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Research Paper

Mediated Compliance: Anxiety and Cognition Under Lockdown

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ABSTRACT

Media exposure during the pandemic is functioned as citizen's primary channel of orientation to state authority. Lockdown during COVID-19 pandemic, required near-total public compliance with an unprecedented state directive, communicated and sustained through mass media. This study examined the relationship between media exposure, anxiety and working memory among 40 healthy Indian adults during the lockdown period. The two phase protocol was completed; a survey assessing COVID-19 media exposure, subjective loneliness (UCLA Loneliness Scale), social distancing behaviour and state anxiety (STAI-Y1), followed 24 hours later by a visual 2-back working memory task. Results showed a significant positive correlation between media exposure and anxiety ($r=.276$, $p= .042$), and between subjective negatively correlated with working memory reaction time ($r= -.646$, $p<.001$), though not with response accuracy. The results are discussing in terms of crisis communication strategy, procedural legitimacy and the cognitive demands placed on citizens expected to process and comply with rapidly evolving government mandates during a public health emergency.

Keywords: *Anxiety, Cognition, Communication, Media*

The widespread of the disease made it a major health challenge for the public, worldwide. The effect of COVID 19 upon the world has been exaggerated due to numerous rumours, hoaxes, and information that has not been fact-checked. To combat the spread of the new corona-virus, India issued a directive on March 24, 2020, which included the requirement for all persons to stay at home unless there were valid reasons to not do so. For the first time in recent, such a significant action was taken in the history of the India, which influenced the social relationships of citizens. The ramifications of this, particularly on a psychological level, are significant. Isolation, both real and perceived, has been observed. Citizen had the limited ability to verify information and keep monitoring media for orientation, even where that monitoring itself carries a psychological cost. The present study examines that cost directly, asking whether prolonged exposure to lockdown-related media measurably affected anxiety and working memory, which helps people to register and act on directives they were being asked to follow.

Anxiety

Anxiety, it is a feeling which is a part of our daily life and is connected to life hassles. Stress, it comes with different intensity from low-minor-high and can be also called tension.

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In other words, anxiety is an emotion which occurs frequently or for a short period of time. Anxiety is a normal reaction to stress and can be beneficial in some situations. It can alert us to dangers and help us prepare and pay attention. Intense, excessive and persistent worry and fear about everyday situations is anxiety.

The corona virus disease 2019 (COVID-19) epidemic is known as a general health crisis that has caused challenges for mental resilience and has been the biggest outbreak since the severe acute respiratory syndrome (SARS) outbreak in 2003. COVID-19 was initially reported by China in late 2019 and had spread to 13 countries by January 24, 2020. COVID-19 as an emerging infectious disease was first identified in Wuhan. Its impacts are very unpredictable in nature and it has been difficult to determine, as the observations and testing results are changing rapidly, leading to a high mortality rate. Among prevalent symptoms of this disease, cough, fever, shortness of breath, and sometimes diarrhoea can be mentioned. Bats are thought to be the natural host of the virus. In addition to endangering human health and consequently their deaths, COVID-19 imposes irreversible psychological impacts on human societies. For example, complete quarantine and commuting restrictions that prevent people from going out, fear of suffering from the disease, anxiety about losing loved ones, and more importantly, depression following losing friends and family are some of the issues people should deal with. The world has witnessed several widespread outbreaks of acute respiratory illnesses. For example, SARS as a communicable infectious disease spread in 2003; but, it was largely managed by quarantine measures. The COVID-19 outbreak creates anxiety among people, especially in affected countries, and the media have huge impacts on increasing mental distress. For instance, some media have been using the term “end of the world” since the spread of the disease, leading to increased concern. Some countries’ social stability has seriously been affected by COVID-19. In addition, the rate of distress among healthcare staff is higher compared with the general population, because they were more at risk for infection and transmission. The consequences of the disease outbreaks affecting all aspects of humans’ lives have continued. The current epidemic of COVID-19 is serious resulting in a pandemic. Research has been carried out to investigate the psychological impacts of COVID-19 and the rapid spread of the virus and other infectious diseases in different countries, worldwide.

