Article

Emotional Intelligence and Use of Social Networks in Adolescents

Roberta Maria Incardona [1*], Sabrina Bonichini [1] and Marta Tremolada [1]

[1] Department of Developmental and Social Psychology, University of Padua, 35131 Padua, Italy; robertamaria.incardona@gmail.com; s.bonichini@unipd.it; marta.tremolada@unipd.it

* Correspondence: robertamaria.incardona@gmail.com; +3917119934

Abstract: Social networks have become an ubiquitous aspect of adolescents' life, providing new ways to connect and communicate with peers. However, little is known about the impact of social networks on adolescents' emotional intelligence (EI), a crucial skill for social and identity development. The aim of the present study is to explore the time spent and reasons for using social networks and their relationship with emotional intelligence in adolescents and young adults (15-19 years). After signing informed consent, participants completed a battery of questionnaires offered via secure online form. The results showed that teenagers spend more than 3 h/day on Whatsapp, more than 2 h/day on Instagram and less on Facebook (26m per day); girls prefer to use Whatsapp and Instagram, boys opt for Facebook. Most participants use social media when bored and/or to communicate with friends. Moreover, time spent on social media has a relationship with stress management with some aspects of EI (assertiveness, self-actualization, optimism, etc.). EI and social desirability have a significant relationship, especially in the sphere of adaptability. Based on the results obtained, future perspectives and training are suggested with the aim of adapting to the constant changes in the new technological reality.

Keywords: emotional intelligence; adolescents; social networks, social desirability

1. Introduction

Adolescence is a complex transitional phase within the life cycle characterized by physical, psychological, and emotional changes [1]. During this critical period, the psychological dynamics underlying identity construction develop as a function of a constantly evolving context. Nowadays adolescents experience a complex digitalized environment, requiring rapid adaptation to the needs characterizing the digital revolution. As a consequence, social networks strongly affect the development and construction of self-identity: adolescents can create their personal profile, share their identity with their peers, and build networks for new or current relationships [2].

On the other hand, such a digital context experienced by adolescents during their development brings about certain critical points. Excessive use of social networks can interfere with adolescents' ability to manage their own emotions and properly interact with peers' emotions [3], a psychological construct better known as emotional intelligence (EI). EI is defined as the ability to recognize and understand one's own emotions and the emotions of others, and to use this awareness to effectively manage their own behavior and relationships [4]. Indeed, several evidence demonstrated the negative impact of social networks on the EI of adolescents. For instance, continued exposure to negative content, such as cyberbullying, can lead to a decrease in empathy and emotional sensitivity in adolescents [5]. Furthermore, the extensive use of social networks can also negatively influence the perception and expression of adolescents' emotions, who feel less secure in their ability to effectively communicate their emotions and interpret the emotions of others [3]. An extensive use of technology and social networks leads to cognitive transformations in adolescents, including alteration of perception and expression of emotions, and a dysfunctional influence on relational styles [6], probably related to the lack of physicality in the socialization processes [7]. In this perspective, Riva [6] introduces the concept of emotional illiteracy, describing this phenomenon as a lack of awareness and control over the emotions of others, leading to an inability to functionally interact with the emotions and related behaviors of their peers.

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Furthermore, another critical aspect concerns the negative effects produced by social comparison in adolescents, which derive from the immediacy of access to digital content that represents potential aesthetic standards. A recent study conducted in Australia documented the dissatisfaction of women with their bodies when exposed to images of attractive celebrities on Instagram [8], highlighting the negative effects that social networks often have on self-esteem. The digital era marks new challenges for adolescents during their development, implying a strong pressure for social comparison with the high and often unachievable standards that the virtual world brings during physical changes and identity construction.

Hence, it is doubtless of great importance to spot the social networks most utilized by adolescents to communicate, express their emotions, and share their identity. Consistent with this theoretical framework, the findings of Waterloo et al. [9] revealed a higher incidence of WhatsApp use (90.2%), followed by Facebook (88.3%), Instagram (54.5%) and Twitter (34.6%). Interestingly, the authors concluded that the expression of positive emotions on social networks is more common than the expression of negative emotions, characterizing WhatsApp as the social network most used for this purpose.

