

## Research Paper

## Investigating the Relationship Between the Use of Social Media, Educational Decline, and Student Mental Health

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**ABSTRACT**

**Objective:** The widespread presence of students in Telegram virtual social networks (VSNs) has provided a unique opportunity to track the effects of using this medium on their academic failure and mental health. Accordingly, this study explores whether the use of social media has a relationship with educational decline and student mental health.

**Methods:** This correlation study was conducted in high schools in Khaf City, Iran, in the 2018-2019 academic year and included 1250 students (550 girls and 700 boys) who were selected via simple stratified random sampling. The data collection tools comprised a researcher-made questionnaire on the use of Telegram VSNs and the Keyes (2005) model of mental health. The data were analyzed using the SPSS software, version 22, and related tests.

**Results:** We found a significant relationship between the use of the Telegram network and educational decline. There is also a significant relationship between the use of the Telegram network and mental health. As the use of Telegram VSNs increases, there is an increase in fatigue in class and a reduction in study hours. Hence, this affects students' educational decline directly and mental health adversely.

**Conclusion:** We recommend that information about the positive and negative effects of Telegram VSNs should be provided to users, and measures should be taken in schools to introduce and create a culture and useful and scientific use of Telegram VSNs.

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## Highlights

- A significant relationship between the use of the Telegram network and educational decline.
- A significant relationship between the use of the Telegram network and mental health.
- A significant relationship between the use of the Telegram network and fatigue in class.
- A significant relationship between the use of the Telegram network and reduction in study hours.

## Plain Language Summary

The widespread presence of students in Telegram virtual social networks (VSNs) has provided a unique opportunity to track the effects of using this medium on their academic failure and mental health. Therefore, the present study was conducted to explore whether the use of social media had a relationship with educational decline and student mental health. Widespread use of the Internet worldwide has made computer-to-computer communication so easy that the benefits of all information and communications technology (ICT) are summarized in the features of the Internet. VSNs are one of the most important and successful internet programs. VSNs are a new generation of features that currently are in the spotlight of internet users. Meanwhile, Telegram, as a network that is more popular than other networks in Iran and especially among students, needs more attention and research. According to the results of this study, there is a relationship between the use of Telegram VSN with the rate of educational decline and the rate of students' mental health. This should be included in the programs and measures of education programs. The results of this study play an important role in introducing the community of researchers in the field of education and health, to the effect of using Telegram VSN on the rate of educational decline and mental health of students due to the increasing use of such spaces among students.

## Introduction

The widespread use of the internet worldwide has facilitated computer-to-computer communication in a way that the benefits of all information and communications technology are summarized in the features of the internet (Gan, 2018; Kong et al., 2021). Virtual social networks (VSNs) are one of the most important and successful internet programs. VSNs are a new generation of features that are currently in the spotlight of internet users (Kwon & Wen, 2010; Alajmi et al., 2016; Ng et al., 2023). Cyberspace in VSN is one of the most important tools to show the effects of globalization (Ranjbar & Abbasi, 2021). Various networks, such as Facebook, Twitter, WhatsApp, Viber, Telegram, etc. are among the VSNs that have grown rapidly in a short period and are becoming more and more popular among people (Lee et al., 2018). According to a study by Duggan et al. (2015), more than 90% of adolescents use VSNs around the clock. VSNs in cyberspace have led to the evolution and intensity of human communication in different parts of the world and through this, have created a qualitative change in the way humans communicate with each other

(Hayes et al., 2016; Sharif & Khanekharab, 2017). Thus, by being present in cyberspace, it is possible to use a lot of information in the shortest possible time and to establish spoken, written, and visual communication at a relatively low cost (Petersen & Johnston, 2015). Meanwhile, Telegram, as a network that is more popular than other networks in Iran and especially among students, needs more attention and research (Naeimi, 2017). The use of social networks has become an integral part of teenagers' lives and has had a direct impact on all aspects of their lives, including their studies and academic performance (Ng et al., 2023). Spending too much time using VSNs has a significant negative effect on students and disrupts their academic performance (Ali & Qazi, 2023). This study has a special place in Iran because of establishing direct communication with students and the pathology of the realities related to virtual space; therefore, it can help planning, decision-making, and policy-making to deal with threats in cyberspace.

