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Research Article

News/Entertainment Social Media Engagement and Social Media Health Literacy: Effects on Mental Health and Coping During COVID-19 Lockdown

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ABSTRACT

This study examined the effects of news engagement (NE) vs. entertainment engagement (EE), and of social media health literacy (SMHL) on mental health and coping during the first COVID-19 lockdown. Further, it investigated the moderating effect of SMHL between NE, EE, mental health, and coping relations. The study is drawing on mood management theory and stress-coping theory and is based on a cross-sectional online survey of 478 participants aged 18 years and older. Moderated multiple regression and path analyses were used; the results indicated that both NE and EE predicted a significant increase in anxiety and depression and increased the participants' online and offline coping. While SMHL predicted a substantial decrease in anxiety and depression, with an increase in online and offline coping. SMHL significantly moderated (weakened) the relations between NE and both anxiety and depression. Online coping significantly mediated the relations between both NE and EE and offline coping. This study proposes that EE has less effect on anxiety and depression than NE does. Findings support that online coping is an important factor in understanding the relationship between genre-specific social media engagement and offline coping in health crises. SMHL is a crucial moderator for managing the effects of NE on mental health. The study recommends algorithmic awareness as an item of SMHL and rationalization of social media use as a crucial coping mechanism.

Keywords: news/entertainment engagement, social media health literacy, media literacy, COVID-19, mental health, online/offline coping, mood management theory

INTRODUCTION

The COVID-19 pandemic has had an immense psychological impact on people worldwide (Ballew et al., 2020; Zhang & Ma, 2020). COVID-19 lockdowns imposed a new, stressful situation, intensifying social distancing, and home isolation and leading to the expansion of virtual spaces for social, psychological, and informational support (Nguyen et al., 2020). The Egyptian Government imposed a nationwide lockdown from March 15 to June 30, 2020, which affected the public deeply. It stopped mass transportation, prevented large gatherings, closed public places and entertainment services, and extended suspension of schools and travel, raising the slogan 'stay home', with deterrent penalties for violating these rules. Lockdown increased the public's free time, and people used social media to compensate for lack of information and social relations and manage their psychological state. Meanwhile, an 'infodemic' spread through social media, and has been one of the main stressors during lockdowns. This term refers to an oversupply of information–some of it true, some of it not–that makes it difficult for individuals to access credible sources. It spreads amongst humans via digital information networks, in a similar way to an epidemic (WHO, 2020a). Therefore, WHO (2020b) has recommended maintaining positive mental health by limiting watching, reading, and listening to news about COVID-19. The increase in news consumption raised the significance of media literacy as a mechanism to protect social media users against the infodemic. However, to our knowledge, no studies have examined the

role of social media health literacy (SMHL) as an explanatory factor of mental health and coping amid the COVID-19 outbreak. This study fills this research gap by examining the moderating effect of SMHL on news engagement (NE) vs. entertainment engagement (EE), anxiety, depression, online coping, and off-line coping relations. The study develops new concepts on SMHL, Online coping, and off-line coping.

This study aims to identify the main factors that have affected the public's mental health and coping during the COVID-19 lockdown in Egypt. The study goes beyond the effect of time spent on social media use (SMU) to focus on user engagement with specific content during the pandemic (NE vs. EE) and its effect on mental health and coping via social media. This study gives insights regarding SMHL not only as an independent variable that affects the public's mood and well-being, adaptation, and resilience in crisis time but also as a moderator variable that can mitigate the negative impact of social media engagement and maintain well-being during health crises.

The study argues that using genre-specific NE vs. EE and SMHL impacted mental health and the ability to cope with the pandemic. It examined two ways in which people handled the pandemic (online and off-line coping), which may provide insights into the association between these coping behaviors on social media and in real life. The study took a theoretical approach to understand the dual effects of genre-specific social media engagement during the COVID-19 first lockdown as a stressor and/or a support agent. This role was seen as integrated because fear and anxiety lead to seeking information that leads to prevention intention (Li & Zheng, 2020).

The effect of online social networking on wellness can be both positive and negative, illustrating the need for further studies to assess the impact of nominee mediators and moderators driving these disparate results through changing networks (Baker & Algorta, 2016).

The study analyzes how people have controlled their mood during the COVID-19 lockdown, considering recommendations to ration SMU and the eagerness to use it to gain knowledge to cope with the pandemic or for entertainment and escape from stress. As we addressed in the next section on mood management theory.

LITERATURE REVIEW

Mood Management

According to mood management theory, selective exposure to media messages is a function of media consumers' current feelings and follows the notion of mood enhancement (Oliver, 2003). The regulation process of the arousal component of the current emotional state is one of the earliest assumptions of mood management theory (Bryant & Zillmann, 1984). Because both under stimulation (e.g., boredom) and overstimulation (e.g., tension and anxiety) are unpleasant states, the objective of excitatory homeostasis should influence the selection of media stimuli, to achieve a more balanced state of arousal (Reinecke, 2017). Mood management theory posits that humans are naturally motivated to take actions that keep a more relaxed mood and reduce or remove stress, anxiety, boredom, or sadness (Zillmann, 1988). Unfortunately, media choices based on preceding moods may start to affect positive or negative mood. It is therefore important to explore why some media choices may immediately improve mood after use and why other choices may not be made (Carpentier, 2008). Watching television may provide an escape from a depressed mood, while news programs can worsen it (Potts & Sanchez, 1994). The behavior of mood management is a genuine part of the larger context of coping strategies (Stevens & Dillman Carpentier, 2015).

The idea of informational value broadens the scope of mood management research drastically. This is accomplished by recognizing that selective exposure is not always or entirely a type of emotion-related coping aimed at alleviating bad moods and feelings brought on by personal challenges and pressures. Selective exposure, on the other hand, might also resemble a type of problem-focused coping (Zillman, 2000). Based on mood management theory, this study investigates media use rationalization to cope with the pandemic. Although there are studies about the relationship between media use and coping, there is no study that has included media use as a component item of coping during the crisis. Moreover, instead of concentrating only on entertainment as a tool for well-being, this study examines effects of news & EE on anxiety, depression and coping with the pandemic. Mood management theory fits the context of COVID-19 pandemic, because of free time and bad mood within shutdown, social media engagement & using increased to relax, escape,

getting information to face the sociological and psychological effects of the pandemic. Although most studies examined exposure to entertainment media for mood management (such as Oliver, 2003; Stevens & Dillman Carpentir, 2015; Zillmann, 1988). However, a few studies concerned with news exposure as a mean for mood management in the pandemic crisis. This study contributed to fill this gap and widen the applicability of mood management to effects of both entertainment and news on mental health and coping. The study used mood management theory and stress-coping theory to understand effects of social media engagement amid the pandemic. Mood management studies differentiated hedonic entertainment usage for enjoyment and pleasure and eudemonic entertainment media usage that can provide a meaningful experience (such as Eden et al., 2020; Rieger et al., 2014). in comparison, this study in a similar way, differentiates between entertainment and NE. The study considers NE functioned like eudaemonic media usage because news use can provide the public with the information they need to cope with the pandemic; however, it raises anxiety and depression of the people. So, this study enlarged the mood management concept to include coping and taking actions for resilience.

Social Media Engagement and Mental Health

Previous research has primarily examined the association between using social media and psychological health, focusing on 'social media addiction' (Hurley, 2018) and its negative effect on mental health (Hou et al., 2019). Most studies have been conducted on university students and adolescents in normal situations (Berryman et al., 2018). This study analyzed a large sample of individuals aged 18 or above for different situational contexts related to the international public health crisis.

Moreover, the content they are exposed to and interact with is important. Some researchers have found relationships between well-being problems and bias in searching health information (Drentea et al., 2008). Social media users share negative events with others, which increases the severity of experienced negative emotions (Choi & Toma, 2014).

Huang (2017) found that the mean correlation between time spent on social networking sites and negative indicators of psychological well-being (depression and loneliness) is weak. Some findings reveal that SMU is not indicative of mental health functioning and suggest that the presumption may be misplaced (Berryman et al., 2018). Additionally, many researchers have concluded that using social media is related to increasing social capital and coping. Findings demonstrated that social network sites' use is correlated with decreased psychological distress over time, which means that social media may protect against depression and anxiety symptoms resulting from social conditions (Hampton, 2019). Cotten et al. (2014) concluded that the Internet use works as a positive predictor for older retired people's well-being, decreasing the possibility of depression and remedying social isolation (Cotten et al., 2014).