The Global Digital report [10] highlighted the highest usage of Facebook (2,121 billion) by the world population, followed by Instagram (895 million) and Twitter (251 million). Specifically, considering the apps investigated in this study, it is evident that Facebook is mostly used by the male population (57%), and Instagram is used equally (50%).

In line with this theoretical and operational framework, the current study aims to explore the relationship between EI and the use of social networks (WhatsApp, Facebook, Instagram) in a sample of adolescents aged between 15 and 19. Previous research has suggested that individuals with high EI may be more successful in social interactions on-line [11], but the relationship between EI and social network use has not been fully documented. This study aims to fill this gap in the literature by investigating the relationship between EI and various aspects of social network use, including frequency, motives of use, and the relationship between these variables and the characteristics of the sample (gender, age, sociodemographic variables of families).

1.1. Research Questions

1. How much time this sample of Italian adolescents spends on social networks and instant messaging platforms? What are the main reasons to use social networks reported by these adolescents?

Recent Italian studies [12, 13], identified Whatsapp as the most used, followed by Instagram and Facebook.

Previous findings revealed that the most frequent reasons for using social networks are related to boredom, followed by the opportunity to communicate with peers, send messages, stay in touch with them, and look at photos of others [12, 13].

We expected to find similar results on the average time spent on each social network and on the reasons for using them.

2. Is there a difference in the typology of social usage time between males and females and is it related to the sociodemographic variables of the families?

Taking into account previous findings of Riva [6] and Tremolada et al. [13], girls are expected to spend more time on Instagram compared to their male counterpart.

3. Is there a difference in the factors and scales of emotional intelligence according to gender?

Bar-on [14] found that there are no significant differences between men and women in the total emotional intelligence score. However, based on the North American sample, females would have better interpersonal abilities compared to males, showing more empathy, awareness of their own emotions, and sense of social responsibility. On the contrary, males seem to have better adaptive and

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intrapersonal abilities [14]. Therefore, it is conceivable that there is a gender difference in these EI subscales also in our sample.

4. Is there an association between the hours spent on social networks and the scales of emotional intelligence?

A relationship between EI and the use of social networks is expected, as already suggested in the literature [15] and, specifically, a relationship between the time spent on the three social networks and the EI scales.

5. Is the social desirability of adolescents associated with their emotional intelligence?

The construct of social desirability is the response bias that affects interviewees and jeopardizes the truthfulness of the results [16].

Evidence related to body image and internalization processes [17] suggested that social comparison mediated by new types of communication could play an important role in emotional aspects such as self-esteem, personal satisfaction in adolescents, and mood that is easily influenced at this age. We will evaluate whether boys and girls respond to items on the various scales honestly or are guided by social desirability.

2. Materials and Methods

2.1. Participants

The sample consisted of 151 participants aged between 15 and 19 years (60 males, 91 females). Participants were split into two different groups: adolescents (15-17 years) and young adults (18-19 years) (see Table 1 and Table 2 for sociodemographic characteristics).

Table 1. Sociodemographic characteristics of the participants.

		Frequency	Percentage (%)	Mean	SD
Gender	Female (1)	91	60,3	1,4	0,49
	Male (2)	60	39,7		
Age	15 years	2	1,3	17,77	0,97
	16 years	15	9,9		
	17 years	35	23,2		
	18 years	63	41,7		
	19 years	36	23,8		
Age groups	15–17 years (1)	52	34,4	1,66	0,48
	18–19 years (2)	99	65,6		

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Table 2. Sociodemographic characteristics of the family.