## Literature review

In today's society, considering the influence of VSNs among students and the effects that the use of these networks has on social, cultural, psychological, and physical aspects of the individual, and considering the need to ensure students' social health, this study aims to investigate the relationship between the use of the **Telegram** VSN and students' mental health. On the other hand, achieving the educational goals that schools consider as their main goals requires the provision of students' mental health (Rostami et al., 2023; Tyagi & Meena, 2023). Numerous studies have shown that student's mental health is related to their academic performance, and students who somehow suffer from mental health problems or lack of proper mental health are often faced with educational decline (Wood & Scott, 2016; Gao et al., 2018; Lee et al. 2018; and Olszewski-Kubilius & Corwith, 2018; Sabzi et al., 2022; Ng et al., 2023). Therefore, it is necessary to provide appropriate conditions to achieve educational goals and ensure the health of people in society at different ages, through the application of appropriate methods to ensure mental health in schools (Tyagi & Meena, 2023; Mohammadkhani et al., 2024). In the present study, mental health has been considered a necessity for having a healthy life in society, especially the young generation, the extent of which can be affected by the use of VSNs such as **Telegram**, and these changes are examined in the current study.

Although the **Telegram** VSN has significant potential to create negative effects on students, it can also serve as a useful and positive resource for students in various aspects if used properly (Yedia et al., 2003; Prada-Núñez et al., 2020). Increasing students' motivation can lead to success. Their scores and other psychological aspects of individuals are effective and useful (Teclehaimanot & Hickman, 2011; Metshali et al., 2016). Su'arez-Perdomo et al. (2022) found in a study that more addiction to social media leads to greater students' academic procrastination. However, there was no significant difference between the groups in terms of academic performance. They mentioned the use of VSNs as a useful resource in the process of primary education of students. Researchers, such as Iglesias-Pradas et al. (2021) and Vosoughi Motlagh et al. (2023) have also noted in their study the increase in students' academic performance through emergency remote teaching. Alaslani and Alandejani's (2020) findings also showed that the use of VSNs has a significant positive effect on interaction with classmates, interaction with educators, participation, collaborative learning, and student performance.

## Telegram and educational decline

Academic failure is a failure in education, the occurrence of early dropout, repetition of basic education, reduction of grades, or rejection of the educational system (Fredericks, Blumenfeld & Paris, 2004; Beyens et al., 2016). Studies have demonstrated that excessive use of VSNs has a significant negative effect on students, leading to a decline in their educational performance (Seder & Oishi, 2009; Madaiah et al., 2015; Cao et al, 2018; Núñez-Guzmán & Cisneros-Chávez, 2019; Suleiman & Sani, 2020). Although the use of these networks facilitates communication with friends (Kirschner & Karpinski, 2010; Fori, 2016), it reduces the study time of students and disrupts their education (Thompson et al., 2008; Fredericks, 2015; Azizi et al., 2019; Suleiman & Sani, 2020). In some studies, the educational decline has been interpreted as the concept of negative effects caused by students entering the virtual space and having fun in VSNs and internet games (Kirschner & Karpinski, 2010; Paul et al., 2012; Rostaminezhad & Shokatirad, 2016).