News Versus Entertainment Engagement & Mental Health

News users' behaviors refers to viewing and reacting to news posts, through likes, comments, and shares (Dvir-Gvirsman, 2020). Some researchers go further to upload video as an item in a higher level of YouTube engagement (Khan, 2017). The current study goes beyond mere uploading of already existing video to add a new perspective: that of creating content by writing a post or shooting videos related to the event, which that represents the utmost level of engagement in the news. Consumption, involvement, and creation are the three basic ways in which people interact with social media content (Shao, 2009). There are few studies regarding effects of generic media consumption in crisis contexts; the results differentiated between effects of exposure to news media, linked to the perception of the cognitive level of an event's risk factors, and effects of exposure to entertainment media, linked to perceiving both cognitive and emotional levels (Oh et al., 2015).

Many posts concerning COVID-19 were seen on Facebook in March 2020, primarily linked to news outlets, not health care or science sites (Pew Research Center, 2020). The primary reason for mental health centers' advice to avoid news (WHO, 2020a) stemmed from its harmful impact on the population's mood and the difficulty in deciphering the credibility of the news shared. Approximately half of the news avoiders in the UK avoided news on social media (Fletcher et al., 2020, p. 4).

A decade ago, studies centered on TV news effects on people's well-being indicated that news media predicted trait anxiety (McNaughton-Cassill, 2001). Viewing the news causes an unpleasant psychological emotion that can only be alleviated by a controlled psychological technique such as gradual relaxation (Szabo

& Hopkinson, 2007). News exposure on mainstream media is positively associated with depression symptoms and perceived vulnerability during the pandemic. (Olagoke et al., 2020)

Higher depression and anxiety levels were linked to more exposure to both COVID-19 updates and rumors (Liu & Tong, 2020). Majority of social media users 58.4% thought that publishing more news related to COVID-19 on social media has spread fear and panic among the people (Ahmad & Murad, 2020, p. 6). Most studies were in this area have been on the psychological effects of TV news or SMU in general, with only a few studies concerned with the effects of news use on social media within COVID-19 context. As well, as most studies have been on consuming news in general. So, this study is centered on not only news consuming but also engagement specific kinds of news related to a health crisis.

In short, this study examines the effects of COVID-19 NE on social media during lockdown. We hypothesize, as follows:

H1: NE during the COVID-19 lockdown increased anxiety and depression.

The use of popular entertainment (television programs, movies, and popular songs) to educate people about disease prevention is effective. Entertainment media attracts interest, reinforces old behaviors, and models new behaviors but also engages the viewer's feelings (Freimuth et al., 2000). However, some researchers have considered that entertainment, for example, watching YouTube videos, can positively impact mental health, as it can aid relaxation, induce positive emotions, and improve mood (Goldstein, 2017). Entertainment media provides more than just enjoyment; it has an impact on recovery and psychological well-being (Reinecke et al., 2011). Students and cancer patients have reported that media use is an effective tool within a broader range of coping strategies for stress management (Nabi et al., 2017). During lockdown, industry reports indicated noteworthy changes in digital behavior and a significant increase in SMU and the amount of time spent watching entertaining content, particularly e-sports and video games (Kemp, 2020). Mood management theory assumes that humans are naturally motivated towards actions that ensure a more relaxed mood and reduce or alleviate stress, anxiety, boredom, or sadness (Zillmann, 1988). This leads to the second hypothesis:

H2: EE during the COVID-19 lockdown leads to less (i) anxiety and (ii) depression.

Drawing on previous literature, this study argues that both news and entertainment consumption through social media can affect mental health and how people cope with the health, social, and psychological challenges they face during the pandemic.

Online Coping Versus Off-Line Coping

Stress-coping theory asserts that people try to cope with environmental stimuli, appraise the situation, and evaluate it as threatening (Lazarus & Folkman, 1984). Thus, denial, escape, and avoidance are considered maladaptive strategies. Research supports that avoidant coping strategies affect well-being (Chao, 2011), and Hurley (2018) observed that people who reported higher levels of depression were engaged only in avoidant coping mechanisms. Mood management is an important missing part of the larger context of coping strategies (Stevens & Dillman Carpentier, 2015) related to peoples' engagement in entertaining content during COVID-19 lockdowns.

Although many studies have discussed the relationship between media use and coping, they have not included media use as a component of coping scales. Therefore, this study fills this gap by including rational media use as a component of coping measures. Coping strategies and tools vary based on situational factors, type and characteristics of media, and individual differences (Wolfers & Schneider, 2020). For instance, regarding the COVID-19 pandemic, social media performed multiple roles in Wuhan, as it offered users information and provided emotional and peer support (Zhong et al., 2021).

There is a relationship between SMU and people's negative health behaviors, such as rumors spread through the Internet about herbal remedies and an antimalarial drug affected people's behaviors (Gao et al., 2020). This study argues that it cannot be concluded that social media has only caused psychological problems and for misleading people during the upsurge of COVID-19, as it also helped them cope with the global pandemic. From another perspective, there is no conflict between anxiety and depression and coping with the pandemic. Most UK citizens agree that news media has helped them to better respond to COVID-19. However, many also argue that news has escalated the crisis and increased anxiety (Nielsen et al., 2020).

Higher social media engagement is associated with awareness about viruses in general, such as human papillomavirus (Rosen et al., 2020).

This study offers new insights into the unique situational factors represented by the COVID-19 pandemic and examines the communication factor of social media engagement in different kinds of content. Consequently, this study hypothesizes the following:

H3: NE significantly predicts (i) online coping and (ii) off-line coping.

H4: EE significantly predicts (i) online coping and (ii) off-line coping.

Health behavior is considered one of the dimensions of coping mechanisms in ordinary contexts (Ingledew et al., 2013). Extensive studies have been conducted on coping during health crises, but these were exclusive to real health behavior and wishful thinking (Puterman et al., 2009).

Health behavior and rational media use as per WHO recommendations have not been studied as a coping behavior. Many studies recommend considering electronic media use as part of coping strategies (Leiner et al., 2014), as digital coping strategies, such as browsing social media, can reduce stress (Coates et al., 2019). Thus, this study fills this gap and includes rational media use and preventive health behaviors to measure coping while examining online health behavior, including the dimensions of ensuring psychological well-being and the importance of social relationships.

Previous studies have addressed online engagement as a tool to cope with stressors, concentrating on motives for using technology and the Internet to attain that purpose (Duvenage et al., 2020; van Ingen et al., 2016). However, Duvenage et al. (2020) concluded that using online coping mechanisms may cause adverse reactions to stressors and lead to trouble recovering from concerns and envy. Therefore, this study considers social media as a stage reflecting to what extent people's online interactions with NE and EE and their online coping behaviors indicate coping with the pandemic (the stressor) in real life. A few studies have investigated the relationship between online and off-line behaviors, one of which focused on social behaviors and outlined that off-line social activities can provide a predictive model for users' online sentiments and interests (Falavarjani et al., 2019). Perception of online social support and off-line social support were also found to predict the subjective well-being of people with HIV/AIDS (Han et al., 2018). Therefore, in a different context related to health and health behaviors, the current study answers if we can consider online behaviors to be equivalent indicators of off-line behavior and determine how the public's online behaviors to cope with the pandemic can explain the relationship between NE, EE, and off-line coping variables. This study argues that online behaviors affect and reflect real pro-health behaviors. What people act online affects what people act in the real world. We developed the following hypothesis to understand the dynamics between online and off-line health behaviors, mainly since we deal with NE & EE via online platforms.

H5: Online coping mediates the effect of (i) NE and (ii) EE on off-line coping.