		Frequency	Percentage (%)	Mean	SD
Siblings	absence (0)	18	11,9	0,88	0,33
	presence (1)	133	88,1		
Mother's year of education	5 years	2	1,3	12,67	3,55
	8 years	38	25,2		
	13 years	78	51,7		
	16 years	12	7,9		
	18 years	16	10,6		
	21 years	5	3,3		
Mother's work hours	50 hours per week	18	11,9	32,79	11,04
	44 hours per week	31	20,5		
	34 hours per week	41	27,2		
	24 hours per week	30	19,9		
	14 hours per week	11	7,3		
	6 hours per week	20	13,2		
Father's year of education	5 years	2	1,3	12,47	3,85
	8 years	47	31,1		
	13 years	68	45		
	16 years	10	6,6		
	18 years	17	11,3		
	21 years	7	4,6		
Father's work hours	50 hours per week	35	23,2	41,32	8,61
	44 hours per week	74	49		
	34 hours per week	28	18,5		
	24 hours per week	3	2		
	14 hours per week	3	2		
	6 hours per week	8	5,3		

2.2. Procedure

The research protocol was approved by the ethics committees of the University of Padua. Informed consent was obtained from each participant and her/his parents. The research was conducted according to the principles of the Declaration of Helsinki. The recruitment took place in a period comprising 2017-2019: adolescents were contacted by students from the University of Padua psychology degree courses. After signing the informed consent, the participants completed a battery of questionnaires proposed via a protected online form.

2.3. Instruments

2.3.1. Sociodemographic questionnaire

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A sociodemographic questionnaire was administered consisting of 15 questions with closed and open response options, whose purpose was to obtain information regarding the type and year of school attended, gender, the presence of brothers/sisters and the characteristics of the family (parents' level of education and occupation, the number of working hours and marital status).

2.3.2. The Marlowe-Crowne Social Desiderability Scale (MC-SDS)

Social desirability was assessed using the Marlowe-Crowne scale [18]. This scale is free from items that refer to psychopathological content. The MC-SDS is a questionnaire consisting of 33 dichotomous response items (true or false) regarding behaviors that adolescents may engage in in everyday life. Eighteen of these items refer to socially accepted behaviors, but unlikely, indicating the need for the compiler to give a positive image of themselves and were counted with 1 point per item. The remaining 15 items, instead, referred to more common but not socially shared behaviors. Choosing false on these items indicates the compiler's inclination to hide normal behaviors in order to not appear socially undesirable. In this way, higher scores correspond to a greater need to hide one's socially unacceptable behaviors and the desire to show socially acceptable behaviors to appear more desirable. The items should therefore be divided on the basis of where the user should answer TRUE or where the user should instead answer FALSE. In this sample, Cronbach's alpha for TRUE responses was 0.57, and for FALSE responses was 0.63.

2.3.3. Motivations for using Facebook, Instagram, and WhatsApp

To understand why young individuals use Facebook, Instagram and WhatsApp, a simplified adapted version of the Motives to use Facebook [19] was used. The scale consisted of 20 items, each representing a possible motivation for using Facebook, Instagram and WhatsApp, evaluated with a 5-point Likert scale. To avoid overburdening the students with too many responses, we decided to set the number of responses to the three main reasons for using social networks, without information on the relative frequency of the choice of the use reason. We added an open question that allowed participants to write a reason for using social networks in case it was not included in the list provided by the questionnaire.

2.3.4. Social networks using time

We estimated the time of social network use with a 9-point scale for Instagram, Facebook, and Whatsapp (how much time do you spend on Instagram? From 1 = never to 9 = more than 7 h a day).

2.3.5. EQ-i Emotional Quotient Inventory

The italian version of EQ-i questionnaire by Bar-On [20] was used to evaluate the construct of emotional intelligence. The questionnaire consisted of 133 short statements with a five-point response scale (from "Not at all true for me" to "Absolutely true for me"). It can be administered in self-report mode to subjects up to 16 years old and is not recommended for participants who are not willing to tell the truth or are unable to answer a questionnaire honestly [14]. The results showed a total score of EQ, five scores related to the main factors, and 15 scores related to the single factorial components. The five total scores obtained in the individual dimensions are equivalent to the sum of the individual subscales that make up it. Bar-On [14] suggests that the higher the EQ score, the more positive the prediction of success in responding to demands and pressures from the external environment will be.

2.3. Statistical Analysis Plan

Initially, descriptive statistics (Mean and SD) were performed to analyze the sociodemographic data of the participants. Then, frequencies were run concerning the daily time spent on Facebook, Instagram, and WhatsApp, transforming the measurements of time spent on digital media into their equivalent in minutes and calculating mean and standard deviation values. To evaluate the

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associations investigated, exploratory two-tailed Pearson correlations were performed and in the case of significant results, the independent sample t-test was used to understand differences. In the case of categorical variables, chi-square tests were performed.

