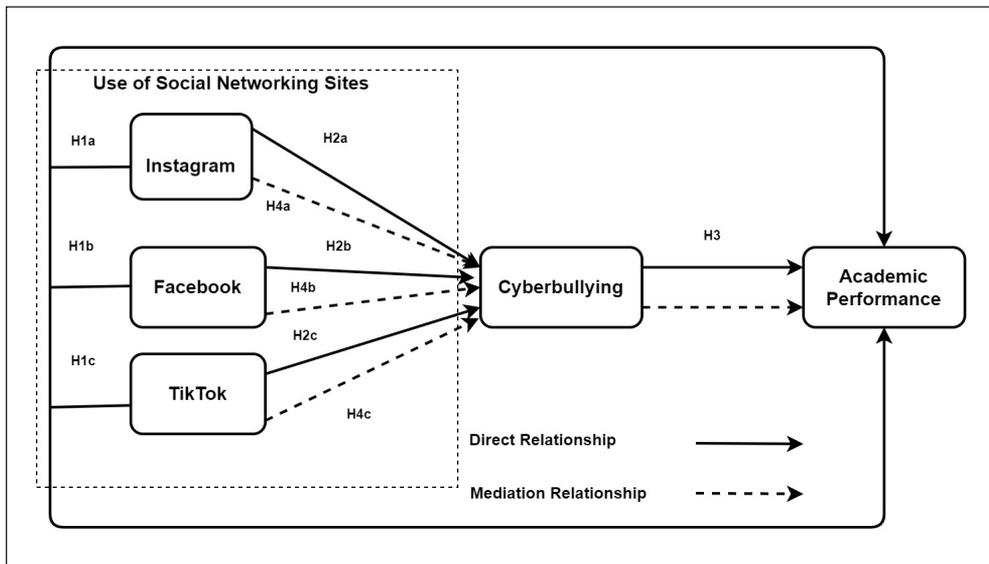


Fig. 1: Theoretical framework

Source: own

*H4b: Cyberbullying mediates the relationship between the use of Facebook and academic performance.*

*H4c: Cyberbullying mediates the relationship between the use of TikTok and academic performance.*

## 2. Research methodology

### 2.1 Research approach

In this study, we used the survey analysis approach to explore the relationship between the use of SNS, CB and AP (Amin et al., 2023). We used this research approach because it allows us to easily collect data from the target population (Jia et al., 2022). Moreover, the survey analysis approach is a low-cost approach to collecting data (Akram et al., 2019).

### 2.2 Questionnaire designing

A research questionnaire was used to collect data. The first part of the questionnaire consists of demographic data, which consists of the respondents' personal information. The second part consists of the items of use of SNS, CB and AP adopted by Iqbal et al. (2021), Laffan et al. (2022), and Iqbal et al. (2022). We use a five-point Likert-type scale ranging

from 1 = strongly disagree to 5 = strongly agree. Before data collection, pilot testing with small data was conducted to confirm the validity and reliability of the draft questionnaire. In the pilot study, we distributed 10 questionnaires among the university professors who are aware of the research topics. Moreover, we also distributed 10 research questionnaires among the university students enrolled in the Kingdom of Saudi Arabian universities. In light of the pilot study, a few minor revisions were suggested by the pilot study respondents. However, before conducting the complete research procedure, we improved the research questionnaire.

### 2.3 Variables measurements

The scale of use of SNS was adopted by Iqbal et al. (2022). The scale consists of three sub-dimensions, i.e., Instagram, Facebook and TikTok. The items of use of SNS were measured using 5-point Likert scale. Cronbach's alpha values of Instagram, Facebook and TikTok were 0.677, 0.852 and 0.741, respectively. Therefore, the outcome value of Cronbach's alpha is up to the acceptable value. The sample items on the use of SNS are as follows: "Email or other electronic means (such as Instagram,

Facebook, and TikTok) to share content with other students and teachers are very useful"; "I use Instagram to receive help from my teachers and classmates"; "I usually postpone my academic task to spend more time on Facebook"; and "I use TikTok to disseminate knowledge to my classmates."

The items scale of CB is adopted from Abaido (2020) and modified according to our study. The 5-point Likert scale items score as strongly disagree (1) and strongly agree (5). Cronbach's alpha value of CB was 0.872. Therefore, the outcome value of Cronbach's alpha is up to the acceptable value which is more than 0.70 (Samma et al., 2020). The sample items of CB were: "Over the last three years, I have had many CB experiences using SNS such as Instagram, Facebook and TikTok"; and "CB mentally and emotionally affects my behaviour and my AP."

The scale of AP was developed by Iqbal et al. (2021). The 5-point Likert scale items score as strongly disagree (1) and strongly agree (5). The Cronbach's alpha value of AP was 0.794. Therefore, the outcome value of Cronbach's alpha is up to the acceptable value which is more than 0.70 (Zaman et al., 2022). The sample items of AP were: "My grades have not improved since I became engaged in these SNS"; and "I feel that due to extensive uses of social media, I am distracting to my academic learning activities."

## 2.4 Sampling and data collocation

We collected data from the universities located in Riyadh, Kingdom of Saudi Arabia. We selected this city because it is a capital city, and most universities in the Kingdom of Saudi Arabia are in Riyadh. However, using the multistage sampling first, we selected the two universities randomly. Later, we randomly selected one department from each selected university. Each department was considered as a cluster because we have taken all students enrolled in the departments. In the first university, we distributed 400 research questionnaires among postgraduate and undergraduate students and received 257 questionnaires (64.25%). Similarly, in the second university, we distributed 300 research questionnaires and received 183 (61%). We distributed a total of 700 questionnaires, and the total number of respondents was 440 (62% of the questionnaires).