Working Memory

Working memory is a portion of the human memory system with a limited capacity that combines the temporary storage and manipulation of data in the service of cognition. Working memory contains an executive controller that interacts with different short-term stores for auditory-verbal and visuospatial information, according to the multi-component model. Individual differences in cognition, neuropsychology, normal and abnormal child development, and neuroimaging are all areas where the idea of working memory has proven valuable.

It has been shown that anxiety disrupts cognitive performance (Maloney et al., 2014), including WM (Moran, 2016). This relationship works both ways, as cognitive impairment can lead to increased anxiety (Petkus et al., 2017). WM can be defined as our mental workspace, which is responsible for temporarily maintaining and manipulating information before it decays (Baddeley and Hitch, 1974; Baddeley, 2000, 2003; Cowan et al., 2005). WM is of critical importance for managing tasks that require volitional processing in everyday life such as decision making (Hinson et al., 2003), cognitive control (Poole and Kane, 2009), and understanding false beliefs (Keenan, 1998; Keenan et al., 1998).

Importantly, a large body of evidence indicates that individual differences in WM are related to anxiety levels so that those with higher anxiety levels tend to show poorer WM performance (Ashcraft and Kirk, 2001; Johnson and Gronlund, 2009; Andreotti et al., 2013; Bredemeier and Berenbaum, 2013). A recent meta-analysis by Moran (2016) verified the outcomes from single studies, demonstrating that anxiety shows a reliable negative association with WM (Hedges' g values from −0.334 to −0.437). While many theories have been put forth to explain the relationship between anxiety and WM, most of them agree on the assumption that the limited capacity of WM is disrupted by "task-irrelevant" worry, which results in poorer cognitive performance (Sarason, 1988; Calvo and Eysenck, 1992; Eysenck et al., 2007). It is important to clarify that not all of the studies that investigated the relationship between anxiety and WM reported consistent results. Some researchers proposed that anxiety may decrease attentional control and executive processes, and thus impair the ability to maintain relevant information and inhibit irrelevant information. Other researchers confirmed these results as both anxiety and WM rely on prefrontal and parietal regions in the brain, competing for limited neural resources. Results from other researchers did not show a significant correlation between anxiety and WM, but instead, some studies found that anxiety improves WM performance. Most theories propose that the anxiety/WMC relationship can be attributed to interference or competition between anxiety-related processes and task-related processes. For example, given that worry involves verbal rumination, it is often thought to interfere with the maintenance of phonological information (e.g.,Eysenck & Calvo, 1992; Sarason, 1988). Along these lines, theories differ with respect to the domain-specificity of the interference as well as at what level the interference occurs. According to several theories, worry acts as a type of dual-task that interferes with cognitive task performance. For example, Sarason (1988) proposed that anxiety is characterized by task-irrelevant thoughts and "proneness to self-preoccupation." These worrisome thoughts were assumed to reduce the attention that could be allocated to memory task performance.

Media exposure and anxiety

Media exposures like social media, Television, etc has been increased during COVID period and how it is related to the anxiety level in people during this time is an important subject to be studied about. COVID-19 pandemic has affected everyone in one or another way and media were full of rates of COVID-19 positive cases and number of deaths which spread a lot of uncertainty and confusion.

Social media has a reinforcing nature. Using it activates the brain's reward center by releasing dopamine, a "feel-good chemical" linked to pleasurable activities such as sex, food, and social interaction. The platforms are designed to be addictive and are associated with anxiety, depression and even physical ailments.

"When the outcome is unpredictable, the behavior is more likely to repeat," Sperling says. Think of a slot machine: if game players knew they never were going to get money by playing the game, then they never would play. The idea of a potential future reward keeps the machines in use. The same goes for social media sites. One does not know how many likes a picture will get, who will 'like' the picture, and when the picture will receive likes. The unknown outcome and the possibility of a desired outcome can keep users engaged with the sites.

To boost self-esteem and feel a sense of belonging in their social circles, people post content with the hope of receiving positive feedback. Couple that content with the structure of potential future reward, and you get a recipe for constantly checking platforms.

When reviewing others' social activity, people tend to make comparisons such as, "Did I get as many likes as someone else?" or "Why this person like my post, but this other person didn't do?" They're searching for validation on the internet that serves as a replacement for meaningful connection they might otherwise make in real life.