## Telegram and mental health

The use of VSNs can affect different cultural, individual, social, and psychological areas of individuals and society (Saha, 2009; Tyagi & Meena, 2023). One of these areas that are changing by being present in VSNs is the mental health of users, especially the young generation (Uddin et al., 2016). Considering that the young generation is among the largest range of audiences and activists of the **Telegram** network, and in the present era, due to the possibilities of using the internet, it has become acquainted with cyberspace, and this space has cognitive, emotional, cultural and practice that overshadows them, and the result is an impact on all aspects of life, including their mental health (Mackenna & Bargh, 2006; Steers, 2016; Gil., 2019). Mental health has a very broad meaning and includes mental well-being, a sense of self-sufficiency, adequacy, an understanding of intergenerational solidarity, and the ability to recognize potential intellectual and emotional talents in the individual, in such a way that the individuals can recognize one's abilities, adapt to the usual stresses of life, and be productive and useful professional (Goldsmith, 2000; Pertegal-Vega et al., 2019). Every individual who can cope with their deeper problems, compromises with themselves and others, is not incapable of their inevitable inner conflicts, does not reject himself from society, and has mental health (Morgan & Cotton, 2003; Ng et al., 2023). Tateno et al. (2004) stated a significant and clear relationship between the weekly hours of internet use and mental health scores. Their findings show that the association between inter-

net use and mental disorders, such as anxiety and stress, is increasing. Mental health leads to the continuation of optimal job, social, and educational performance. Evidence also suggests a relationship between social media use and various aspects of adolescent health, including sleep and mental health (Pantic et al., 2012; Woods & Scott, 2016; Ali & Qazi, 2023). The prevalence of poor-quality sleep among adolescents causes mental health disorders and symptoms of mental distress, such as depression, anxiety, and low self-esteem (Pittman & Reich, 2016; Gao et al., 2018).

Accordingly, studies indicate the effect of using VSNs on the mental health of adolescents (Tandoc et al., 2015; Elhai et al., 2016; Ceglarek & Ward, 2016; Rosenthal et al., 2016; Abbasi & Alghamdi, 2017; Razavi, 2021). Christensen (2018) showed that the more time a person spends on social media, the greater the negative impact on their overall emotional health and the lower the quality of their relationships with others (Ali & Qazi, 2023). This issue will negatively affect their relationship in the next stage.

Continued use of VSNs leads to reduced performance in the areas of social responsibility, social support, academic and work performance, and a sense of self-worth (Deimazar et al., 2019). Yang (1998) found that 58% of students who overused the internet experienced a severe educational decline in study habits, significant reductions in grades, and increased absenteeism. Researchers, such as McLaughlin and King (2015), Woods and Scott (2016), Primack et al. (2017), Olszewski-Kubilius and Corwith (2018), and Lee et al. (2018) stated in their research that the high use of VSNs and recreational use of the internet is associated with serious harms, such as educational decline and reduced mental health in the form of depression and anxiety. According to Ahmed (2013), the most alarming part of VSN use is its negative impact on the student's academic performance. On the other hand, Navarro et al. (2018) declared that addicted users to VSNs are more exposed to potential mental health issues; therefore, too much use of VSNs, due to reduced

study time, has negative impacts on this field, which can adversely affect their educational and mental health outcomes (Yedidia et al. 2003; Seder & Oishi 2009). Table 1 shows the variables related to this study.

### The context of the study

Khaf City is one of the borders and deprived areas located in the northeast of Iran. In this region, as in many other regions of Iran, proper culture and information for the correct use of virtual space have not been done. Accordingly, in 2017, due to the lack of control of students by teachers and parents in the use of mobile phones and the internet, three teenagers in Khaf City, Iran, became victims of the dangerous game of blue whale. Therefore, before using these tools and social networks, the necessary culture-building should be done in society. In the field of education, the Telegram VSN is a research field for comprehensive information on students that is growing rapidly. The limited amount of use of the VSN and their use to communicate with professors, family, and friends can make students achieve positive academic and academic performance. However, the reverse is also true. Therefore, spending too much time using the VSN hurts students and disrupts their academic and academic performance. The studies conducted in this field have only focused on the use of the Facebook social network, and the use of the widely used VSN, such as Telegram, has not been studied. Research has been done regarding the impact of other networks with two different variables in Iran, but the connection of Telegram to the two variables in question has not been investigated. Also, the relationship between the variables was separated in the previous research and this is the first research that examines the variables simultaneously. Telegram is a messaging application that focuses on message transfer with speed and security (Abbasi Shavazi & Homayoon, 2014). This application is simple and free to use. Telegram can send photos, videos, text, and any type of file (Cheung et al., 2011; Marino et al., 2016; Oeldorf-Hirsch & Sundar, 2016). In this regard, it is necessary to have an estimate of the influence of these networks among students and