## 2.5 Demographics

This study was conducted among university students. A total of 440 university students participated; among these students, 62.50% were female, and 37.50% were male, who continued their undergraduate (56.36%) and postgraduate (43.63%) education in the Kingdom of Saudi Arabia. Moreover, the students were 18–20 years (27.27%), 20–25 years (51.59%) and above 25 years old (21.13%). A detailed description of the respondents is given in Tab. 1.

**Tab. 1: Demographics profile of the participants**

Measure	Items	Frequency (n)	Percentage (%)
Gender	Male	275	63
	Female	165	37
	Total	440	100
Education	Undergraduate	248	56
	Graduate	192	44
	Total	440	100
Age (years)	18–20	120	27
	20–25	227	52
	Above 25	93	21
	Total	440	100

Source: own

2.6 Data analysis

SmartPLS 3.2.8 was used for data analysis. There are three main reasons to adopt SmartPLS. First, SmartPLS is a powerful tool for regression analysis. Second, it is particularly advantageous when working with small sample sizes and non-normal data distributions. Third, with its user-friendly interface and robust inferential techniques like bootstrapping, SmartPLS enables researchers to explore and validate theoretical models, estimate path coefficients, and make predictions based on the model.

The analysis was comprised of CFA path analysis. We measured the inner and outer models. PLS-SEM was used in this study because it is considered the most appropriate technique for performing the multivariate analysis. The first step in regression analysis using SmartPLS is to specify the theoretical model. This involves defining the association between latent constructs and observed variables for

existing theories (Alareqe et al., 2022). We created a graphical representation of the model using the SmartPLS interface, specifying the direction and strength of the relationships. Additionally, the model included indicators of latent variables and mediating variables. Once the model was specified, SmartPLS performed an estimation procedure to estimate the parameters and test the significance of the relationships. SmartPLS used a partial least squares (PLS) algorithm, which estimated the path coefficients between variables. The algorithm was iterative and sought to maximize the explained variance in the dependent latent variables. After estimation, researchers evaluated the model fit and the significance of the estimated parameters. This involved examining the path coefficients, assessing the *R*-squared values, and conducting statistical tests such as bootstrapping to determine the significance of relationships and mediation moderation effects.

Tab. 2: Reliability and composite reliability – Part 1

Constructs	Coding	Loading	Cronbach's alpha	Rho_A	CR	AVE
AP	AP1	0.859	0.794	0.801	0.867	0.621
	AP2	0.778				
	AP3	0.782				
	AP4	0.734				
	AP5	0.757				
	AP6	0.650				
CB	CB1	0.762	0.872	0.872	0.901	0.565
	CB2	0.763				
	CB3	0.754				
	CB4	0.746				
	CB5	0.745				
FB	SNF1	0.729	0.852	0.866	0.901	0.697
	SNF2	0.730				
	SNF3	0.726				
	SNF4	0.750				
	SNF5	0.746				
	SNF6	0.773				
	SNF7	0.796				

Tab. 2: Reliability and composite reliability – Part 2

Constructs	Coding	Loading	Cronbach's alpha	Rho_A	CR	AVE
IG	SNI1	0.840	0.677	0.724	0.818	0.603
	SNI2	0.702				
	SNI3	0.737				
	SNI4	0.792				
	SNI5	0.729				
	SNI6	0.602				
	SNI7	0.632				
TT	SNT1	0.842	0.741	0.804	0.839	0.579
	SNT2	0.710				
	SNT3	0.837				
	SNT4	0.704				
	SNT5	0.695				
	SNT6	0.739				

Note: AP – Academic performance; CB – cyberbullying; FB – Facebook; IG – Instagram; TT – TikTok.

Source: own

### 3. Results and analysis

#### 3.1 Evaluation of measurement model

The first step in conducting CFA is to establish an outer model that involves specifying the association between items and relevant factors, as well as assessing the consistency. Since we collected data with a self-reported questionnaire, there were great chances of same source bias. We utilized factor analysis to create a single principal component factor. Therefore, Harman's one-factor test measured the same source bias. According to Podsakoff et al. (2003), the results should be less than 50%.

It was 37.4%, indicating that the factors exhibited no common method bias.

Factor loading for all items was satisfactory as it was above 0.4, ranging from 0.602 to 0.859. (Samma et al., 2020) suggested that the standard value of Cronbach's alpha, rho alpha (rho\_A) and composite reliability (CR) are higher than 0.7. Tab. 2 indicates that the given values were up to acceptable standards.

#### 3.2 Discriminant validity

The Heterotrait-Monotrait (HTMT) ratio measures the discriminant validity of constructs

Tab. 3: Convergent validity HTMT

Constructs	AP	CB	FB	IG	TT
AP					
CB	0.619				
FB	0.629	0.68			
IG	0.493	0.818	0.646		
TT	0.59	0.679	0.696	0.67	

Note: AP – Academic performance; CB – cyberbullying; FB – Facebook; IG – Instagram; TT – TikTok.

Source: own

in PLS-SEM (Hair Jr. et al., 2017). It indicates the extent to which two constructs differ from each other and do not measure the same traits. The discriminant validity was measured through HTMT values. The HTMT ratio was observed below 0.9, as suggested by Iqbal et al. (2021). Moreover, a detailed description of each construct is given in Tab. 3.