Many studies have found that media exposure during critical public events may further cause psychological trauma and anxiety, indicating that the media's vicarious traumatization effect may play an important role. After the 9/11 attack, people exposed to more television images of people falling or jumping to their death reported a higher posttraumatic stress disorder (PTSD). Thompson and colleagues also argued that media exposure to mass violent events can fuel a cycle of distress. In the case of the 1995 Oklahoma City bombing, children who watched extensive television coverage of the crisis had more post-traumatic stress symptoms in both short- and long-term assessments. During the outbreak of Ebola in 2004, the media were more inclined to report the negative content related to Ebola, including anxiety, depression, and impairment of physical function. As a result, individuals consuming more trauma-related reports were more anxious about Ebola infection. An increased amount of media consumption on the 9/11 attacks was also found to cause higher levels of psychological distress. After the Boston Marathon explosion in 2013 and the pulse nightclub massacre in Orlando in 2016, a three-year national survey from 4165 samples in the U.S. showed a positive link between contact with trauma-related media information and anxiety.

According to a study by Forte (2017) it was found that using Instagram provides social support when sharing any upset stories. This study indicated that social support provides motivation to use more Instagram as it will result in decreased feeling of loneliness and depression. Staksrud et al. (2013) suggest that merely being an online social network user does not in itself make a person susceptible to online vulnerability; vulnerability is instead dependent on the way in which an individual interacts with the site. Online practices including self-disclosure and the accumulation of large unmanageable online networks (Buglass et al., 2016; Staksrud et al., 2013) have been cited as being contributory factors to online vulnerability. It has been suggested that such online self-promoting behaviors might be driven by a user's attempt to regulate psychological needs deficits relating to social control, social connectivity, and belonging derived from perceived feelings of social ostracism (Carpenter 2012; Vorderer, Krömer & Schneider, 2016).

Social networking sites (SNS) are a pervasive force in today's digitally driven society offering users the ability to develop and maintain their social spheres in interactive, multimedia rich online environments (Boyd & Ellison, 2007). Constant connectivity to SNS such as Facebook is becoming increasingly common through the widespread availability of internet connectivity and a plethora of socially enabled digital devices. Increased connectivity to SNS has been linked to a fear of missing out (FOMO), a psychological state in which people become anxious that others within their social spheres are leading much more interesting and socially desirable lives (Przybylski et al., 2013).

Furthermore, it has been suggested that individuals experiencing FOMO may find themselves in a state of "self-regulatory limbo" (Przybylski et al., 2013, p.1842), with individuals entering a cycle of behaviour in which they seek to reaffirm their identity and self-esteem by spending an increasing amount of time online, which in turn may lead to further fears of missing out, an increased capacity for self-disclosing and friending behaviours, and ultimately further decreases in social and psychological wellbeing.

Media exposure and working memory

Moreover, it was shown that anxiety influences cognitive performances, and mainly the working memory (WM), a temporary storage system with limited capacity that allows the active representation and manipulation of information within a short period of time. It is important to clarify that not all of the studies that investigated the relationship between anxiety and WM reported consistent results. Some researchers proposed that anxiety may decrease attentional control and executive processes, and thus impair the ability to maintain relevant information and inhibit irrelevant information. Other researchers confirmed these results as both anxiety and WM rely on prefrontal and parietal regions in the brain, competing for limited neural resources. Results from other researchers did not show a significant correlation between anxiety and WM, but instead, some studies found that anxiety improves WM performance. Another component that has a significant impact on WM performance, directly and/or indirectly, is mass media exposure. However, very little is known regarding the actual effects on cognitive processes brought about by the high levels of anxiety caused by high mass media exposure.

The present study positioned within a broader political psychology context. The cognitive and emotional toll on citizens of prolonged reliance on the state as the primary source of orientation during a crisis and how does that toll affect their capacity to process and act on the very directives they are being asked to comply with.