3. Results

3.1. Adolescent time spent on social networks and main reasons for their use

The results showed that WhatsApp is the most used social network platform in terms of daily hours (Mean = 188.64; SD = 126.76), followed by Instagram (Mean = 136.69; SD = 99.94) and Facebook (Mean = 26.72; SD = 44.59).

The results on the reasons for the use of social networks are presented in Table 4.

Table 4. Reasons for use indicated by the participants.

Motives for using	Frequencies	Percentage (%)
Spending time when I'm bored	77	51
Communicating with my friends	61	40,4
Staying in touch with my friends	54	35,8
Being able to communicate with people who are hard to reach	45	29,8
Sending messages to a friend	34	22,5
To check email/WhatsApp, Facebook wall, or my Instagram profile	27	17,9
To look at other people's photos	27	17,9
To pass the time	26	17,2
To look at other profiles/walls	18	11,9
To have a fun	13	8,6
To meet new friends	10	6,6
Getting in touch with people I know	8	5,3
To see if people I know are on Facebook/Instagram/WhatsApp	7	4,6
It's one of the usual activities I do when I'm online	4	2,6
To feel less lonely	4	2,6
To find people more interesting than real life	3	2
To look for company	3	2

3.2. Adolescent social networks use time, gender, and other familiar sociodemographic variables.

To understand the differences between males and females regarding time spent on social networks, an independent samples t-test was performed separately for Whatsapp, Instagram, and Facebook in minutes as the dependent variable and for the gender as the independent variable. The difference between the means considering gender was significant for Whatsapp ($t(149) = 4.27$; $p = 0.001$), Instagram ($t(149) = 3.91$; $p = 0.001$), and Facebook ($t(149) = -2.16$; $p = 0.033$). Furthermore, girls spent more time per day on Whatsapp (Females Mean = 222.53; SD = 127.26 – Males Mean = 137.25; SD = 108.13) and Instagram (Females Mean = 161.37; SD = 104.51 – Males Mean = 99.25; SD = 79.81; Figure 1).

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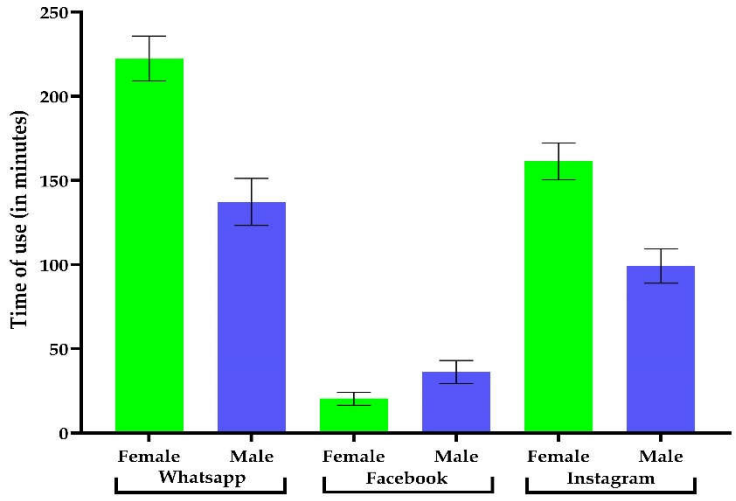

Figure 1. Gender differences in relation to the time of social network use expressed in minutes. Error bars represent standard error of the mean (SEM).

Regarding the reasons for use, through the Pearson's correlation analysis, it was possible to identify the presence of a significant relationship between gender and four of the reasons included in the questionnaire, specifically "Sending messages to a friend" ($r = 0.18$, $p = 0.029$), "Spending time when I'm bored ($r = - 0.26$, $p = 0.001$), "Have fun" ($r = 0.23$, $p = 0.004$) and "Look for company" ($r = 0.17$, $p = 0.031$). To further explore the gender differences, significant correlations were investigated adopting chi-square tests. Interestingly, the results revealed that girls use social networks more to occupy their time when bored compared to boys (see Table 4). Instead, the opposite effect emerged for the other reasons of use, although in relatively lower percentages. Furthermore, these findings highlighted that males would first use virtual platforms to send messages to a friend, followed by motivation related to use for fun and finally to find company.