**3.3 Evaluation of inner model**

The inner model evaluation was performed. It involves the measurement of VIF stats, direct and indirect relations,  $R^2$  coefficient determination, relevance predictivity,  $f^2$  effect size, and goodness of fit.

**VIF values**

A detailed description of the VIF values is given in Tab. 4. The VIF values were below the threshold, less than 0.5, reflecting the absence of multicollinearity. The outcome of the analysis performed through the SmartPLS indicates no issue of multicollinearity found in the VIF stats.

**Model fitness**

We used SRMR and NFI as fit indicators available in SmartPLS. Asghar et al. (2023) recommended that the SRMR value must

be less than 0.08, while the NFI should be above 0.8. The model fit indices in this analysis showed that the NFI was 0.834 and the SRMR was 0.052, which satisfies the model fitness criteria. Unlike AMOS, SmartPLS does not provide all fit indices except for NFI, SRMR,  $d_{ULS}$ , and  $d_G$  (Hair Jr. et al., 2017). Tab. 5 presents the model fitness of this study.

**R-square**

Prior studies suggest that the  $R^2$  values must be higher than 0.1 to prove a minimum level of impact of the exogenous construct on the endogenous construct. The results of this study showed that the  $R$ -square were more than the threshold of 0.1 (Tab. 6).

**Effect size ( $f^2$ )**

The influence of an exogenous variable on the endogenous variable is tested by  $f^2$ . The  $f^2$  is considered strong with values above 0.15, moderate above 0.02 and weak below 0.02. The comprehensive findings of  $f^2$  values are shown in the summary (Tab. 7).

**3.4 Direct coefficient**

The  $\beta$  values were used to assess the hypothesis. The outcomes of the direct association between exogenous and endogenous variables

**Tab. 4: Inner VIF**

Constructs	AP	CB
AP		
CB	2.194	
FB	1.952	1.752
IG	1.884	1.501
TT	1.908	1.796

Note: AP – Academic performance; CB – cyberbullying.

Source: own

**Tab. 5: Model fitness**

Fit indices	Saturated model	Estimated model
SRMR	0.052	0.062
NFI	0.834	0.889

Source: own

**Tab. 6: Coefficient of determination  $R^2$**

Constructs	R-square	R-square adjusted
AP	0.36	0.353
CB	0.544	0.541

Note: AP – Academic performance; CB – cyberbullying.

Source: own

**Tab. 7: Effect size  $f^2$**

Constructs	AP		CB	
	Stats	Effect	Stats	Effect
CB	0.051	Moderate		
FB	0.057	Moderate	0.114	Strong
IG	0.000	No	0.255	Strong
TT	0.021	Moderate	0.063	Moderate

Note: AP – Academic performance; CB – cyberbullying; FB – Facebook; IG – Instagram; TT – TikTok.

Source: own

indicate that all direct relationships are significant. However, the relationship between Instagram and AP ( $p$ -value greater than 0.50) is insignificant. Bootstrapping assessed the  $p$ -values (Chin, 1998; Tab. 8).

### 3.5 Indirect path coefficient

Tab. 9 explains the indirect relationship between SNS, i.e., Instagram, Facebook, TikTok, CB,

and AP. Results revealed that CB negatively mediates between Instagram and AP ( $\beta = -0.110$ ,  $p < 0.05$ ). Moreover, CB also negatively mediates between Facebook and AP ( $\beta = -0.075$ ,  $p < 0.05$ ). Furthermore, the outcomes confirmed that CB is negatively mediated between TikTok and AP ( $\beta = -0.058$ ,  $p < 0.05$ ). However, the detailed description of indirect path coefficients is given in detail in Tab. 9 and Fig. 2.

**Tab. 8: Direct path coefficient**

Hypothesis	Constructs	$\beta$	$t$	$p$ -values	Status
H1a	IG → AP	0.009	0.270	0.787	Rejected
H1b	FB → AP	-0.258	4.830	0.000	Accepted
H1c	TT → AP	-0.177	2.831	0.005	Accepted
H2a	IG → CB	0.431	8.628	0.000	Accepted
H2b	FB → CB	0.292	6.937	0.000	Accepted
H2c	TT → CB	0.228	4.683	0.000	Accepted
H3	CB → AP	-0.256	4.259	0.000	Accepted

Note: AP – Academic performance; CB – cyberbullying; FB – Facebook; IG – Instagram; TT – TikTok.

Source: own

Tab. 9: Indirect path coefficient

Hypothesis	Constructs	$\beta$	Standard deviation	$t$	$p$ -values	Status
H4a	IG → CB → AP	-0.110	0.030	3.727	0.000	Accepted
H4b	FB → CB → AP	-0.075	0.022	3.639	0.000	Accepted
H4c	TT → CB → AP	-0.058	0.019	3.226	0.001	Accepted

Note: AP – Academic performance; CB – cyberbullying; FB – Facebook; IG – Instagram; TT – TikTok.