**Table 1.** List of variables, their types, descriptions, and coding

Variables	Role	Type	Description	Coding
Use of VSN	Independent	Summative	Virtual networking enables the communication between multiple computers, virtual machines, virtual servers	VSN
Mental health	Dependent	Summative	A state of well-being in which the individual realizes their abilities	MH
Educational decline	Dependent	Summative	Failure in education, the occurrence of early dropout, repetition of basic education, reduction of grades, or rejection of the educational system	ED

Abbreviations: VSN: Virtual social network; MH: Medical health; ED: Educational decline.

try to provide a solution to minimize the problems caused by the use of these networks. The results of the present study can have beneficial effects on reducing the rate of educational decline and the mental health of students. Also, education and society can benefit from it. However, neglecting the impact of the Telegram VSN on the mental health and educational decline of students primarily affects students and later stages of the education system and even all levels of society. In terms of the innovation of this research, we can mention the simultaneous examination of the relationship between three variables. Besides some literature pointing to the positive effects of these networks (Erfanian et al., 2013; Oxford University Press, 2015), there are still many studies that point to the negative effects (Kuss & Griffiths, 2011; Choi & Lim, 2016; Ahmed, 2013; Navarro et al., 2018). Thus, the main purpose of the study is to examine the correlations between the use of Telegram, educational decline, and mental health.

### Hypotheses

To achieve the goals of this research, the following hypotheses have been developed:

There is a relationship between the use of Telegram VSN and the rate of educational decline of second-year high school students in Khaf City, Iran;

There is a relationship between the use of Telegram VSN and the level of mental health of second-year high school students in Khaf City, Iran;

There is a difference between the use of Telegram VSN by male and female high school students in Khaf City, Iran.

### Study variables

In the present study, VSN was considered as an independent variable, and educational decline and mental health variables were considered as dependent variables.

## Materials and Methods

### Research Method

The current research was a quantitative survey with a correlational design. Data collection was done using three questionnaires. The inclusion criteria were being a student of Khaf City, Iran, a secondary school student, having access to virtual social networks, and being willing to participate in the study, while the exclusion criteria were the simultaneous use of other virtual networks except Telegram, and incomplete completion of questionnaires.

### Statistical population, sample size, and sampling method

In this research, a stratified random sampling method was used. The statistical population of this study, based on the statistics received from the education department of Khaf City, Iran, includes all female and male students in secondary schools in the second year of Khaf City, Iran. The statistical population consisted of 550 girls and 700 boys, a total of 1250 students. The sample size according to the Cochran formula, with an error level of 5% (129 girls and 165 boys) was 294 people (Table 2).

Table 2. Demographic statistics of subjects

Factor	No. (%)
Gender	Girl 129(43.9)
	Boy 165(56.1)
Educational level	The 2 <sup>nd</sup> year of high school 133(45.2)
Age (y)	15 31(10.5)
	16 154(52.4)
	17 109(37.1)
Region	Urban 151(51.3)
	Rural 143(48.6)



### Data collection method

Data collection tools include a researcher-made questionnaire on the use of the [Telegram VSN](#) and [Keyes \(2005\)](#) multidimensional model of mental health.