Social Media Health Literacy

Misinformation, hoaxes, and rumors regarding the causes, effects, protection, and curing of COVID-19 obstruct healthy behavior and lead to unsound practices that can exacerbate the spread of the virus and result in poor physical and mental health (Tasnim et al., 2020). Therefore, some scholars have recommended educating users on health information shared through social media to ensure that they can handle the infodemic, thereby avoiding panic and fear (Ahmad & Murad, 2020). However, no studies to our knowledge have examined the real effect of social media literacy on mental health and coping amid this pandemic. This study fills the gap by examining if SMLH has an impact on mental health and assists in positively coping with a pandemic.

Media literacy encompasses the Internet and news media, ensuring that messages can be received, interpreted, analyzed, and generated in several contexts. The concept rests upon a skill-based approach, crucial for the public, policy-makers, and academics (Livingstone, 2010, p. 3). Media literacy prepares people to receive and recognize media messages effectively and eventually create new messages. Media literacy is a notion that establishes boundaries between the real world and the one fabricated by the media and grants people dominance over media messages. (Arik & Arik, 2021). It helps people understand how to interpret what they see and hear without letting that interpretation take over their lives (Akcayoglu & Daggol, 2019).

This concept has been applied to the health field and implies the knowledge to use health-related information technology–electronic health literacy–the ability to read, use computers, search for information, and understand and contextualize health information (Norman & Skinner, 2006). Understanding both media health literacy (MHL) and electronic health literacy is crucial in the emerging digitalized world and assists in identifying the skills and knowledge that help people access and navigate health information through TV, the Internet, and mobile applications. Especially that MHL has a positive impact on people's well-being (Levin-Zamir & Bertschi, 2018). People also collect health information from news media. News literacy assists people in identifying misinformation and decreases the endorsement of conspiracy theories (Craft et al., 2017).

Scholars have recommended enhancing the public's media literacy as a possible remedy for the spread of false information through social media. Bode and Vraga (2018) recommend encouraging users to refute and disprove false health information and provide genuine sources. Tully et al. (2020) propose that news literacy messages through Twitter can modify misinformation perceptions and mitigate the impact of exposure to misinformation regarding health problems through social media. Media literacy skills help people protect themselves against the misinformation arising from social networking site exposure (Mingoia et al., 2020), and they play a substantial role in how the information shared online is perceived (Vraga & Tully, 2019). Hence, social media users with high news literacy are more distrustful of the quality of information being shared.

Social media literacy is conceptualized as mitigating the risks of interactions with social media content and maximizing the opportunities. The cognitive structure of social media literacy includes an understanding of social media features and interpersonal communication dynamics on social media (Schreurs & Vandenbosch, 2020). Social media literacy extends to varied contexts related to sports, news, peers, and commercials.

This study reconceptualizes social media literacy, news literacy, and electronic health literacy as SMHL to address how social media users deal with infodameic, understand, criticize, and evaluate all news feeds, posts, and videos on health topics and examines its impact on mental health and coping with the pandemic. It centers on the context of health and includes health news, peer posts related to health, health information, and health memes. Dealing with social media literacy requires specific characteristics different from traditional media literacy. Existing literature has recommended only that media literacy can be used as a tool to cope with the pandemic and limit the negative psychological effects of social media during public health crises.

Furthermore, this study examines the effect of SMHL as a predictor and moderator variable that could mitigate the stress of the pandemic and cope with the pandemic. Thus, I hypothesize, as follows:

H6: SMHL decreases a) anxiety and b) depression.

H7: SMHL increases a) online coping and b) off-line coping.

H8a: SMHL moderates (weakens) the relationship between NE and (i) anxiety, (ii) depression.

H8b: SMHL moderates (weakens) the relationship between EE and (i) anxiety, (ii) depression.

H9a: SMHL moderates (strengthens) the relationship between NE and (i) online coping, (ii) off-line coping.

H9b: SMHL moderates (strengthens) the relationship between EE and (i) online coping, (ii) off-line coping.

METHODS

An anonymous online survey was conducted to collect data for the study. The target population was Egyptian adults, aged 18 and above. A link to an online questionnaire was shared publicly through Facebook between 20 April and 10 May 2020, during the first lockdown in Egypt, which was the most critical time in the pandemic; users were invited to fill in the questionnaire. Facebook was used because it was the most popular platform among Egyptians and the most used in April and May of 2020 (Statcounter, 2021). It was difficult to withdraw a random sample because there is no declared frame for Egyptian Facebook users. Therefore, the questionnaire was completed by a non-probability cross-sectional sample of 478 participants, comprising people of diverse age, gender, education level, and location within the country. No monetary rewards were offered for answering the questionnaire. All study participants voluntarily filled in the online questionnaire. The questionnaire provided anonymity and privacy for participants. Filling the questionnaire was taken as a

consenting to participate in the study. Respondents were informed that data would be used only for scientific purposes and all data would be confidential.

Sample Size

The researcher has conducted Krejcie and Morgan (1970) rule for calculating sample size according to the following formula:

Sample size=$\frac{\chi^2 NP(1-P)}{d^2(N-1)+\chi^2 P(1-P)}$= $\frac{3.841*44780000*0.5(1-0.5)}{0.0448^2*(1000000-1)+3.841*0.5*(1-0.5)}$=478, where χ^2 is the table value of Chi-square for one degree of freedom at the desired confidence level (95%)=3.841, *N* is the population size=44,780,000 (NapoleonCat, 2020), *P* is the population proportion=0.5, and *d* is the degree of accuracy expressed as a proportion=0.0448.

Measures

Independent variables

News engagement: The NE measure included the consumption of and active participation in news content via social media. The study benefited from YouTube engagement measure regardless of content genre (Khan, 2017), while this study applied social media engagement on genre specific content differentiating between NE and EE. NE was measured by asking respondents to rate their engagement with news about COVID-19 on social media. The answers were based on a 5-point scale (never=1, rarely=2, sometimes=3, often=4, all the time=5). The measure comprised seven items: 1–search for news on COVID-19 related developments; 2–comment on COVID-19 news and discuss it; 3–interact with news using likes/dislikes; 4–share news on my account; 5–read and watch most COVID-19 related news that I come across; 6–subscribe to several official accounts and news channels to obtain news; and 7–upload/create videos and posts on COVID-19 related news.

Entertainment engagement: The study benefited from (Khan, 2017) to measure EE. EE was measured by asking the respondents to rate their engagement in entertainment content–memes, comic videos, and jokes–during the COVID-19 lockdown. The answers were based on a 5-point scale (never=1, rarely=2, sometimes=3, often=4, all the time=5). The measure comprised seven items: 1–search for entertainment content; 2–share leisure content on my account; 3–upload/create comic videos or posts; 4–interact with entertainment content with likes/dislikes; 5–subscribe to several entertainment pages, channels, and shows on social media; 6–comment on entertaining content on social media; 7–read and watch humorous entertainment content on social media.

Independent/moderator variable

Social media health literacy: SMHL was measured by adapting the existing scale of eHealth literacy (Van der Vaart et al., 2011) and paraphrasing and developing it to fit the social media context better. Furthermore, ten items designed to measure news literacy through social media and awareness of algorithms were added as the tenth item. The respondents were asked to determine to what extent the sentences applied to them, based on a 5-point Likert scale (strongly agree=5, agree=4, neutral=3, disagree=2, strongly disagree=1).

The 10 items were, as follows: 1–I gather health-related news from diverse sources on social media; 2–I obtain health-related news from trusted sources; 3–I verify the information, time, date, and source of published posts; 4–I think deeply and verify before sharing any information on social media; 5–I often compare news/topics from several sources, not only from my preferred sources; 6–I think critically about the information sources, the news background, and the reason for sharing; 7–I have the necessary skills to assess the reliability and credibility of healthcare sources on COVID-19; 8–I know how to evaluate health news sources on social media; 9–I know where to find and how to utilize useful healthcare information; 10–news feeds on social media are not comprehensive, and algorithms cause some news to not find its way to me .