Rationale

The rapid outbreak of the novel coronavirus disease 2019 (COVID-19) posed a governance challenge as much as a health one, containing the virus required near-total public compliance with directives that could only be communicated and sustained through mass media. Increasing evidence indicates that this pandemic-era media functioning simultaneously as a source of health information and as the primary channel of state authority, is associated with adverse psychological effects, including heightened levels of anxiety. During lockdown, the media became a point of reference for people seeking information. However, little is known on the relationships between anxiety resulting from persistent media exposure to coronavirus-related programs and the effects produced on working memory. It is during a time of crisis that people tend to increase their dependency on media, manifested in the insistent and continuous search for increasingly accurate and updated information, in order to make adequate decisions on protective behaviour. Only a few studies have analyzed the correlation between mass media exposure and COVID-19 on mental health. The results of these studies suggest that frequent and repeated exposure to mass media is significantly positively correlated with symptoms of stress and anxiety. Moreover, there are only a number of studies that have explored this topic in the Indian context. What remains unstudied is how WM is related to anxiety elicited by the exceptional pandemic caused by COVID-19 during the early outbreak and how media exposure affects it. Very little is known regarding the actual effects on cognitive processes brought about by the high levels of anxiety caused by high mass media exposure. While the existing literature aims to identify this relationship, it has yet to fully explain how and why these variables are related. These limitations possess research gaps that provide the theoretical basis for present study, as it intends to further analyze the role of anxiety caused by high media exposure and its effect on working memory in the Indian context.

REVIEW OF LITERATURES (ROL)

Arora et al. (2021) conducted a study on the role of emotion in excessive use of Twitter during COVID-19 imposed lockdown in India.

The COVID-19 pandemic and the lockdowns to contain it are affecting the daily life of people around the world. People are now using digital technologies, including social media, more than ever before. The objectives of this study were to analyze the social media usage pattern of people during the COVID-19 imposed lockdown and to understand the effects of emotion on the same. The messages posted on Twitter by users from India, expressing their emotion or view on the pandemic during the first 40 days of the lockdown. We identified the users who posted frequently and analyzed their usage pattern and their overall emotion during the study period based on their tweets. It was observed that 222 users tweeted frequently during the study period. Out of them, 13% were found to be addicted to Twitter and posted 14 tweets daily on an average (SD: 5), while 3% were found to be highly addicted and posted 41 tweets daily on an average (SD: 10) during the study period. The overall emotion of 40% of the users was happiness throughout the study period. However, it was also observed that users who tweeted more frequently were typically angry, disgusted, or sad about the prevailing situation. We concluded that people with a negative sentiment are more susceptible to addictive use of social media.

Dhanashree et al. (2020) conducted a study on the role of mass media and its impact on general public during coronavirus disease 2019 pandemic in North India: An online assessment.

Based on the global experience, India has the possibility to be highly affected by the coronavirus disease 2019 (COVID-19) pandemic. To contain the spread of the infection, a complete lockdown was enforced from March 25 to May 31, 2020 in India. During the unlock phase from June 1, 2020, only limited mobility was allowed. At present, in the pandemic, mass media is playing a very important role in sharing information and connecting people. The objective of this study is to understand the role and impact of mass media in the general public during COVID-19 pandemic. Nair et al. (2021) conducted a study on Tracing Counter Memory: An Inquiry into the Mediation of Silence in Empirical Media Coding Practices. The media's power to direct attention to and from public issues often determines which problems will be addressed or ignored by society. The media may leave out some issues simply by ignoring the actual problem. In a media-saturated culture, this lack of attention means silencing. Silence can also be indicated as an emotion, intent or information that is not being fully addressed during a process. Notions of archiving, memory, identity and power are interlinked, with archiving, taking a prominent role in controlling what we remember. This paper revisits news and media narratives in the manner of an archive. In this, contemporary news items are collected and analyzed to become an effective archive. How they would be representing the unheard voices of the people involved in the event. Furthermore, it can be clarified as an attempt to project the ups and downs in the future when it comes to the case of archival. Media narrates news using certain codes that reflect the era of production. To make the audience appeal, these codes reflect certain dominant ideologies and values of the time. The researcher rests upon the question of which materials are coded and which are excluded, keeping the approach of memory, power and the epistemology of resistance through the notion of counter memory. The study also brings into play inquiry, the significance of silence. The present research examines the mediation of silence in the empirical media coding practices and the process of remembering and forgetting. It also analyses the role played by silence in the creation of memories. For this purpose, the study focuses on the archival coding of news related to senior citizens during the COVID-19 outbreak and subsequent lockdown in Kerala. Qualitative content analysis of weekly news programs in two top-rated Malayalam TV News Channels is done, along with an unstructured interview with the subjects. The study reveals that silence exists in media

coding practices. They are capable of symbolizing the mere presence of absence and thus creating memories. The research also unfolds the media role in creating, recollection, destruction, modification, and replacement of memories. Tiwari et al. (2021) conducted a study on the impact of COVID-19 Lockdown on Sleep Quality in Students.