### Telegram virtual social network

Since users of the [Telegram VSN](#) are also considered internet users, to assess the degree of addiction to the Telegram VSN, a researcher-made questionnaire available on the [Telegram VSN](#) was used. This questionnaire has 30 questions and aims to evaluate the positive and negative effects of VSNs from different dimensions. It is scored based on a 5-point Likert scale. This questionnaire includes various items, such as “VSNs on the internet expand the scope of communication and using VSNs” and “You can find friends who are out of reach”, that measure the use of [Telegram VSNs](#). To determine the validity of the tool, validity of the tool was determined by the content validity method and by considering the opinions and suggestions of the supervisor. Then, by applying the corrections and changes requested by professors and experts, the final questionnaire was developed and its validity was confirmed.

### Academic performance of students questionnaire

The academic performance of students questionnaire (APSQ) was implemented to access the desired information from the students. This tool has two parts, including demographic data (age, gender, field, academic year, and grade point average in the last two semesters) and 15-item scale questions related to using VSNs. In the design of the questions, a 5-point Likert scale with anchors that range from 1 (totally disagree) to 5 (totally agree) was used. The participants' grade point average in the last two semesters was used to assess the academic performance ([Razavi, 2021](#)) of male and female students, and a structured self-administrated questionnaire (reliability  $\alpha=0.979$ ) was used in testing the use of VSNs.

### Keyes multidimensional model of mental health

[Keyes \(2005\)](#) model of mental health was derived from the long form of the mental health continuum and consists of 14 questions and 3 components. This multidimensional questionnaire is based on a 6-point Likert scale ranging from 1 (strongly agree) to 6 (strongly disagree) and assesses mental health with questions, such as (the feeling that you have a job or something important to offer to the community). This questionnaire has three dimensions, namely emotional well-being, mental

health, and social health. In this questionnaire, scale (happiness, interest in life, and satisfaction) to show feelings and emotions (emotional well-being), 6 items (self-acceptance, positive relations with others, personal growth, purpose in life, environmental mastery, and autonomy) were selected to measure mental health and 5 items (community participation and assistance, community cohesion, social prosperity, social acceptance, and social attention and understanding) were selected to demonstrate social health. The minimum and maximum limits of the score are 14 and 84, respectively. A score between 14 and 28 indicates poor mental health; a score between 28 and 56 indicates moderate mental health and a score higher than 56 indicates high mental health. In the present study, the reliability of the questionnaire based on the Cronbach  $\alpha$  coefficient was estimated to be 0.82. The validity of the questionnaire was also confirmed by professors and experts.

### Research method

First, after coordinating with the directors of the Khaf education department and providing information about the research to principals, teachers, and students of secondary schools, a researcher-made questionnaire on the use of the [Telegram VSN](#) and [Keyes \(2005\)](#) model of mental health among students were distributed and to know the rate of educational decline, the current grade point average and their previous year were examined and finally, the data were analyzed.

### Data analysis

Descriptive (Mean $\pm$ SD) and inferential (analysis of variance, Pearson correlation, and paired t-test) statistical methods were used to analyze the collected data. Finally, the data were entered into the SPSS software, version 24) and a one-sample Kolmogorov-Smirnov test was used to check the normality of the data.

[Table 3](#) shows the results of descriptive statistics of the variables (standardized scores) of [Telegram VSN](#) use (4.206 $\pm$ 1.095 h/day), mental health (3.867 $\pm$ 1.063; cumulative scores of the related questionnaire), and educational decline (3.367 $\pm$ 1.272; cumulative scores of the related questionnaire). Considering that the obtained mean of [Telegram VSN](#) use is in the range (3.66-5), they are at a high level. Also, the obtained mean of educational decline is in the range (2.34-3.66), it is at a medium level. The negativity of the skewness of both variables indicates the long distribution to the left, on the other hand, the positive skewness means that the shape of the variable is longer than the normal distribution. To test

**Table 3.** Descriptive statistics of research variables

Variables	Use of Virtual Social Network	Mental Health	Educational Decline
No.	294	294	294
Mean±SD	4.2065±1.095	3.8677±1.063	3.3677±1.272
Median	5	4	3
Variance	1.200	1.131	1.618
Skewness	-1.369	-0.741	-0.242
Standard skewness error	0.138	0.138	0.138
Kurtosis	0.932	-0.416	-1.039
Standard kurtosis error	0.276	0.276	0.276
Minimum	1	2	1
Maximum	5	5	5