Dependent variables

Anxiety: The scale to measure anxiety was adapted from the generalized anxiety disorder questionnaire (GAD-7), a seven-item instrument (Spitzer et al., 2006). Respondents were asked to evaluate their problems within the last two weeks. The items are as follows: 1–feeling nervous, anxious, or on edge; 2–not being able

to stop or control worrying; 3–worrying too much about different things; 4–trouble relaxing; 5–feeling so restless that it is hard to sit still; 6–becoming easily annoyed or irritable; 7–feeling afraid, as if something awful might happen. The respondents were asked to determine their state of mind during the last two weeks according to a four-point scale (not at all, never=0; rarely, on several days=1; more than half the days=2; nearly every day=3).

Depression: The patient health questionnaire (PHQ-9) (Kroenke et al., 2001) was used to measure depression. Respondents were asked to evaluate their problems within the last two weeks based on the items mentioned below, rating them as follows: not at all=0, several days=2, more than half the days=3, and nearly every day=4. The scale comprises nine items: 1–little interest or pleasure in doing things; 2–feeling low or hopeless; 3–trouble falling or staying asleep or sleeping too much; 4–feeling tired or having little energy; 5–poor appetite or overeating; 6–feeling bad about yourself or feeling that you are a failure or have let yourself or your family down; 7–trouble concentrating on things, such as reading the newspaper or watching television; 8–moving or speaking so slowly that other people could have noticed or the opposite; 9–being so fidgety or restless that you have been moving around a lot more than usual, with thoughts that you would be better off infected with COVID-19 than wait in limbo fearing infection .

Coping: This study hypothesizes that online behavior mirrors off-line behavior and implies that we can deduce the degree of people's coping with the pandemic through it. Coping means possessing the ability to deal with and behave rationally amid the pandemic in this case. This measure was designed to assess the extent of participants' resilience and ability to overcome the COVID-19 crisis online and off-line. It is based on the WHO's recommendations (WHO, 2020b) regarding coping with the pandemic and includes items related to two dimensions–health behavior related to abiding by recommended precautionary measures for physical and psychological health and solidarity-based behavior related to social support and dealing with social distancing. Additionally, it considers the ability to control social media exposure. This factor was measured by asking respondents to rate their engagement in coping activities on a five-point scale (never=1, rarely=2, sometimes=3, often=4, all the time=5).

Off-line coping: The off-line coping measure evaluating real coping behaviors comprised eleven items.: 1–I avoid prolonged talk about COVID-19 and its tragic ramifications; 2–I enjoy my life while staying at home; 3–I cannot stand the lockdown and feel bored and depressed (reverse-coded); 4–I try to take it easy and not expect the worst; 5–I believe that this social distancing era is the worst phase of my life (reversed coded); 6–I abide by the rule to wear a facemask when leaving home; 7–I abide by the rule to wash my hands with water and soap; 8–I use sanitizers and cleaners; 9–I follow a diet to raise my immunity and protect my health; 10–I have a plan for dealing with the disease in case I or a member of my family are infected; 11–I avoid gatherings with friends and family and avoid kissing and handshakes.

Online coping: Online coping represents online behavior and interaction through social media that helps coping with the pandemic. It includes positively dealing with health news, using social media to stay in touch with people, and showing commitment to healthy behavior through interacting with online posts. The scale for online coping will expand the scope of future studies because it will enable researchers to specifically test how participants cope with health crises online. This instrument comprises nine items: 1–share/like positive information and news regarding COVID-19 recoveries; 2–share/like posts and videos advocating staying at home; 3–share/like leisure videos to counter stress; 4–avoid sharing tragic stories and death figures; 5–share/like psychological support and anti-bullying campaigns for COVID-19 victims; 6–publish on my account that some news and rumors about the health crisis are false; 7–I rationalize exposure to COVID-19 related news and videos on social media; 8–I support my friends and acquaintances and check on them using social media; 9–I maintain my social relations on social media .

Controlling variables

Sociodemographic Variables: Age, gender, and education were used as control variables because of their likely effects on mental health and coping variables. Mental health affects adolescents, youth, and older adults differently, and there are age differences in coping and mental health (Yeung & Fung, 2007). Regarding gender, a stronger link was discovered between social networking sites and negative mental health indicators in females' percentage in research samples (Yin et al., 2019). In addition, specific kinds of Internet use mediate gender differences in mental health (Drentea et al., 2008).

RESULTS

Based on stress-coping theory, mood management, and an MHL literature review, the current study was designed to examine five models of standard multiple regression that collected the main factors affecting and explaining people's mental health and coping.

Preliminary Analysis

All statistical analyzes were conducted using SPSS version 25 (for descriptive statistics, correlation, reliability analysis, moderated multiple regression, and simple mediations) and AMOS version 25 (for path analysis in simple mediation models). In this section, background information (age, gender, and education) for participants and correlations between all variables in the study and main descriptive statistics will be reported. **Table 1** presents participants' main demographic information.

Table 1. Background Information on participants

	Frequency	Percent (%)
Gender		
Female	322	67.4
Male	156	32.6
Total	478	100.0
Age		
18-24	195	40.8
35-44	136	28.5
25-34	98	20.5
45-55	32	6.7
>55 years	17	3.6
Total	478	100.0
Education		
BA	288	60.3
Postgraduate	126	26.4
High school	56	11.7
Less than high school	8	1.7
Total	478	100.0
Governorate		
Cairo	182	38.1
Giza	201	42.1
Qualybia	54	11.3
El Minya	41	8.7
Total	478	100.0

Table 2 presents the Pearson correlation coefficients between all study variables, means, SDs, and Cronbach's alphas of the measurements along with the main descriptive statistics.

Table 2. Descriptive statistics and correlations

Factors	Mean	SD	CA	1	2	3	4	5	6	7
News engagement	2.97	0.92	0.83	1.00	.366**	.382**	.491**	.394**	.286**	.173**
Entertainment engagement	3.13	1.01	0.87		1.00	.202**	.437**	.303**	.278**	.253**
Social media health literacy	4.13	0.61	0.89			1.00	.391**	.295**	0.01	-0.03
Online coping	3.66	0.86	0.85				1.00	.561**	.278**	.202**
Off-line coping	3.67	0.62	0.70					1.00	.276**	.199**
Anxiety	2.62	0.88	0.90						1.00	.807**
Depression	2.42	0.89	0.91							1.00

Note. **Correlation is significant at the 0.01 level (2-tailed); all measures had high reliability (Cronbach's alpha≥0.7); & CA: Cronbach's alpha

Table 2 demonstrates a significantly strong correlation between anxiety and depression ($r>0.8$, $p<.01$). There is a significant weak correlation among online coping, off-line coping, anxiety, and depression ($r<0.4$, $p<.01$). NE and EE have a significant weak correlation with other variables ($r<0.4$, $p<.01$). SMHL has a weak significant correlation with online coping and off-line coping ($r<0.4$, $p<.01$).

Reliability & Validity of the Study Measures

For reliability of each measure as shown in **Table 2**, all measures had high reliability (Cronbach's alpha≥0.7).

For internal consistency validity, the researcher calculated the Pearson correlation between dimensions and its items. A high Pearson correlation means high validity. We can observe that all correlation coefficient values are significant and higher than 0.4, confirming the validity of this dimension. For construct validity, the values of the Kaiser-Meyer-Olkin (KMO) test are higher than 0.7, so the sample size is adequate. All factor loadings are higher than 0.4, which confirms the construct validity of the data (**Table A1** in **Appendix A**).

Hypothesis Testing

Moderated multiple regression analyzes were conducted using SPSS 25 to test all hypotheses (Preacher et al., 2007). Moderated multiple regression (Aguinis, 2004) is really a multiple regression equation with an interaction term, applied with the PROCESS macro developed by Hayes (2018). To improve the statistical robustness, the analyzes were conducted both without and with covariates (age, gender, and education). For all models, we entered NE and EE together in the first step, SMHL next, and interaction terms last. The significance of the interaction terms represents the significance of the moderating effect of SMHL. The following tables present the moderated multiple regression analysis results for each model. The covariates were controlled in model 1 and were ignored in model 2.

H1and H6 were supported while H2a was not supported because the results indicate the opposite direction of the relationship (EE predicted an increase in anxiety). **Table 3** demonstrates that NE, EE, SMHL, age, and gender have a significant effect on anxiety ($p<0.05$). NE and EE significantly predict an increase in anxiety. The effect of NE on anxiety ($B=.230$, $p<0.05$) is higher than the effect of EE on anxiety ($B=.136$, $p<0.05$). Conversely, the results indicated that SMHL predicts a decrease in anxiety ($B=-.120$, $p<0.05$).