Source: own

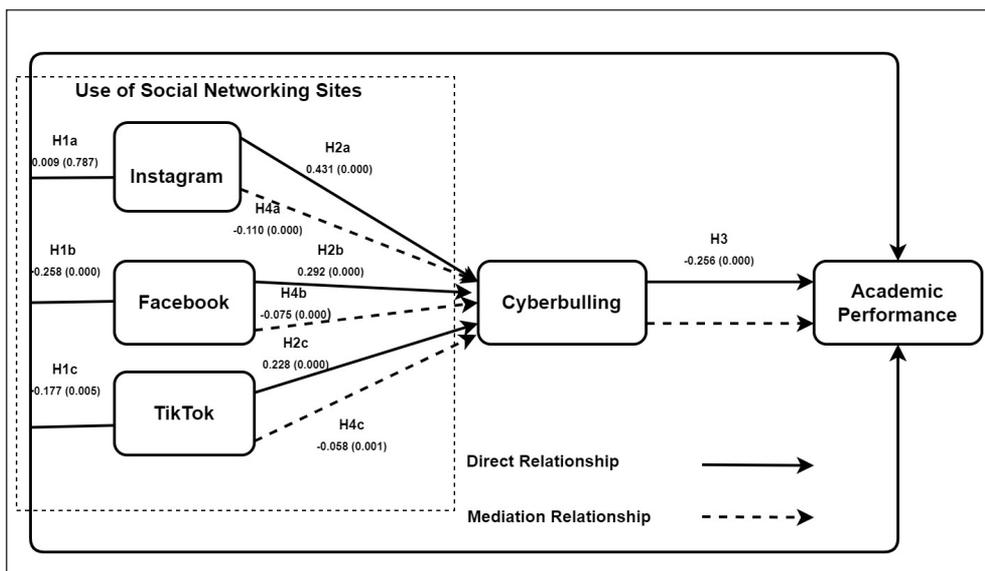


Fig. 2: Path analysis

Source: own

#### 4. Discussion

The aim of the study was to investigate the direct and indirect connection between the use of social networking sites (i.e., Facebook, TikTok, Instagram), cyberbullying and academic performance. The model was tested in four phases. In the first phase, the direct relationships between the use of social networking sites and academic performance were tested. In the second phase, the relationship between social networking sites and cyberbullying was assessed. The third phase examined the linkages between cyberbullying and academic performance. Lastly, the mediation

mechanism of cyberbullying for the relationship between social networking sites and academic performance was tested.

The results of hypotheses *H1a*, *H1b*, and *H1c* explain the direct negative relationship between academic performance and social networking sites, i.e., Instagram, Facebook, and TikTok. The findings demonstrate that *H1b* and *H1c* are accepted with  $\beta$  coefficient values of  $-0.25$  ( $p < 0.05$ ) for Facebook and  $-0.177$  ( $p < 0.05$ ) for TikTok, respectively. However, the proposed negative relationship between Instagram and academic performance was not accepted, with an insignificant  $\beta$  value of  $0.009$

( $p = 0.78$ ). These results are consistent with the findings of Azizi et al. (2019); the authors conducted a study among 360 Iranian medical sciences students. Their result showed a significant negative relationship between students' use of social media sites and academic performance. This similarity bolsters the fact that despite its crucial role in learning and communication in academia, social media's negative impact can outweigh its benefits. It damages the physical and psychological health of the students and produces mental disorders, stress and anxiety (Ramesh Masthi et al., 2018). Moreover, results are also aligned with the social influence theory, which suggests that individuals can experience a modification in their behaviours (intentionally or unintentionally) under the pressure of an influencer based on the strength of their relationship. Social media is a source of influence. This influence can be negative or positive depending on the individual's own personality. The use of social networking sites creates excessive pressure on college students to conform with the trends. Students disregarding these trends are viewed as old-fashioned and outdated. Consequently, the majority of college students dedicate a good share of their time to using social media for their survival (Iqbal et al., 2021). Likewise, social media addiction is also linked with procrastination and laziness (Latipah et al., 2021). These behaviours eventually lead to deteriorating academic performance.

The outcome of this study indicates that the *H2a*, *H2b* and *H2c* are accepted. This indicates that ample use of social media platforms by college students makes them more prone to cyberbullying. Social networking sites host millions of users worldwide, including perpetrators who can identify and target vulnerable individuals (Chan et al., 2019). This result is consistent with the results of Çimke and Cerit (2021), the researchers investigated 518 health sciences students to identify the link between social networking sites and cyberbullying. Their findings revealed that students with higher social media addiction experience a higher level of cyberbullying. The rationale behind this positive relationship can be the fact that social media is a big part of college life, where students like to be in touch with each other for academic and extra circular activities. However, due to the high accessibility and manipulative nature of social media, perpetrators can easily

make fake profiles, stay anonymous and violate victim's privacy, and cyberbullying can be more easily executed.

The finding of hypothesis *H3*, stating a negative relationship between cyberbullying and academic performance, was supported by  $\beta = -0.25$  ( $p < 0.05$ ). This depicts that students experiencing high cyberbullying will exhibit low academic performance. The logical verification of this relationship is backed by the fact that cyberbullying has a deep-rooted psychological and emotional impact on individuals (Chan et al., 2019). People facing cyberbullying are under constant pressure to preserve their self-image and shield themselves from negative comments and judgments. They experience high stress, anxiety and depression (Çimke & Cerit, 2021). Consequently, students experiencing cyberbullying will spend more time counter-fighting it than focusing on the academic requirements. The results are consistent with the findings of Martínez-Martínez et al. (2020), where investigators tested the relationship between cyber victimization and academic performance on a sample of 3,451 secondary school adolescents. Their findings revealed a negative relationship between cyber victimization and academic performance.

The results of hypothesis *H4*, proposing a mediation mechanism of cyberbullying for the relationship between the uses of social networking sites and academic performance, were also supported for Facebook, TikTok and Instagram. The outcomes also indicate that cyberbullying channelizes the negative relationship between the use of social networking sites and academic performance. This shows that exposure to cyberbullying is linked with various negative outcomes like depression and anxiety stress, which can, in turn, affect academic performance.