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Table 4. Chi-square tests between the reasons for the use of social networks and gender.

Sending messages to a friend						
		absence	***presence***	**totale**	χ^2	**p-value**
Gender	male	76	15	91	4,78	0,029
		83,50%	16,50%	100,00%		
	female	41	19	60		
		68,30%	31,70%	100,00%		
Total		117	34	151		
		77,50%	22,50%	100,00%		
Spending time when I'm bored						
		absence	***presence***	**totale**	χ^2	**p-value**
Gender	male	35	56	91	10,19	0,001
		38,50%	61,50%	100,00%		
	female	39	21	60		
		65,00%	35,00%	100,00%		
Total		74	77	151		
		49,00%	51,00%	100,00%		
Look for company						
		absence	***presence***	**totale**	χ^2	**p-value**
Gender	male	91	0	91	4,64	0,031
		100,00%	0,00%	100,00%		
	female	57	3	60		
		95,00%	5,00%	100,00%		
Total		148	3	151		
		98,00%	2,00%	100,00%		
Have a fun						
		absence	***presence***	**totale**	χ^2	**p-value**
Gender	male	88	3	91	8,22	0,004
		96,70%	3,30%	100,00%		
	female	50	10	60		
		83,30%	16,70%	100,00%		
Total		138	13	151		
		91,40%	8,60%	100,00%		

A Pearson's correlation analysis was performed to understand the relationship between the amount of time spent on social networks of adolescents in our sample and the sociodemographic variables of their parents. The results indicated a significant relationship between the level of education of the father and the time spent on WhatsApp ($r = -0.22$; $p = 0.007$) and on Instagram ($r = -0.20$; $p = 0.016$).

3.3. Emotional intelligence and gender

To assess the existence of a difference between males and females in the five emotional intelligence scales proposed by Bar-On, a Pearson correlation was performed between gender and the 5 scales scores; a significant correlation was found in the intrapersonal scales ($r = 0.19$; $p = 0.020$) and adaptability scales ($r = 0.21$; $p = 0.012$).

A further analysis was conducted using the independent sample t-test to identify any gender difference between the means of these scales (Table 5).

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Table 5. Independent samples t tests of EQ scale scores and gender.

	Gender	Frequency	Mean	SD	*t*	df	*p*
Intrapersonal dimension	male	91	125,23	6,59	*-2,349*	149	0,02
	female	60	122,46	7,41			
Adaptability dimension	male	91	81,93	4,16	*-2,558*	149	0,01
	female	60	80,01	4,74			

With the aim of identifying gender differences, an exploratory Pearson's correlation was performed between gender and the fifteen subscales of emotional intelligence. This leads to a significant correlation in the EQ subscales as follows: Independence (r = 0.17; p = 0.035), empathy (r = -0.31; p = 0.001), interpersonal relationships (r = 0.32; p = 0.001), social responsibility (r = -0.17; p = 0.034), flexibility (r = 0.19; p = 0.020), impulse control (r = -0.17; p = 0.042) and optimism (r = -0.20; p = 0.017).

3.4. Associations between the hours spent on Social Networks and the EQ subscales

As can be seen in Table 6, all the use of social networks was significantly associated with some emotional intelligence subscales and stress management factor. As presented in Table 7, the time spent on WhatsApp correlates positively with the assertiveness (AS) EQi subscale. On the other hand, what would seem to have a negative influence is related to the aspect of emotional self-awareness (ES) and interpersonal relationships (IR). Facebook has a positive correlation both with self-actualization (SA) and with impulse control (IC), increasing and promoting its concretization. Finally, there is a positive correlation between the time spent consulting Instagram and emotional intelligence: helping stress (ST) and optimism (OP).

Table 6. Pearson's correlations between stress management and frequency of use of social networks.

		Whatsapp time of use (minutes)	Facebook time of use (minutes)	Instagram time of use (minutes)
Stress management dimension	**Pearson's Correlation**	0,186*	0,193*	0,206*
	p-value	0,022	0,018	0,011
	n	151	151	151

Table 7. Significant Pearson correlations between EQi subscales and frequency of use of social networks.