Table 3. Moderated multiple regression analyzes predicting anxiety

	Model 1				Model 2			
Predictors	β	B	SE	t	β	B	SE	t
Gender	.258	.137	.085	3.034*				
Age	-.151	-.193	.038	-4.035*				
Education	.018	.013	.063	.280				
		F=10.671 & ΔR^2=.063						
News engagement (NE)	.221	.230	.044	4.996*	.204	.213	.044	4.587*
Entertainment engagement (EE)	.120	.136	.043	2.807*	.176	.201	.041	4.327*
		F=17.150 & ΔR^2=.154				F=31.342 & ΔR^2=.117		
Social media health literacy	-.173	-.120	.067	-2.593*	-.196	*-.136*	.067	-2.931*
		F=15.586 & ΔR^2=.166				F=24.092 & ΔR^2=.132		
Social media health literacy × NE	-.106	-.286	.086	-1.223	-.133	-.361	.088	2.339*
Social media health literacy × EE	.122	.338	.076	1.603	.127	.354	.077	-1.523
		F=14.387 & ΔR^2=.155				F=17.637 & ΔR^2=.111		
		F=12.048 & ΔR^2=.170				F=15.031 & ΔR^2=.137		

Note. *Correlation is significant at the 0.05 level (1-tailed)

H8a1 was supported, because SMHL moderates (weakens) the relationship between NE and anxiety ($B=-.361$, $p<0.05$). The relationship between NE and anxiety is negative with high level of SMHL (**Figure 1**). On the other hand, H8b1 was not supported. SMHL does not moderate the relationship between EE and anxiety ($p>0.05$).

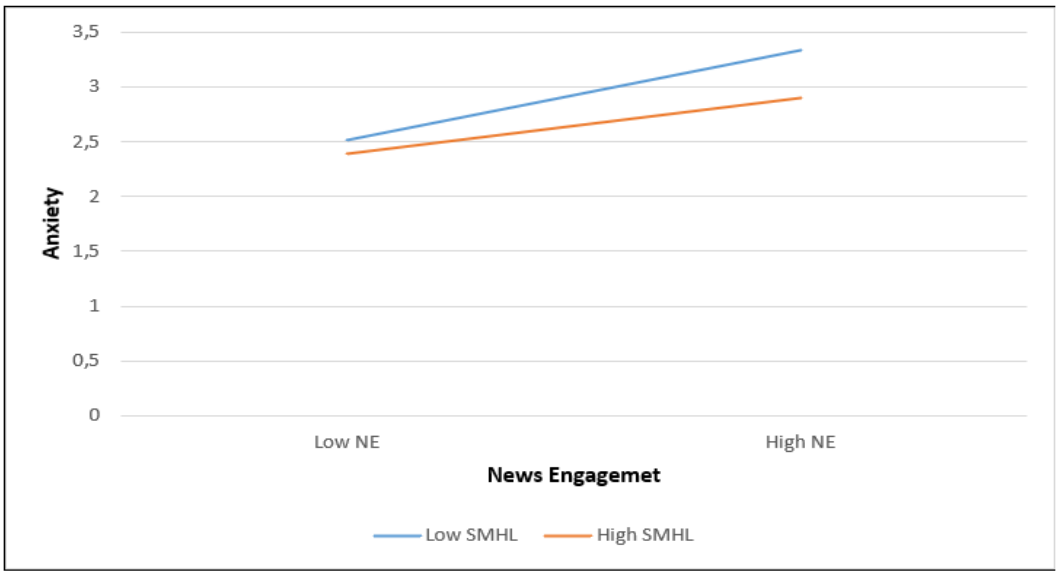

Figure 1. Social media health literacy moderating effect-1 (Source: Author's own elaboration)

H1 and H6 were supported while H2b was not supported, H2b proposed that "EE during the COVID-19 lockdown leads to less depression". However, the results indicate the opposite direction of the relationship (EE predicted an increase in depression). **Table 4** demonstrates that NE, EE, SMHL, age, and gender have a significant effect on depression ($p<0.05$). NE and EE significantly predict an increase in depression. The effect of NE on depression ($B=.117$, $p<0.05$) is lower than the effect of EE on depression ($B=.138$, $p<0.05$). Conversely, the results indicated that SMHL predicts a decrease in depression ($B=-.109$, $p<0.05$).

Table 4. Moderated multiple regression analyzes predicting depression

	Model 1				Model 2			
Predictors	β	B	SE	t	β	B	SE	t
Gender	.197	.104	.085	2.329*				
Age	-.196	-.248	.037	-5.227*				
Education	.036	.026	.063	.563				
		F=13.259 & ΔR^2=.077						
News engagement (NE)	.113	.117	.045	2.494*	.090	.093	.046	1.961*
Entertainment engagement (EE)	.122	.138	.044	2.786*	.193	.219	.042	4.606*
		F=12.766 & ΔR^2=.114				F=18.282 & ΔR^2=.071		
Social media health literacy	-.159	-.109	.068	-2.321*	-.184	.127-	.069	-2.663*
		F=11.635 & ΔR^2=.129				F=14.708 & ΔR^2=.085		
Social media health literacy × NE	-.162	-.435	.089	-1.828	-.193	-.518	.090	-2.138*
Social media health literacy × EE	.178	.492	.078	2.286*	.186	.513	.079	2.339*
		F=10.381 & ΔR^2=.119				F=7.451 & ΔR^2=.045		
		F=9.454 & ΔR^2=.139				F=9.993 & ΔR^2=.096		

Note. *Correlation is significant at the 0.05 level (1-tailed)

H8a2 was supported, SMHL moderated (weakened) the relationship between NE and depression ($B=-.518$, $p<0.05$). The relationship between NE and depression was negative at high levels of SMHL. While the relationship between NE and depression is stronger at the low levels of SMHL (**Figure 2**).

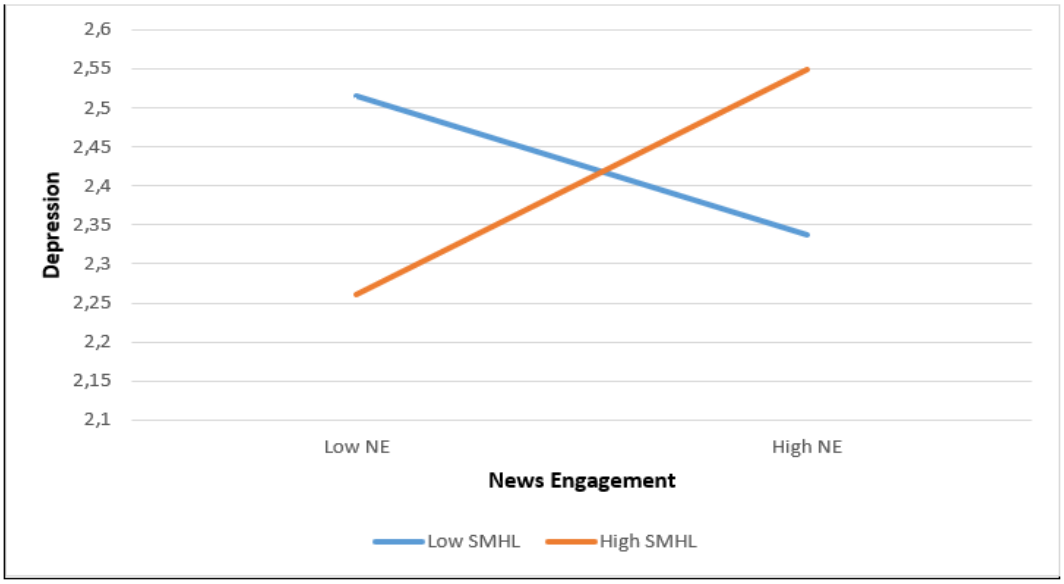

Figure 2. Social media health literacy moderating effect-2 (Source: Author's own elaboration)

H8b2 was not supported because SMHL moderates (strengthened rather than weakened) the relationship between EE and depression (B=.513, p< 0.05). The relationship between EE and depression is stronger at higher levels of SMHL. However, there seems no significant difference in the level of depression between low EE and high EE (**Figure 3**).