#### Limitations and future research directions

As no study can be perfect in all aspects, the current study also has some limitations. Firstly, it is a cross-sectional study, and researchers like Malhotra et al. (2017) have argued that the common method variance can be a concern for cross-sectional studies. Future research can be undertaken by using the time lag method to remove common method bias. Similarly, the study was done in the narrow cultural context of Saudi Arabia, where the internet is accessible. Moreover, in the Kingdom of Saudi Arabia, the use of social

networking sites is freely available, and cyberbullying among university students is increasing day by day. The same study can be replicated in countries with tight cyber security rules, and a comparison can be drawn between these two different contexts. In a similar fashion, the concept of bullying can be context-specific as well. The study was conducted in the Kingdom of Saudi Arabia, where bullying is part of academic life and integral to social closeness and bonding. Future studies should be undertaken in more individualistic societies to produce generalized results. Lastly, the current study has not configured the role of personal characteristics in handling the negative effects of cyberbullying on academic performance. Personal characteristics like personality, emotional intelligence, and self-efficacy can shape one's coping strategies of cyberbullying. Personality factors and personal skills and attitudes can be taken as moderators of the relationship between cyberbullying and academic performance in future studies.

### Conclusions

This study aimed to assess the relationship between the use of social networking sites, cyberbullying, and academic performance. The findings concluded that increased usage of social networking sites platforms such as Facebook and TikTok was associated with a decrease in academic performance, highlighting the negative impact of social media on student outcomes. Additionally, a positive correlation was observed between cyberbullying and usage of social networking sites, indicating that social media use among students has been linked to a rise in online harassment incidents. The ease of connectivity can amplify negative behaviours, necessitating efforts to promote digital well-being and combat cyberbullying. Similarly, the outcomes of this study demonstrate that cyberbullying negatively affects the academic performance of students. As a result, students face psychological issues such as stress, burnout, anxiety, and depression. Moreover, this study concludes that frequent use of social networking sites increases cyberbullying among students, which also affects the academic performance of the students. Similarly, persistent online harassment may lead to decreased self-esteem and increased stress levels, affecting academic performance. So, the higher education sector must create awareness, implement preventive measures,

and foster a positive online culture, which is crucial in mitigating these adverse effects.

This study recommends some strategies that will reduce cyberbullying and increase the student's academic performance. First, the higher education sector implements comprehensive digital literacy programs to educate students on responsible online behaviour, recognizing and reporting cyberbullying. Second, the higher education sector establishes anonymous reporting mechanisms to encourage students to report instances of cyberbullying without fear of retaliation, fostering a safer online environment. Third, the higher education sector of emerging countries like Saudi Arabia promotes peer support programs where students can help each other navigate online challenges, creating a supportive community against cyberbullying. Fourth, the higher education sector connected with the parents and encouraged them to engage actively in their child's online activities, fostering open communication about potential issues and reinforcing positive online behaviour. Fifth and last, the higher education sector incorporates regular mental health check-ups and counselling services to address the emotional impact of cyberbullying, promoting overall well-being and academic success.

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### References

- Abaido, G. M. (2020). Cyberbullying on social media platforms among university students in the United Arab Emirates. *International Journal of Adolescence and Youth*, 25(1), 407–420. <https://doi.org/10.1080/02673843.2019.1669059>
- Akram, M. S., Malik, A., Shareef, M. A., & Awais Shakir Goraya, M. (2019). Exploring the interrelationships between technological predictors and behavioral mediators in online tax filing: The moderating role of perceived risk. *Government Information Quarterly*, 36(2), 237–251. <https://doi.org/10.1016/j.giq.2018.12.007>
- Ala'a, B. A.-T., Nheili, R., Jibuaku, C. H., Tamimi, D. A., Aljaberi, M. A., Khatatbeh, M., Barakat, M., Al-Maqableh, H. O., Fakhouri, H. N. (2022). A qualitative exploration of university