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the hypothesis of the normality of the studied variables, the Kolmogorov-Smirnov test was used (Table 4). If the P value in the Kolmogorov-Smirnov test is greater than 0.05, then the data is normal. Table 4 shows the P of Telegram VSN use (0.112), mental health (0.103), and educational decline (0.067) which are more than 0.05. Therefore, it shows the normality of all variables ( $P>0.05$ ). Accordingly, parametric tests can be used.

## Results

### Testing research hypotheses

Hypothesis 1: There is a relationship between the use of the Telegram VSN and the level of mental health and educational decline of second-year high school students in Khaf City, Iran.

Table 5 shows the results of the Pearson correlation test between the use of Telegram VSN with the rate of educational decline and students' mental health.

According to the results of Table 5, because the significance level of both variables (educational decline and mental health) is less than 0.05, there is a relationship between the use of the Telegram VSN and the level of mental health (-0.258) and educational decline (0.309) of second-year high school students in Khaf City, Iran. To evaluate the effect of using the Telegram VSN on the rate of educational decline and students' mental health, regression model fitting was used.

### Linear regression analysis

Table 6 shows the results of regression analysis between the variables (regression adequacy indices) to fit the regression model.

Table 6 provides the R and R<sup>2</sup> values. The R-value represents a positive linear relationship between the Telegram VSN and educational decline ( $R=0.309$ ) and a negative linear relationship between the Telegram VSN and mental health ( $R=-0.258$ ). Also, the coefficient of determination (R<sup>2</sup>) for the variables of educational de-

**Table 4.** Results of the Kolmogorov-Smirnov test to examine the assumption of normality

Variables	Sample Size	Test Statistics	P
Use of virtual social network	294	0.57	0.112
Mental health	294	0.41	0.103
Educational decline	294	0.84	0.067

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**Table 5.** Pearson correlation test between the use of Telegram virtual social network with the rate of educational decline and students' mental health

Variables	Pearson Correlation Test	Sig.
Educational decline and use of Telegram virtual social network	0.309	0.002
Mental health and the use of Telegram virtual social network	-0.258	0.012

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**Table 6.** The model summary; regression adequacy indices

Variables	Durbin-Watson Statistic	Standard Error of the Estimate	Adjusted R Square	R Square	R
Educational decline	1.844	0.6006	0.086	0.095	0.309
Mental health	1.895	0.6101	0.056	0.066	-0.258

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cline and students' mental health were 9% and 6%, respectively. These values show that 9% and 6% of the changes in the use of Telegram VSN are equal to the rate of educational decline and mental health. In other words, linear regression can describe 9% and 6% of the data variance, respectively. Because these values do not consider the degree of freedom, the adjusted coefficient of determination is used for this purpose, which in this test is equal to 9% and 6%, respectively. Given that the Durbin-Watson statistic value for both variables is in the standard range of 1.5 to 2.5, the independence of the residual (errors) can be concluded. Therefore, among the data, there is no first-order self-correlation. Also, there is a linear relationship between the variables in our model. About the educational decline variable, the values of the R square and the adjusted R square are 0.095 and 0.086. Also, concerning the mental health variable, the values

of the R square and the adjusted R square are 0.066 and 0.056. The proximity of these two values (R square and adjusted R square) to each other in both variables (educational decline and mental health) indicates that the variables used in the model can be used well and provide a good fit. In the case of evaluating two models, with almost identical coefficients of determination, a model with a smaller standard error of the estimated value is selected. According to the mentioned indicators, for both variables, the model is sufficient.