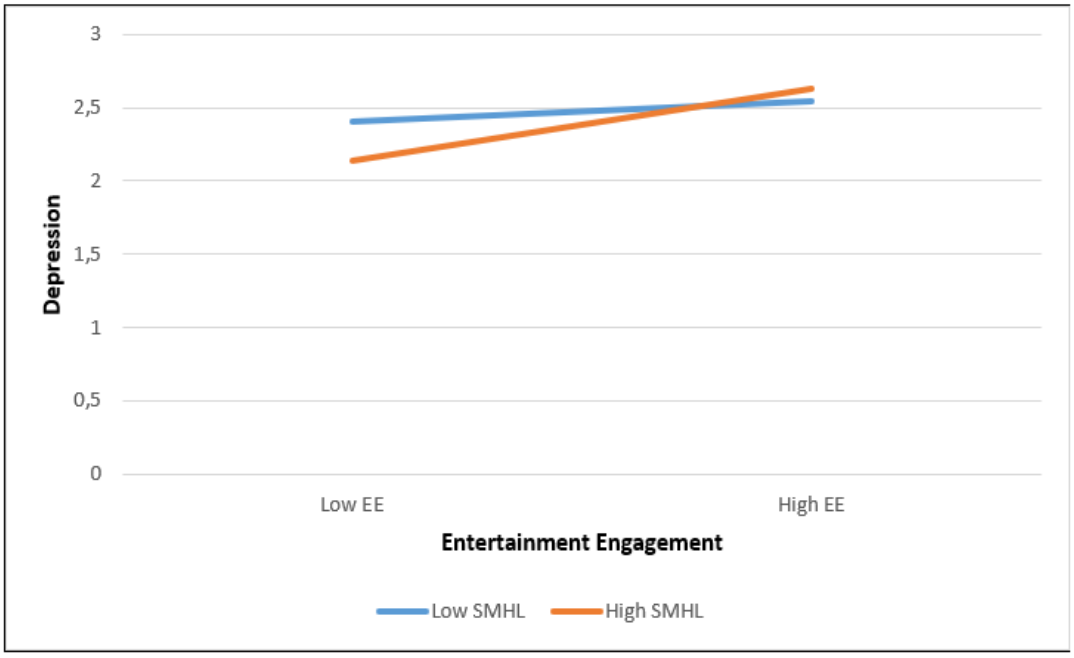

Figure 3. Social media health literacy moderating effect-3 (Source: Author's own elaboration)

For online coping, H3, H4, and H7 were supported: **Table 5** demonstrates that NE, EE, and SMHL have a significant effect on online coping (p<0.05). NE and EE significantly predict an increase in online coping. The effect of NE on online coping (B=.373, p<0.05) is higher than the effect of EE on online coping (B=.341, p<0.05).

Table 5. Moderated multiple regression analyzes predicting online coping

	Model 1				Model 2			
Predictors	β	B	SE	t	β	B	SE	t
Gender	.121	.066	.085	1.419				
Age	.006	.008	.038	.158				
Education	-.001	-.001	.063	-.017				
		F=.674 & ΔR^2=.004						
News engagement (NE)	.348	.373	.038	9.125*	.357	.382	.038	9.389*
Entertainment engagement (EE)	.290	.341	.037	7.899*	.253	.297	.035	7.294*
		F=47.097 & ΔR^2=.333				F=110.525 & ΔR^2=.318		
Social media health literacy	.296	.211	.056	5.271*	.306	.218	.056	5.457*
		F=46.105 & ΔR^2=.333				F=88.074 & ΔR^2=.358		
Social media health literacy × NE	.036	.099	.073	.488	.043	.121	.073	.592
Social media health literacy × EE	-.034	-.097	.064	-.526	-.041	-.118	.065	-.638
		F=32.626 & ΔR^2=.294				F=64.489 & ΔR^2=.289		
		F=34.488 & ΔR^2=.370				F=52.750 & ΔR^2=.358		

Note. *Correlation is significant at the 0.05 level (1-tailed)

The results indicated that SMHL predicts an increase in online coping (B=.211, p<0.05). H9 was not supported, SMHL does not moderate the relationship between NE and online coping, nor that between EE and online coping (p>0.05).

Thus, for off-line coping, H3, H4, and H7 were supported: **Table 6** demonstrates that NE, EE, and SMHL have significant effect on off-line coping (p<0.05). NE and EE significantly predict an increase in off-line coping. The effect of NE on off-line coping (B=.323, p<0.05) is higher than the effect of EE on off-line coping (B=.188, p<0.05).

Table 6. Moderated multiple regression analyzes predicting off-line coping

	Model 1				Model 2			
Predictors	β	B	SE	t	β	B	SE	t
Gender	.094	.071	.061	1.532				
Age	-.014	-.025	.027	-.509				
Education	-.044	-.046	.046	-.957				
		F=1.479 & ΔR^2=.009						
News engagement (NE)	.218	.323	.030	7.164*	.221	.327	.030	7.345*
Entertainment engagement (EE)	.116	.188	.029	3.946*	.113	.183	.027	4.117*
		F=21.587 & ΔR^2=.186				F=53.703 & ΔR^2=.184		
Social media health literacy	.165	.163	.046	3.618*	.159	.157	.045	3.526*
		F=20.631 & ΔR^2=.208				F=40.807 & ΔR^2=.205		
Social media health literacy × NE	.097	.374	.059	1.643	.093	.359	.059	1.584
Social media health literacy × EE	-.074	-.294	.052	-1.428	-.073	-.288	.052	-1.404
		F=17.949 & ΔR^2=.431				F=34.635 & ΔR^2=.179		
		F=15.843 & ΔR^2=.213				F=25.013 & ΔR^2=.209		

Note. *Correlation is significant at the 0.05 level (1-tailed)

The results indicated that SMHL predicts an increase in off-line coping (B=.163, p<0.05). H9 was not supported; SMHL does not moderate the relationship between NE and off-line coping, nor that between EE and off-line coping (p>0.05).

Dynamics of Online and Off-Line Coping

Simple mediation analyzes using Amos 25 for path analysis & SPSS 25 were conducted to examine the mediation effect of online coping on the relation between (i) NE and off-line coping: this model has good fit, as the CFI value is 1.000 (>0.9), the NFI value is 1.000 (>0.9), and the GFI value is 1.000 (>0.9); and (ii) EE and off-line coping: the model fit was good, as the CFI value is 1.000 (>0.9), the NFI value is 1.000 (>0.9), and the GFI value is 1.000 (>0.9).

Figure 4 and **Table 7** show a simple mediation model 1.

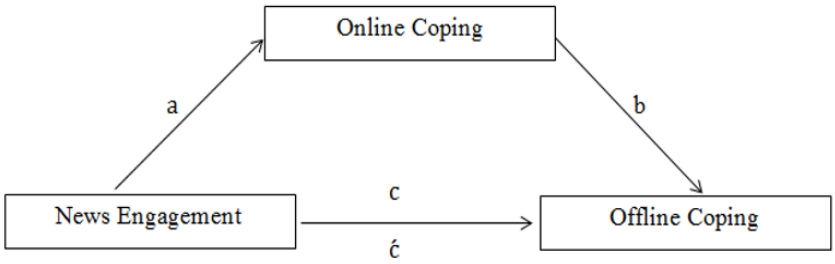

Figure 4. Simple mediation model 1 (Source: Author's own elaboration)

Table 7. Simple mediation model 1

	Path/effect	B	S.E.	T
ΔR^2=.241 & F=151.266	a	.458	.037	12.299*
ΔR^2=.334 & F=118.952	b	.351	.031	11.277*
	ć	.105	.029	3.629*
ΔR^2=.155 & F=87.525	c	.266	.028	9.355*

Note. *Correlation is significant at the 0.05 level (1-tailed)

As seen in **Table 7**, NE has a significant effect on online coping (path a), and online coping has a significant effect on off-line coping (path b). The total effect of NE on off-line coping (path c) and the direct effect (path ć) were significant. The indirect effect of NE on off-line coping (path ab) is also significant (the effect=.161). Thus, online coping is a partial mediator between NE and off-line coping.