	Whatsapp time of use			Facebook time of use		Instagram time of use	
	ES sum	*AS sum*	*IR sum*	*SA sum*	*IC sum*	*ST sum*	*OP sum*
Pearson's Correlation	-0,174*	0,241**	-0,185*	0,180*	0,195*	0,246**	0,186*
p-value	0,033	0,003	0,023	0,027	0,017	0,002	0,022
n	151	151	151	151	151	151	151

3.5. Associations between social desirability and emotional intelligence

The Person's correlations revealed a significant correlation between Social Desirability (SD) and the adaptability factor of EQ (r = 0.26; p = 0.001) and weaker but still significant correlations with the general mood scales (r = 0.24; p = 0.003) and stress management (r = 0.21; p = 0.012). These data suggest that the high social desirability experienced by the participants could give nonauthentic responses in EQ reports. The correlations carried out between SD and the fifteen subscales reported significant

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results; in particular, on the self-consideration scale (r = -0.28; p = 0.001), flexibility (r = 0.19; p = 0.020), impulse control (r = 0.30; p = 0.001), happiness (r = -0.21; p = 0.010) and optimism (r = -0.17; p = 0.036).

In general, no significant correlation was found between total SD and gender (r = -0.008; p = 0.918).

4. Discussion

The current study was conducted with the aim to understand the needs of today's adolescents and to suggest potential psychosocial and educational-school interventions according to their social networks use and preferences.

Considering the current digitalized reality that adolescents experience daily, it is evident that technology and social networks play a relevant and important role. Understanding the psychological consequences, advantages, motivations, and effects that the technological world offers and reserves for these generations is very compelling. The findings revealed by the current study offer new insights into the psychosocial development of adolescents, providing useful information to deeply understand the current reality experienced by adolescents.

In particular, we investigated the amount of time spent on Facebook, Instagram and WhatsApp. Previous evidence highlighted a relevant growing trend in the use of social networks in adolescents, particularly among those who have access to mobile devices [9]. Recent findings support Waterloo et al., [9] findings, shedding light on the amount of time spent using social networks in Italy, where the daily average usage of social networks was estimated at one hour and 51 minutes a day [9].

In the current study, participants declared to spend an average of more than 3 hours a day on WhatsApp and more than 2 hours a day on Instagram. Facebook usage resulted in 26.72 minutes per day. Data related to time spent on WhatsApp and Instagram were higher than those reported by the Global Digital report [10], which also showed a higher use of Facebook compared to Instagram. Instead, our results, in accordance with more recent findings [13], demonstrated that WhatsApp and Instagram are more used, compared to Facebook.

A possible explanation could refer to the differences of the participants in the studies: the study conducted by Waterloo et al. [9] included subjects aged 15 to 25 years, considering a wider age group. The same was applied to the report by Global Digital [10], which analyzed the entire Italian population and did not specify the percentages.

Furthermore, the main reasons for the use of social networks were investigated. The results revealed that the most frequent reason reported is linked to boredom followed by the social sphere. Indeed, participants declared that they use social networks to communicate with friends, stay in touch with them, manage to communicate with people who are difficult to reach, send messages to friends, look at other people's photos, as well as checking WhatsApp, Facebook, or their own Instagram profile. These findings confirm previous studies (i.e., [13]), which highlight the strong impact of social networks on the construction of the adolescents' identity. The concept of identity is deeply conditioned by the historical context and reference figures, including the peer group [21]. Social comparison influences the construction of personal identity [22]: in the adolescent phase, individuals begin to use the stream of information received from various sources, mainly social networks [23], to build a sense of self and a personal identity [21].

We also investigated whether the impact of social media changes as a function of gender. Consistent with our hypothesis, our results revealed a gender difference in the amount of time spent on social networks. The results showed that females use Whatsapp and Instagram almost an hour a day more than males' peers, supporting the general trend documented by Tremolada and colleagues [13] and Riva [6]. However, our results showed that Facebook time was longer for boys compared to their female counterpart, also confirming the data from the 2019 Global Digital report (both data were collected in the same year). In addition, our results supported the idea that girls typically used social networks more when bored compared to their male counterparts, who instead preferred to use social media to send messages to friends, for fun and to find company.