A periodic state of rest accompanied by varying degrees of unconsciousness and relative inactivity is referred as sleep; in another way is a state in which an individual lacks conscious awareness of environment surroundings. Quality sleep and getting enough of it at the right times is as essential for survival just as food and water. Without sleep our brain can't learn and create new memories, making it harder to concentrate and respond quickly. The Novel Coronavirus (also known as COVID-19) smashed the world into deep waters of uncertainty. In India, strict lockdown was imposed in three phases from March to June 2020 for the containment of the COVID-19 pandemic. At this junction, we attempted to assess how derailment of social life due to imposed social isolation, leading to compromised sleep in the present scenario affects sleep-wake pattern and other lifestyle related behaviour. A brief survey on affected sleep patterns of people during the corona pandemic was conducted to understand the possible alterations in sleep-wake schedules and the daily routine related activities such as exposure time to digital media (i.e., TV, laptop/computer/mobile, etc.) as a consequence of lockdown.

A recent meta-analysis by Moran (2016) examined the relationship between anxiety and WM capacity. Based on 177 samples, this meta-analysis on correlative studies found a moderate but reliable association so that higher anxiety was related to lower WM performances (overall Hedge's g = -.334). This held across anxiety type (state, trait), sample type (clinical, non-clinical), WM task paradigm (simple span, complex span, n-back), and WM content (spatial, phonological, visual). These findings speak for a rather general relationship that could be fitted to the attentional control account. However, Moran (2016) highlights various limitations of this research, including reliance on single measures of WM that makes it impossible to separate task-specific and task-general effects. Thus far, there have been no studies examining the relationships between state anxiety and WM domains at latent variable level.

METHODOLOGY

Objectives

- To evaluate the influence of high levels of COVID-19 media exposure on levels of anxiety.
- To evaluate the effect of high levels of anxiety on performance of visual Working memory tasks.

Hypothesis

- There a significant relationship between media exposure and anxiety.
- There is a significant relationship between levels of anxiety and working memory.

Sample

- The total sample consisted of 40 participants having an age range of 18-35. The participants were both male and female who were selected through random sampling.
- The exclusion criteria for the present research for selection of participants were history of drug abuse.

Design

The research design was conducted in two phases:

I. Phase I- Participants were filling the Google survey form containing questions of COVID-19 media exposure, UCLA loneliness scale, STAI-Y (Strait- Trait Anxiety Inventory) and initial social distance item pool questionnaires.
II. Phase II- After, 24 hours of the first phase, participants were told to take a test on PsyToolkit's experiment library's N-Back test which took approximately 15-20 min to complete.

Tools

- **UCLA loneliness scale**

It is a 20-item scale designed to measure one's subjective feelings of loneliness as well as feelings of social isolation (Russel et al, 1980). Participants rate each item on a scale from 1 (Never) to 4 (Often). It is a revised version of the original UCLA Loneliness Scale. The main reason for this revision was to make 10 of the 20 original items reverse scored. This scale has been revised again to simplify the wording of participants' feeling of loneliness and feeling of self isolation.

- **Initial Social Distance Item Pool**

It was generated during March and April of 2020, with an item pool of 29 questions which asked about various social distancing and self-protective behaviors. These items were identified from review of CDC announcements and NIH National Institute of Allergy and Infectious Disease directives available at the time. Items were anchored on a five-point Likert scale scored from 0 to 4, with 0 indicating low levels of social distancing/protective behaviors and 4 indicating highlevels of social distancing/protective behaviors. The items targeted multiple areas of social and physical distancing including protective behaviors such as wearing a mask, shopping in public, participating in small or large group activities, working outside of the home, using technology for social contact, physically interacting with family members of varying ages, visiting nursing homes, utilizing public transportation, and attending religious and/or funeral services in person. Items were also written to avoid confounding questions with intent, motivation, or emotional reaction associated with the behaviors.