- students' perspectives on distance education in Jordan: An application of Moore's theory of transactional distance. *Frontiers in Education*, 7. <https://doi.org/10.3389/feduc.2022.960660>
- Alamri, M. M. (2019). Undergraduate students' perceptions toward social media usage and academic performance: A study from Saudi Arabia. *International Journal of Emerging Technologies in Learning (IJET)*, 14(03), 61. <https://doi.org/10.3991/ijet.v14i03.9340>
- Alareqe, N. A., Hassan, S. A., Kamarudin, E. M. E., Aljaberi, M. A., Nordin, M. S., Ashureay, N. M., & Mohammed, L. A. (2022). Validity of adult psychopathology model using psychiatric patient sample from a developing country: Confirmatory factor analysis. *Mental Illness*, 2022, 1–12. <https://doi.org/10.1155/2022/9594914>
- Alotaibi, N. B. (2019). Cyber bullying and the expected consequences on the students' academic achievement. *IEEE Access*, 7, 153417–153431. <https://doi.org/10.1109/access.2019.2947163>
- Al-Rahmi, W. M., Yahaya, N., Alturki, U., Alrobai, A., Aldraiweesh, A. A., Omar Alsayed, A., & Kamin, Y. B. (2022). Social media-based collaborative learning: The effect on learning success with the moderating role of cyberstalking and cyberbullying. *Interactive Learning Environments*, 30(8), 1434–1447. <https://doi.org/10.1080/10494820.2020.1728342>
- Alwagait, E., Shahzad, B., & Alim, S. (2015). Impact of social media usage on students academic performance in Saudi Arabia. *Computers in Human Behavior*, 51, 1092–1097. <https://doi.org/10.1016/j.chb.2014.09.028>
- Amin, A., Rehman, M., Basri, S., Capretz, L. F., Goraya, M. A. S., & Akbar, R. (2023). The impact of stressors on the relationship between personality traits, knowledge collection behaviour and programmer creativity intention in software engineering. *Information and Software Technology*, 163, 107288. <https://doi.org/10.1016/j.infsof.2023.107288>
- Asghar, M. Z., Barbera, E., Rasool, S. F., Seitamaa-Hakkarainen, P., & Mohelská, H. (2023). Adoption of social media-based knowledge-sharing behaviour and authentic leadership development: Evidence from the educational sector of Pakistan during COVID-19. *Journal of Knowledge Management*, 27(1), 59–83. <https://doi.org/10.1108/jkm-11-2021-0892>
- Azizi, S. M., Soroush, A., & Khatony, A. (2019). The relationship between social networking addiction and academic performance in Iranian students of medical sciences: A cross-sectional study. *BMC Psychology*, 7(1), 28. <https://doi.org/10.1186/s40359-019-0305-0>
- Bastiaensens, S., Vandebosch, H., Poels, K., Van Cleemput, K., DeSmet, A., & De Bourdeaudhuij, I. (2014). Cyberbullying on social network sites. An experimental study into bystanders' behavioural intentions to help the victim or reinforce the bully. *Computers in Human Behavior*, 31, 259–271. <https://doi.org/10.1016/j.chb.2013.10.036>
- Beran, T., & Li, Q. (2005). Cyber-harassment: A study of a new method for an old behavior. *Journal of Educational Computing Research*, 32(3), 265–277. <https://doi.org/10.2190/8yqm-b04h-pg4d-bllh>
- Brody, N., LeFebvre, L. E., & Blackburn, K. G. (2016). Social networking site behaviors across the relational lifespan: Measurement and association with relationship escalation and de-escalation. *Social Media + Society*, 2(4), 205630511668000. <https://doi.org/10.1177/2056305116680004>
- Cavus, N., Sani, A. S., Haruna, Y., & Lawan, A. A. (2021). Efficacy of social networking sites for sustainable education in the era of COVID-19: A systematic review. *Sustainability*, 13(2), 808. <https://doi.org/10.3390/su13020808>
- Chan, T. K. H., Cheung, C. M. K., & Lee, Z. W. Y. (2021). Cyberbullying on social networking sites: A literature review and future research directions. *Information & Management*, 58(2), 103411. <https://doi.org/10.1016/j.im.2020.103411>
- Chan, T. K. H., Cheung, C. M. K., & Wong, R. Y. M. (2019). Cyberbullying on social networking sites: The crime opportunity and affordance perspectives. *Journal of Management Information Systems*, 36(2), 574–609. <https://doi.org/10.1080/07421222.2019.1599500>
- Chang, P. F., Whitlock, J., & Bazarova, N. N. (2018). "To respond or not to respond, that is the question": The decision-making process of providing social support to distressed posters on Facebook. *Social Media + Society*, 4(1), 205630511875929. <https://doi.org/10.1177/2056305118759290>
- Chaudhry, N. I., Rasool, S. F., Raza, M., Mhelska, H., & Rehman, F. U. (2023). Exploring the linkage between workplace precaution measures, covid-19 fear and job performance: The moderating effect of academic competence. *Current Psychology*, 42(23), 20239–. <https://doi.org/10.1007/s12144-023-04728-5>

Çimke, S., & Cerit, E. (2021). Social media addiction, cyberbullying and cyber victimization of university students. *Archives of Psychiatric Nursing*, 35(5), 499–503. <https://doi.org/10.1016/j.apnu.2021.07.004>

Clark-Gordon, C. V., Workman, K. E., & Linvill, D. L. (2017). College students and Yik Yak: An exploratory mixed-methods study. *Social Media + Society*, 3(2), 205630511771569. <https://doi.org/10.1177/2056305117715696>

Ding, Y., Li, D., Li, X., Xiao, J., Zhang, H., & Wang, Y. (2020). Profiles of adolescent traditional and cyber bullying and victimization: The role of demographic, individual, family, school, and peer factors. *Computers in Human Behavior*, 111, 106439. <https://doi.org/10.1016/j.chb.2020.106439>

El Abiddine, F. Z. E., Aljaberi, M. A., Gadelrab, H. F., Lin, C.-Y., & Muhammed, A. (2022). Mediated effects of insomnia in the association between problematic social media use and subjective well-being among university students during COVID-19 pandemic. *Sleep Epidemiology*, 2, 100030. <https://doi.org/10.1016/j.sleepe.2022.100030>

El Mallakh, R. (2015). *Saudi Arabia: Rush to development (RLE economy of Middle East): Profile of an energy economy and investment*. Routledge. <https://doi.org/10.4324/9781315744414>

Ercag, E. (2021). An analysis of the attitudes of secondary school students on cyber bullying behaviors. *Revista Romaneasca Pentru Educatie Multidimensionala*, 13(4), 239–266. <https://doi.org/10.18662/rrem/13.4/481>

Fati, S. M. (2022). Detecting cyberbullying across social media platforms in Saudi Arabia using sentiment analysis: A case study. *The Computer Journal*, 65(7), 1787–1794. <https://doi.org/10.1093/comjnl/bxab019>

Foroughi, B., Griffiths, M. D., Iranmanesh, M., & Salamzadeh, Y. (2022). Associations between Instagram addiction, academic performance, social anxiety, depression, and life satisfaction among university students. *International Journal of Mental Health and Addiction*, 20(4), 2221–2242. <https://doi.org/10.1007/s11469-021-00510-5>

Gahagan, K., Vaterlaus, J. M., & Frost, L. R. (2016). College student cyberbullying on social networking sites: Conceptualization, prevalence, and perceived bystander responsibility. *Computers in Human Behavior*, 55, 1097–1105. <https://doi.org/10.1016/j.chb.2015.11.019>

Giumetti, G. W., & Kowalski, R. M. (2022). Cyberbullying via social media and well-being.