Another important aspect of our study considered the relationship between the use of digital media by adolescents and the sociodemographic characteristics of their parents, investigating

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whether the number of hours spent by mothers and fathers at work and their years of education could correlate with the use of social media. We investigate such a potential relationship, focusing on parental sociodemographic characteristics, based on the idea that proactive participation of parents in the education of smartphone and social media use strongly impacts their identity construction, as it has been shown that social media use is problematic when it exceeds 1 or 2 hours a day [24]. Our results suggested that the use of WhatsApp and Instagram was associated with the level of education of the father. A higher level of father's education was associated with lower social media use and vice versa. However, our results did not provide any evidence on the influence of the sociodemographic characteristics of the mother and the hours of work of the fathers.

We aim to understand the relationship between emotional intelligence (EI), the use of social media by adolescents, and their sociodemographic and family characteristics. The concept of emotional intelligence, as explained by Bar-On [14], is an important factor for individuals, as it determines their ability to succeed in life and directly influences their psychological well-being. Thus, understanding how social networks impact the level of emotional intelligence assumes a role of paramount importance in a digitalized reality dominated by an interconnected world and continuous technological advancements.

Hence, we first investigated the participants' average level of emotional intelligence. Analyzing EI factors, adolescents in the current study have been shown to report higher scores in the intrapersonal dimension, reflecting greater abilities related to the intimate and personal sphere. Similarly, participants reported high scores on the adaptability dimension, corresponding to the subjects' ability to adapt flexiblely to reality and new situations [14]. Regarding gender differences, our findings underline that male adolescents reported slightly higher scores on both general scales, with respect to their female counterparts. To shed more light on EI gender differences, we analysed, separately, each subscale. Interestingly, our results showed that girls are more empathetic compared to male peers. On the contrary, these findings suggested that girls are more independent and capable of adapting flexibly to difficult situations or coping with psychological or environmental issues. Overall, our results suggested that females would experience a greater sense of social responsibility with respect to males. These findings seem to be consistent with previous evidence [14], highlighting no significant differences between men and women when the total score of emotional intelligence is considered, even if gender differences emerge when considering factor scores and specific EI subscales. Furthermore, according to Bar-On [14], our findings suggested that females reported higher scores in the interpersonal sphere, demonstrating greater empathy, social responsibility, and awareness of their emotions, while males reported a higher degree of adaptive and intrapersonal competencies.

Finally, we aimed to clarify the possible relationship between EI and social networks. Our results suggest that social media use is strongly associated with the emotional sphere of adolescents. Interestingly, our findings revealed that the time spent by adolescents (in particular, males) using social media in the order of WhatsApp, Facebook, and Instagram, is associated with the functional coping and stress management, and vice versa. In detail, our results highlighted that the time spent on the WhatsApp instant messaging application is positively associated with the ability of adolescents to be assertive and therefore capable of defending and expressing their thoughts, feelings, and beliefs, a competence that falls within the intrapersonal dimension proposed by Bar-On [14]. At the same time, our results suggest that WhatsApp could be negatively associated with interpersonal relationships and self-awareness. These results should not be surprising, considering the basic functionality of the instant messaging application [6].

Furthermore, our findings indicated that the time spent using Facebook is positively associated with EI, including aspects of self-realization and stress management. Similarly, time spent on Instagram is significantly positively associated with stress reduction abilities and increased optimism. These findings add new knowledge to previous findings [9], demonstrating that expression and communication of positive emotions (e.g., joy, pride) typically occur through social media platforms such as Instagram, resulting in increased optimism derived from exposure to news and content filled with uplifting and mood-enhancing emotions.