In Table 7, the significance of the regression is calculated from the F test. The larger the value of F, the closer the significance level is to zero. A value smaller than 0.05 for the significance level indicates a suitable regression model. The F test shows whether the variability of the scores of two sets is different from the independent

**Table 7.** Significance of regression coefficients of Telegram virtual social network use with educational decline and mental health

Variables	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		$\beta$	Standard Error	$\beta$			Tolerance	Variance Inflation Factor
Educational decline	Constant	4.146	0.208		19.969	0.000		
	The use of the Telegram virtual social network	0.217	0.07	0.309	3.129	0.002	1.00	1.00
Mental health	Constant	3.022	0.206		14.688	0.000		
	The use of the Telegram virtual social network	-0.181	0.071	0.258	2.571	0.012	1.00	1.00

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**Table 8.** Test results of the meaningful use of Telegram virtual social network according to gender

Model	Levene Test		T-tests to Analyze Survey Results							
	f	Sig.	T	df	Sig. (2-tailed)	Mean Use of Telegram Virtual Social Network		Mean Differ- ence	95% CI of the Differ- ence	
						Male (n=165)	Female (n=129)		Lower	Upper
Equal variance assumed	290	0.003	1.800	293	0.004	3.43	3.24	0.19099	-0.018	0.400
Equal variance not as- sumed			865	67.296	0.005			0.19099	0.3954	-0.013

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scores of the total average. In other words, is there a significant difference between their variances? The larger the value of F, the closer the significance level is to zero. A value smaller than 0.05 for the significance level indicates a suitable regression model. According to the P value of the test in Table 6, the level of significance calculated for these variables of educational decline and mental health is equal to 0.002 and 0.012, respectively. Therefore, the null hypothesis is rejected with a confidence of 0.95%. Accordingly, the existing model is significant with a confidence of 0.95, and based on the available data, this model can predict changes in educational decline and mental health. According to the results of Table 7, with the increase in the use of Telegram VSNs, the academic decline increases, so there is a direct relationship between these two variables. However, with the increase in the use of Telegram VSNs, mental health decreases. Therefore, there is an inverse relationship between these two variables.

Hypothesis 2: There is a significant difference between the use of Telegram VSN by male and female high school students in Khaf City, Iran.

To test this hypothesis, the test comparing the means of two independent populations was used (Table 8).

The  $P < 0.05$  (0.004), can be attributed to the difference between the mean use of the Telegram VSN between men and women is significant. Men use the Telegram VSN more.

## Discussion

This correlation study was conducted in high schools in Khaf City, Iran, in the academic year of 2018-2019, and 1250 students (550 girls and 700 boys) were selected by simple stratified random sampling. The mean of Telegram VSN use was at a high level. Also, the mean of

educational decline was at a medium level. The results of this study showed a relationship between the use of the Telegram VSN and the rate of educational decline of secondary school students in Khaf City, Iran. The findings of this study are in line with the research of Fredericks et al. (2004), Thompson et al. (2008), Seder and Oishi (2009), Paul et al. (2012), Fredericks (2015), Madaiah et al. (2015), Cao et al. (2018); Núñez-Guzmán & Cisneros-Chávez (2019), Suleiman and Sani (2020), and Ng et al. (2023). According to all these studies, spending too much time on VSNs reduces study hours and students' fatigue in the classroom and leads to educational decline.

In explaining this finding, one of the most important reasons for the negative impact of using the Telegram VSN on students' educational decline is the reduction of study time due to the use of these networks (Ahmed, 2013; Ogundijo, 2014; Fori, 2016; Razavi, 2021). Since communication is the main reason for Telegram VSN users, they can communicate with a large number of people in a limited time and easily, and this can lead to excessive use of these networks. Excessive time spent in these networks reduces the amount of study, and also because most students spend long hours of the night in these networks, they cannot attend classes with sufficient concentration. These factors can lead to educational decline. As a result, spending too much time using the Telegram VSN hurts students' educational decline.