*Current Opinion in Psychology*, 45, 101314. <https://doi.org/10.1016/j.copsyc.2022.101314>

Giunchiglia, F., Zeni, M., Gobbi, E., Bignotti, E., & Bison, I. (2018). Mobile social media usage and academic performance. *Computers in Human Behavior*, 82, 177–185. <https://doi.org/10.1016/j.chb.2017.12.041>

Hair Jr, J. F., Sarstedt, M., Ringle, C. M., & Gudergan, S. P. (2017). *Advanced issues in partial least squares structural equation modeling*. SAGE Publications.

Hosen, M., Ogbeibu, S., Giridharan, B., Cham, T.-H., Lim, W. M., & Paul, J. (2021). Individual motivation and social media influence on student knowledge sharing and learning performance: Evidence from an emerging economy. *Computers & Education*, 172, 104262. <https://doi.org/10.1016/j.compedu.2021.104262>

Iqbal, J., Asghar, M. Z., Ashraf, M. A., & Rafiq, M. (2022). Social media networking sites usage and depression among university students during the COVID-19 pandemic: The mediating roles of social anxiety and loneliness. *Social Media + Society*, 8(3), 205630512211076. <https://doi.org/10.1177/20563051221107633>

Iqbal, J., Qureshi, N., Ashraf, M. A., Rasool, S. F., & Asghar, M. Z. (2021). The effect of emotional intelligence and academic social networking sites on academic performance during the COVID-19 pandemic. *Psychology Research and Behavior Management*, 14, 905–920. <https://doi.org/10.2147/prbm.s316664>

Jha, R. K., Shah, D. K., Basnet, S., Paudel, K. R., Sah, P., Sah, A. K., & Adhikari, K. (2016). Facebook use and its effects on the life of health science students in a private medical college of Nepal. *BMC Research Notes*, 9(1), 1–8. <https://doi.org/10.1186/s13104-016-2186-0>

Jia, K., Zhu, T., Zhang, W., Rasool, S. F., Asghar, A., & Chin, T. (2022). The linkage between ethical leadership, wellbeing, work engagement, and innovative work behavior: The empirical evidence from the higher education sector of China. *International Journal of Environmental Research and Public Health*, 19(9), 5414. <https://doi.org/10.3390/ijerph19095414>

Junco, R. (2012). Too much face and not enough books: The relationship between multiple indices of Facebook use and academic performance. *Computers in Human Behavior*, 28(1), 187–198. <https://doi.org/10.1016/j.chb.2011.08.026>

Kalam, A., Goi, C. L., & Tiong, Y. Y. (2023). Student motivations for social media use and

their effects on academic performance- a meditational approach in emerging market. *Interactive Technology and Smart Education*, 20(3), 313–334. <https://doi.org/10.1108/itse-09-2022-0115>

Karpinski, A. C., Kirschner, P. A., Ozer, I., Mellott, J. A., & Ochwo, P. (2013). An exploration of social networking site use, multitasking, and academic performance among United States and European university students. *Computers in Human Behavior*, 29(3), 1182–1192. <https://doi.org/10.1016/j.chb.2012.10.011>

Kietzmann, J. H., Hermkens, K., McCarthy, I. P., & Silvestre, B. S. (2011). Social media? Get serious! Understanding the functional building blocks of social media. *Business Horizons*, 54(3), 241–251. <https://doi.org/10.1016/j.bushor.2011.01.005>

Laffan, D. A., Stenson, A., & Flood, C. (2022). The role of cyberbullying victimization in the relationship between adult BTS fans' psychological sense of community and wellbeing. *Journal of Community Psychology*, 51(4), 1479–1494. <https://doi.org/10.1002/jcop.22924>

Lambić, D. (2016). Correlation between Facebook use for educational purposes and academic performance of students. *Computers in Human Behavior*, 61, 313–320. <https://doi.org/10.1016/j.chb.2016.03.052>

Latipah, E., Adi, H. C., & Insani, F. D. (2021). Academic procrastination of high school students during the Covid-19 pandemic: Review from self-regulated learning and the intensity of social media. *Dinamika Ilmu*, 293–308. <https://doi.org/10.21093/di.v21i2.3444>

Liao, S.-H., Widowati, R., & Hsieh, Y.-C. (2021). Investigating online social media users' behaviors for social commerce recommendations. *Technology in Society*, 66, 101655. <https://doi.org/10.1016/j.techsoc.2021.101655>

Macías, A. B. (2010). Validación del inventario de expectativas de autoeficacia académica en tres muestras [Validation of the academic self-efficacy expectancy inventory in three sequential and independent samples. *CPU-e, Revista de Investigación Educativa*, 10(10), 1–30. <https://doi.org/10.25009/cpue.v0i10.65>