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It is note to worth that when adolescents self-assess their abilities in the domains of emotions, interpersonal relationships, and other domains of self-identity related to the social sphere, they are likely to fall into a social desirability bias, acting in a socially acceptable manner to avoid exclusion or any kind of judgment. [18]. Indeed, such bias often occurs when adolescents respond directly to questions and statements concerning their self-identity, as is the case of the EI questionnaire administered to the sample of the current study. This phenomenon is also documented in online interviews [25, 26]. To limit the effect of social desirability bias in assessing their emotional abilities, MC-SDS [18] was administered to participants, in order to assess the level of social desirability experienced and thus evaluating the degree of influence on self-evaluation. Our findings confirm the impact of the social desirability bias in adolescents documented in previous evidence (see also [17]), highlighting a relationship with the use of social media and problems of body image, and therefore subsequent poor mental health in adolescence. Furthermore, these results show how social desirability influences male adolescents when they reported self-evaluation with respect to adaptability, stress management, and general mood. In detail, regarding the adaptive dimension of EI, it could be inferred that male adolescents are more affected by social desirability compared to female peers, considering their ability to adapt to critical situations and their problem solving skills. Furthermore, our results suggested that social desirability is negatively associated with some intrapersonal aspects (e.g., self-regard, flexibility, impulse control, happiness, and optimism), reflecting the stronger influence exerted by social comparison and the negative feelings generated by content on social media.

Moreover, our objective was to identify the main reasons for using social networks in adolescents and how such reasons affect their EI levels, administering a survey capable of exploring EI aspects. Interestingly, the main reasons that drive adolescents to use social media concerns the possibility of looking at other people's photos, both in adolescents with an average and lower EI, with respect to the normative sample [14]. This aspect could potentially negatively interfere with the functional development of EI in adolescents.

Overall, the current study shed some new light on the relationship between the impacts of social media on EI in adolescents. The findings outlined the relevant importance of sociotechnological changes in EI and the construction of identity in adolescents. Importantly, the current research was conducted during the period prior to the COVID-19 pandemic (2019); therefore, our results could provide an interesting point of comparison of psychological and emotional changes in adolescents deriving from the use of social networks during or after the COVID-19 pandemic period. The current digitalized world evolves rapidly, affecting the cognitive and emotional spheres, requiring adolescents to adapt their preferences and habits flexibly. For instance, differently from our results, it has been demonstrated that Facebook was the most used social media in the period ranging between 2020 and 2022. Furthermore, differently than in previous years, males prefer to use [27, 28, 29], highlighting a rapid transition of the needs and habits of adolescents in this digitalized society during and after the COVID-19 pandemic.

A noteworthy limitation of the current study is represented by the levels of social desirability assessed in adolescents in our sample. Since all the measures administered are self-reported, it could be possible that social bias could have masked some relevant information. Furthermore, the extensive administration time of the questionnaires could represent a further limitation, since it could have produced a state of boredom in the participants, conditioning their responses. Future studies could overcome this limit by validating more specific and faster tools to investigate EI and social media usage. Validating new potential measurement tools would also be convenient in limiting the constraints generated by the lack of an Italian normative sample, as in the case of the EQ-i Emotional Quotient Inventory [14].

As a future perspective, the clarification of the relationship among technology, social networks, and the emotional aspects could provide useful and operational tools to support the functional development of adolescents' emotional intelligence to educators and parents, encouraging an education grounded on conscious use of social networks. This perspective includes support for time management and limits of use of social networks, as well as education about the risks and drawbacks

associated with the use of social networks. Additionally, emotional education should be integrated into the development of teenagers to help them develop the ability to recognize and manage their emotions and those of others.

5. Conclusions

The current study aimed to clarify the dynamics of the digitalized reality that adolescents experience daily, deepening their habits, preferences, and consequences experienced in response to their exposure and frequent interaction with such a social virtual world. Our results suggest that this new reality is an integral part of everyday life and provide new information on its links to adolescents' emotional and psychological aspects affecting the construction of self-identity.

The relationship between emotional intelligence and social networks in adolescents could play a fundamental role during this critical developmental period. Further research is necessary to better understand the relationship between this technological "invasive" phenomenon and the delicate sphere of emotions, as well as to clarify the still ambiguous results and overcome some limitations due to measurement tools. It will be advisable to consider the critical aspects of social networks in a comprehensive manner along with the potential possibilities to overcome their negative outcomes in the emotional space of adolescents and future perspectives, with the aim of functionally adapting to these continuous revolutions and adapting the educational world accordingly to technological needs.

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