Another finding of this study showed that there is a relationship between the use of the Telegram VSN and the mental health of second-year high school students in Khaf City, Iran. The findings of this research are similar to Pantic et al. (2012), Uddin et al. (2016), Woods and Scott (2016), Elhai et al. (2016), Ceglarek and Ward (2016), Rosenthal et al. (2016), Primack et al. (2017), Abbasi and Alghamdi (2017), Christensen (2018), Pertegal-Vega et al. (2019), Razavi (2021) and Ng et al.

(2023), and Tyagi and Meena (2023). According to all studies, the use of VSNs affects the mental health of students and thus there is a relationship between the use of VSNs and the level of mental health.

In explaining this finding, excessive use of the **Telegram** VSNs, due to its addictive nature, as well as social, psychological, and emotional consequences, with the ability to influence and affect student performance. This can affect their physical, mental, and family life and lead to mental health disorders and symptoms of mental distress, such as depression and anxiety as well as low self-esteem (Pittman & Reich, 2016; Gao et al., 2018; Ali & Qazi, 2023; Ng et al., 2023).

The findings of this study also showed that there is a significant difference between the use of **Telegram** VSN by male and female high school students in Khaf City, Iran. The results of this study showed that the use of **Telegram** VSNs is higher in men. Boyd and Ellison (2007) stated that the effect of gender on the use of VSNs is significant. Pantic et al. (2012) showed that the use of VSNs is higher among boys than girls. Tyagi and Meena (2023), declared that the use of VSNs is gender-sensitive.

## Conclusion

Due to the increasing importance and impact of using VSNs, such as **Telegram** on the educational decline and mental health of students, the present study, investigates the relationship between the use of **Telegram** VSN and the rate of educational decline and mental health of high school students in Khaf. The results of the data analysis showed that there is a relationship between the use of the **Telegram** VSN and the rate of mental health and the rate of educational decline of secondary school students in Khaf City, Iran. The more a student uses VSNs during the day and the more time he/she spends, the more educational decline they will have and the more they will endanger student mental health. VSNs such as **Telegram**, **WhatsApp**, **Viber**, **Line**, **Facebook**, **Instagram**, etc. are readily available to students. Excessive use of these VSNs leads to internet addiction, on the one hand, it endangers the mental health of students, and on the other hand, it hinders students' academic progress and causes educational decline.

According to the results of this study, there is a relationship between the use of **Telegram** VSN with the rate of educational decline and the rate of students' mental health. This should be included in the programs and measures of education programs. The results of this study play an important role in introducing the commu-

nity of researchers in the field of education and health, to the effect of using **Telegram** VSN on the rate of educational decline and mental health of students due to the increasing use of such spaces among students; hence, it is the strength of this study. In this regard, it is necessary to provide conditions for the use of VSNs and the internet to serve the purposes of education, and the use of these networks will lead to academic achievement and improve the mental health of students. Because this research is limited to **Telegram**, it should be careful in generalizing the results to other VSNs. Because this research was limited to Khaf City, Iran, therefore, caution should be exercised in generalizing the results to other cities. Because this research is limited to the secondary school period, caution should be exercised in generalizing the results to other periods. It is also necessary to provide valuable information on the positive and negative effects of using VSNs, especially **Telegram** to users of these networks. Also, measures should be taken to introduce and create a useful and scientific use of VSNs in schools. Considering the existence of a relationship between educational decline and mental health, it seems that educational decline plays a mediating role between the use of VSNs and mental health. Therefore, it is suggested to investigate the mediating role of the educational decline in the relationship between the other two variables in future research. Finally, it is suggested to hold briefing sessions for officials on how to use VSNs. Since the high use of virtual networks affects the academic decline and mental health of students, it is necessary to hold separate briefing sessions about the disadvantages of using **Telegram** for parents and students.

## Ethical Considerations

### Compliance with ethical guidelines

There were no ethical considerations to be considered in this research.

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### Authors' contributions

Conceptualization and supervision: Majid Reza Razavi; Data collection: Naser Jangi Sangani; Investigation, data analysis and writing: All authors.

### Conflict of interest

The authors declared no conflict of interest.

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