As seen in **Table 8**, EE has a significant effect on online coping (path a), and online coping has a significant effect on off-line coping (path b). The total effect of EE on off-line coping (path c) is significant, and the direct effect (path ć) is not significant. The indirect effect of EE on off-line coping (path ab) is significant (the effect=.143). Thus, online coping is a total mediator between EE and off-line coping.

Table 8. Effects of simple mediation model 1

			Direct effect	Indirect effect	Total effect	p
News engagement	→	Online coping	.458	.000	.458	***
	→	Off-line coping	.105	.161	.266	***
Online coping	→	Off-line coping	.351	.000	.351	***

DISCUSSION

Figure 5 and **Table 9** show a simple mediation model 2. Likewise, **Table 10** depicts the effects of a simple mediation model 2.

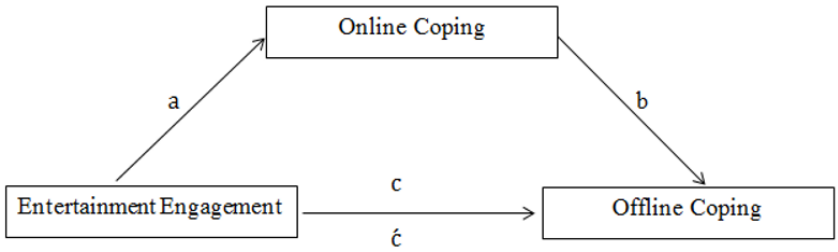

Figure 5. Simple mediation model 2 (Source: Author's own elaboration)

Table 9. Simple mediation model 2

	Path/effect	B	S.E.	T
ΔR^2=.191 & F=112.33	a	.373	.035	21.538*
ΔR^2=.319 & F=111.429	b	.384	.030	12.602*
	ć	.044	.026	1.692
ΔR^2=.092 & F=48.103	c	.187	.027	6.936*

Note. *Correlation is significant at the 0.05 level (1-tailed)

Table 10. Effects of simple mediation model 2

			Direct effect	Indirect effect	Total effect	p
Entertainment	→	Online coping	.373	.000	.373	***
engagement	→	Off-line coping	.044	.143	.187	.050
Online coping	→	Off-line coping	.384	.000	.384	***

The study sought to investigate the effects of NE and EE on people's mental health and coping during the first COVID-19 lockdown in Egypt. Factors were communicative variables related to engagement in specific content (NE vs. EE) and related to how people dealt with health news and information via social media (SMHL).

The results demonstrated unexpected findings compared to mood management studies that included that entertainment could improve people's mood, but that does not apply in the crisis times, as both NE and EE predicted significant anxiety and depression. However, a deeper analysis leads to the conclusion that NE (B=0.229) has a greater effect on anxiety than EE (B=0.130). This result implies that social media engagement, regardless of the type of content, affected mental health during the COVID-19 lockdown. This fact has also been proven in other public health crises arising due to viruses; for example, during the Ebola crisis, people who had a higher engagement with social media were psychologically more affected (Thompson et al., 2017). The present study was conducted in the lockdown period imposed during the first wave of the virus. The results can, thus, be explained partly by a lack of knowledge about the virus, which would have increased people's fear and anxiety. Therefore, replicating the study in the subsequent waves of the virus may lead to new results for both anxiety and depression.

This study concludes that generic engagement with different kinds of content (NE vs. EE) does not affect mental health differently in the crises times. This result can be explained by the fact that using social media for entertainment during COVID-19 was an avoidant strategy for people to manage their mood and emotions, which may not lead to psychological well-being. As anxiety was associated with increased media usage in general, escapist media was associated with a negative affect (Eden et al., 2020). In addition, avoidant strategies have interim short-term effects, which can be measured immediately after using the media directly (Chao, 2011; Suls & Fletcher, 1985). Moreover, most entertainment content on social media during the outbreak, including memes and humorous videos on COVID-19, expressed stress and worry, taking a humorous ridiculous rather than an entertaining tone, which may also affect mental health. In addition, it is difficult to separate received miscellaneous feeds with different content, so, users almost view various content. This study deepens the understanding of mood management, as bad moods can motivate people to engage in entertainment to escape, which may not remove anxiety or depression but may weaken it. Therefore, infotainment is required in health crisis communication (Boukes, 2019), because it blurs the line between entertainment (which is tied to enjoyment, diversion, and passive consumption) and information (which is linked to knowledge and citizenship) and take advantage of both.

The results indicate that SMHL is a crucial factor for improving mental health issues by decreasing anxiety and depression, as well as enhancing coping mechanisms during a pandemic. It works as a filter to detect rumors and false news; therefore, it represents a safety valve during pandemic times. The results of the study are consistent with those of Levin-Zamir and Bertschi (2018), who concluded that electronic health literacy positively affects health well-being. Furthermore, media literacy protects against health risks (Mingoia et al., 2020). According to the WHO (2020a), people's ability to identify misinformation and recognize low-quality information help generate healthy behavior and combat the infodemic.

Although the results indicated the significant effect of SMHL (as a predictor) on anxiety, depression, and online/off-line coping, they showed its limited effect as a moderator variable. SMHL significantly moderated and weakened the relationship between NE and (i) anxiety and (ii) depression, which indicated that SMHL could be used as a protective tool in health crises and a mitigator of negative news and infodemic effects. In another context, Tamplin et al. (2018) concluded that commercial social media literacy moderated the negative effects of exposure to photos on social media. On the other hand, an unexpected result was that SMHL moderated (strengthened) the relation between EE and depression but did not moderate the relation between EE and anxiety. These results indicate that SMHL may reduce the negative effects of NE but not that of EE. That in turn indicates that escapist use increases depression even with a high level of SMHL, indicating that SMHL is a moderator factor for eudemonic SMU (NE), that is, use related to getting meaning and

knowledge from social media, but not for hedonic use (EE). Stress was connected to greater hedonic and less eudemonic media usage, while avoidant and escapist media-based coping was associated with negative affect, whereas eudemonic media were associated with positive affect (Eden et al., 2020).

NE and EE positively influenced user's off-line and online coping during the first lockdown in Egypt. This result is consistent with previous studies that established a relationship between media use and coping (van Ingen et al., 2016; Watson, 2018) and indicated the importance of using entertainment media to shape risk expectations and educate the public about risks (Oh et al., 2015). Even entertainment has both hedonic and eudemonic facets which resulted in media-induced recovery, as evidenced by higher vitality levels following media usage. (Rieger et al., 2014). Consequently, results indicated to the significance of both news and entertainment for coping with the pandemic**.** The results indicate that SMHL is significantly, positively affecting online and off-line coping during the pandemic. However, SMHL does not moderate the relation between NE and online/off-line coping, nor that between EE and off-line/online coping. The findings revealed the importance of online coping, which significantly predicts off-line coping, implying that the online coping scale can be used as an indicator of real acclimatization (off-line coping). Therefore, this study separated the real behavior from online behavior as a trial to develop a scale for coping through social media amid a pandemic. Online coping mediates the relation between genre-specific social media engagement and real coping.

This study supports the assertion that people not only need news to cope with the crisis but also need entertainment, to express fears, eliminate anxiety, and manage their psychological state. That was apparent in memes and comics on COVID-19 spread via social media (Lemish & Elias, 2020). Although precautionary behavior is considered the first step towards coping (Puterman et al., 2009), this study affirms other factors in coping related to rationalizing using media and the ways we interact with social media. It deepens knowledge and concepts at the micro level of media literacy across social networking sites, especially in lockdowns and during pandemic crises.