Maftei, A., Holman, A.-C., & Merlici, I.-A. (2022). Using fake news as means of cyberbullying: The link with compulsive internet use and online moral disengagement. *Computers in Human Behavior*, 127, 107032. <https://doi.org/10.1016/j.chb.2021.107032>

Malhotra, N. K., Schaller, T. K., & Patil, A. (2017). Common method variance in advertising research: When to be concerned and how to control for it. *Journal of Advertising*, 46(1), 193–212. <https://doi.org/10.1080/00913367.2016.1252287>

Malik, A., Dhir, A., Kaur, P., & Johri, A. (2020). Correlates of social media fatigue and academic performance decrement: A large cross-sectional study. *Information Technology & People*, 34(2), 557–580. <https://doi.org/10.1108/itp-06-2019-0289>

Martínez-Martínez, A. M., López-Liria, R., Aguilar-Parra, J. M., Trigueros, R., Morales-Gázquez, M. J., & Rocamora-Pérez, P. (2020). Relationship between emotional intelligence, cybervictimization, and academic performance in secondary school students. *International Journal of Environmental Research and Public Health*, 17(21), 7717. <https://doi.org/10.3390/ijerph17217717>

Matt, C., Hess, T., & Benlian, A. (2015). Digital transformation strategies. *Business & Information Systems Engineering*, 57(5), 339–343. <https://doi.org/10.1007/s12599-015-0401-5>

Mohammed, L. A., Aljaberi, M. A., Amidi, A., Abdulsalam, R., Lin, C.-Y., Hamat, R. A., & Abdallah, A. M. (2022). Exploring factors affecting graduate students' satisfaction toward e-learning in the era of the COVID-19 crisis. *European Journal of Investigation in Health, Psychology and Education*, 12(8), 1121–1142. <https://doi.org/10.3390/ejihpe12080079>

Nwosu, K. C., Ikwuka, O., Onyinyechi, M. U., & Unachukwu, G. C. (2020). Does the association of social media use with problematic internet behaviours predict undergraduate students' academic procrastination? *Canadian Journal of Learning and Technology*, 46(1), 1.

Okumu, M., Kim, Y. K., Sanders, J. E., Makubuya, T., Small, E., & Hong, J. S. (2020). Gender-specific pathways between face-to-face and cyber bullying victimization, depressive symptoms, and academic performance among US adolescents. *Child Indicators Research*, 13(6), 2205–2223. <https://doi.org/10.1007/s12187-020-09742-8>

Owusu-Acheaw, M., & Larson, A. G. (2015). Use of social media and its impact on academic performance of tertiary institution students: A study of students of Koforidua Polytechnic, Ghana. *Journal of Education and Practice*, 6(6), 94–101.

Plaisime, M., Robertson-James, C., Mejia, L., Núñez, A., Wolf, J., & Reels, S. (2020). Social media

and teens: A needs assessment exploring the potential role of social media in promoting health. *Social Media + Society*, 6(1), 205630511988602. <https://doi.org/10.1177/2056305119886025>

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>

Ramesh Masthi, N. R., Pruthvi, S., & Phaneendra, M. S. (2018). A comparative study on social media usage and health status among students studying in pre-university colleges of urban Bengaluru. *Indian Journal of Community Medicine*, 43(3), 180–184.

Raza, M. Y., Khan, A. N., Khan, N. A., Ali, A., & Bano, S. (2020). Dark side of social media and academic performance of public sector schools students: Role of parental school support. *Journal of Public Affairs*, 20(3), 2058. <https://doi.org/10.1002/pa.2058>

Robers, S., Zhang, A., & Morgan, R. E. (2015). *Indicators of school crime and safety: 2014* (NCES 2015-072/NCJ 248036). National Center for Education Statistics. <https://doi.org/10.1037/e541412012-001>

Samma, M., Zhao, Y., Rasool, S. F., Han, X., & Ali, S. (2020). Exploring the relationship between innovative work behavior, job anxiety, workplace ostracism, and workplace incivility: Empirical evidence from small and medium sized enterprises (SMEs). *Healthcare*, 8(4), 508. <https://doi.org/10.3390/healthcare8040508>

Slot, M., & Oprea, S. J. (2021). Saying no to Facebook: Uncovering motivations to resist or reject social media platforms. *The Information Society*, 37(4), 214–226. <https://doi.org/10.1080/01972243.2021.1924905>

Torres, C. E., D'Alessio, S. J., & Stolzenberg, L. (2020). The effect of social, verbal, physical, and cyberbullying victimization on academic performance. *Victims & Offenders*, 15(1), 1–21. <https://doi.org/10.1080/15564886.2019.1681571>

Upadhayay, N., & Guragain, S. (2017). Internet use and its addiction level in medical students. *Advances in Medical Education and Practice*, 8, 641–647. <https://doi.org/10.2147/amep.s142199>

Verduyn, P., Gugushvili, N., & Kross, E. (2022). Do social networking sites influence wellbeing? The extended active-passive model. *Current Directions in Psychological Science*, 31(1), 62–68. <https://doi.org/10.1177/09637214211053637>

Zaman, S., Wang, Z., Rasool, S. F., Zaman, Q., & Raza, H. (2022). Impact of critical success factors and supportive leadership on sustainable success of renewable energy projects: Empirical evidence from Pakistan. *Energy Policy*, 162, 112793. <https://doi.org/10.1016/j.enpol.2022.112793>

Zhu, X., & Liu, J. (2020). Education in and after COVID-19: Immediate responses and long-term visions. *Postdigital Science and Education*, 2(3), 695–699. <https://doi.org/10.1007/s42438-020-00126-3sw>