CONCLUSION

SMHL is an essential component of the strategy to mitigate the effects of the infodemic during a crisis, which may influence mental health and coping mechanisms. Health communication campaign designers can use entertainment content to educate the public and improve their mental health during a health crisis. However, avoidance by engaging in entertainment content is not always the best method to control anxiety and depression. The results of this study suggest that social media platforms should design algorithms that help to tackle misinformation and fake news during pandemics. Being aware of the algorithmic curation of news feeds is a crucial factor in SMHL, maintaining good mental health and coping strategies, as it provides a detailed insight into people's social media engagement in such situations. Future studies can benefit from this study by developing and considering ways to include the rationalization of news consumption as part of measuring coping with the pandemic outbreak and algorithmic awareness as an important item of SMHL measurement. This study contributes to outlining SMHL as the main variable to develop and give new insights into the applicability of mood management theory and stress-coping theory in crisis time.

This study was restricted to a cross-sectional online survey of Egyptian participants during the first lockdown and did not extend to include coping with the pandemic across extended different times periods, as ambiguity decreased and many facts on the virus were discovered by the time that can generate different results and affect the public's response. In addition, this study demonstrated explanatory factors (NE, EE, and SMHL) affecting mental health and coping during the pandemic and SMHL as a moderator moderating the relationship between NE and mental health to negative relation, however it did not include analyzes of any mediating roles to SMHL.

The study may help future researchers develop an online coping scale (as used in this study) that includes social media users' online behavior as a genuine component to measure online coping during the pandemic. The scale can also be replicated to be used in different situations. The online coping scale may be able to be used as an alternative to an off-line coping scale, largely because the findings indicated that online coping significantly mediates the relation between NE/EE and off-line coping. Online coping may provide new insights into the public's response to the pandemic. This information may be helpful to study social networking site-based behaviors in assessing how people deal with infectious diseases.

This study reconceptualizes MHL and media literacy into SMHL because social media has different characteristics from traditional media. SMHL increases (i) critical thinking about the information on news feeds, (ii) skills of searching and verifying news and information, and (iii) the required digital and algorithmic awareness for dealing with floods of crowdsourcing information via social media. It adopts new concepts and measures how to interact with health news and information via social media.

This study found that SMHL was (i) an explanatory variable for mental health and coping and (ii) a moderator mitigating the effects of NE on mental health, but not those of EE. This gives us an indication of the importance of customization and reconceptualizing media literacy for entertainment media, and of enhancing the effects of NE and EE on coping behaviors. Future studies may test the mediation effect of SMHL on the relationship between using social media and well-being and resilience to crises in different health contexts. In addition, future study can concentrate on effects of inequality in media literacy and digital skills, which affect people's use of digital media to maintain social connections during COVID-19 (Nguyen et al., 2020).

This study deepens the understanding of online behaviors and to what extent they affect and predict off-line behaviors. Future study can go further to study how online behaviors can indicate peoples' protective versus negative health behaviors, and to what extent online health behaviors can reflect resilience during crises. The results can help decision-makers take decisions based on online health behaviors.

Mood management via social media includes not only selective exposure and active use but also passive and uncontrolled, unmonitored, or unconscious use. Future studies may discuss how people can control their social media feed content consciously by adopting deliberate behaviors to affect their news feed. In addition, instead of measuring social media engagement in general, research can study individually effects on mental health and coping of each level of social media interaction separately: liking, sharing, and commenting–also taking in consideration the increase in people's creation and production of news content, as the highest level of public engagement with news.

Moreover, instead of examined news in general or entertaining content in general, the next studies can concentrate on specific forms of each genre. Types and sources of news may affect people's well-being and coping differently. For example, the official WhatsApp channel shown to be a protective factor from depression during health crisis time. As the public trusted a WhatsApp official channel compared to other sources (Liu & Tong, 2020).

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APPENDIX A

Table A1. The internal and construct validity of the study variables

Items	r	KMO	Loadings	
NE				
1-Search for news on COVID-19 related developments	.659**	0.85	0.762	
2-Comment on COVID-19 news and discuss it	.686**		0.731	
3-Interact with news using likes/dislikes	.666**		0.709	
4-Share news on my account	.723**		0.704	
5-Read and watch most COVID-19 related news that I come across	.705**		0.695	
6-Subscribe to several official accounts and news channels to obtain news	.719**		0.657	
7-Upload/create videos and posts on COVID-19 related news	.751**		0.652	
EE				
1-Search for entertainment content	.743**	0.89		
2-Share leisure content on my account	.723**			
3-Upload/create comic videos or posts	.725**			
4-Interact with entertainment content with likes/dislikes	.801**			
5-Subscribe to several entertainment pages, channels, and shows on social media	.789**			
6-Comment on entertaining content on social media	.756**			
7-Read and watch humorous entertainment content on social media	.753**			
SMHL				
1-I gather health-related news from diverse sources on social media	.596**	0.89	0.803	
2-I obtain health-related news from trusted sources	.650**		0.792	
3-I verify the information, time, date, and source of published posts	.716**		0.774	
4-I think deeply and verify before sharing any information on social media	.609**		0.752	
5-I often compare news/topics from several sources, not only from my preferred sources	.770**		0.731	
6-I think critically about the information sources, the news background, and the reason for sharing	.744**		0.707	
7-I have the necessary skills to assess the reliability and credibility of healthcare sources on COVID-19	.788**		0.659	
8-I know how to evaluate health news sources on social media	.776**		0.630	
9-I know where to find and how to utilize useful healthcare information	.720**		0.605	
10-News feeds on social media are not comprehensive, and algorithms cause some news to not find its way to me	.654**		0.564	
Anxiety				
1-Feeling nervous, anxious, or on edge	.710**	0.94	0.825	
2-Not being able to stop or control worrying	.728**		0.805	
3-Worrying too much about different things	.555**		0.785	
4-Trouble relaxing	.777**		0.783	
5-Feeling so restless that it is hard to sit still	.819**		0.781	
6-Becoming easily annoyed or irritable	.766**		0.774	
7-Feeling afraid, as if something awful might happen	.782**		0.772	
Depression				
1-Little interest or pleasure in doing things	.683**	0.93	0.825	
2-Feeling low or hopeless	.781**		0.805	
3-Trouble falling or staying asleep or sleeping too much	.751**		0.785	
4-Feeling tired or having little energy	.801**		0.783	
5-Poor appetite or overeating	.681**		0.781	
6-Feeling bad about yourself or feeling that you are a failure or have let yourself or your family down	.773**		0.774	
7-Trouble concentrating on things, such as reading the newspaper or watching television	.776**		0.675	
8-Moving or speaking so slowly that other people could have noticed or the opposite	.732**		0.728	
9-Being so fidgety or restless that you have been moving around a lot more than usual, with thoughts that you would be better off infected with COVID-19 than wait in limbo fearing infection	.609**		0.598	
Off-line coping				
			1	2
1-I avoid prolonged talk about COVID-19 and its tragic ramifications	.446**	0.71	0.743	
2-I enjoy my life while staying at home	.432**		0.676	
3-I cannot stand the lockdown and feel bored and depressed (reverse-coded)	.333**		0.656	
4-I try to take it easy and not expect the worst	.469**		0.643	
5-I believe that this social distancing era is the worst phase of my life (reversed coded)	.428**		0.621	

Table A1 (Continued). The internal and construct validity of the study variables

Items	r	KMO	Loadings
6-I abide by the rule to wear a facemask when leaving home	.599**		0.601
7-I abide by the rule to wash my hands with water and soap	.539**		0.863
8-I use sanitizers and cleaners	.602**		0.818
9-I follow a diet to raise my immunity and protect my health	.597**		0.450
10-I have a plan for dealing with the disease in case I or a member of my family are infected	.583**		0.461
11-I avoid gatherings with friends and family and avoid kissing and handshakes	.541**		0.439
Online coping			
1-Share/like positive information and news regarding COVID-19 recoveries	.749**	0.85	0.798
2-Share/like posts and videos advocating staying at home	.773**		0.792
3-Share/like leisure videos to counter stress;	.737**		0.772
4-Avoid sharing tragic stories and death figures	.405**		0.751
5-Share/like psychological support and anti-bullying campaigns for COVID-19 victims	.783**		0.703
6-Publish on my account that some news and rumors about the health crisis are false	.707**		0.632
7-I rationalize exposure to COVID-19 related news and videos on social media	.651**		0.616
8-I support my friends and acquaintances and check on them using social media	.611**		0.579
9-I maintain my social relations on social media	.578**		0.353