- **Anxiety Questionnaire**

The STAI-Y (State-Trait Anxiety Inventory) is an easy-to-apply-and-interpret tool that is used to detect and measure anxiety. It includes two scales (Y1 and Y2), each made up of 20 items that, respectively, evaluate state anxiety, where the emotional condition of the subject at the time of administering the questionnaire is identified, and trait anxiety, which investigates how the subject feels habitually. It is thus possible to make a distinction between anxiety understood as a symptom and anxiety expressed as a habitual way of responding to external stimuli. The first refers to a situational activation, a temporary condition referring to a well-defined moment. The second refers to a persistent emotional state and can be considered as a relatively stable characteristic of the personality. Each item of the questionnaire presents a statement to which the subject must respond in terms of intensity on a 4-point Likert scale: from 1 (not at all) to 4 (very much). Participants were asked to mark the number corresponding to their emotional condition. Higher scores correlated with higher levels of anxiety. The two scales, Y1 and Y2, can be used independently of each other, providing two separate and distinct results. The aim of this study was to evaluate the anxiety level of the participants in relation to a specific period,

during the coronavirus pandemic. For this purpose, it was considered appropriate to administer only the STAI Y1.

- **Working Memory Measurement**

In order to evaluate the performance of WM, n-back was used, a continuous performance activity commonly used in the field of psychology and cognitive neuroscience. This paradigm has been widely used in the literature and has shown good psychometric properties. The n-back task involves the serial presentation of stimuli (for example, an image or a sound), separated from each other by a few seconds. The participant has to decide whether the current stimulus matched that shown in previous steps. The n indicates the load factor, a variable number that can be adjusted up or down, respectively, to increase or decrease the cognitive load and to make the task more or less difficult. This activity involves the active part of WM, as it requires the maintenance and continuous updating of information. In this study we used 2- back version of visual working memory test.

In the N-Back task, participants are presented a sequence of stimuli one-by-one. The total stimulus set is 15 stimuli (letters A,B,C,D,E,H,I,K,L,M,O,P,R,S, and T are being used). Each stimulus is presented for 500 milliseconds and People get 3 seconds to respond. A new stimulus is presented every 3000 milliseconds. There are 3 blocks of each 25 trials. For each stimulus, they need to decide if the current stimulus is the same as the one presented N trials ago. The N can be 1 trials, 2 trials, 3 trials, etc. The higher the number, the more difficult the task. The factors that seem to influence the performance are not only the N, but also the speed of presentation and the size of the set of stimuli. We used online site, PsyToolkit's experiment library for N-Back test.

Procedure

The objective of the present study was to examine the impact of media exposure on anxiety and working memory. After the informed consent, 40 participants consisting of male and female with age range of 18-35 were selected randomly. The research was conducted in two phases. The first phase was filling the Google survey form containing questions of UCLA loneliness scale and initial social distance item pool questionnaires. The second phase of the research was to take a test on PsyToolkit's experiment library's N-Back test after 24 hours of the first phase. After the data collection, data of 42 participants were scored and analysed using Pearson's coefficient correlation.

Statistical analysis

To analyze the results, IBM SPSS Statistics 22, statistical software was used. Descriptive statistics (with means and standard deviations) were presented for each variable. The Pearson correlation analysis was conducted between the anxiety status, social distancing, subjective loneliness and media exposure questionnaires. In order to verify the causal relationship between media exposure as a predictive variable and anxiety as a dependent variable, and between social distancing and subjective loneliness and COVID-19 media exposure, linear regressions were conducted.

Ethical considerations

- Voluntary participation of each participant was ensured.
- The participants were debriefed about the study before they decided to be a part of it and were informed what was expected out of them throughout the study.

- Anonymity of the participants was ensured. All the participants were informed that all personal data would remain strictly confidential.
- Informed consent of all participants was taken before the conduction of the survey.
- Queries of the participants were addressed and they were informed that they had a right to withdraw from the study at any time even after the informed consent had been signed.
- No kind of deception was done with the participant by hiding the nature of the study.
- Rights and well-being of the participants were kept in mind while conducting the practical.

RESULT

Table 1 shows the means and standard deviations of the anxiety status, social distancing, subjective loneliness and media exposure questionnaires. Table 2 shows the Pearson's correlations between COVID-19 media exposure, subjective loneliness, social distancing and anxiety status. As can be seen, media exposure is correlated with anxiety and subjective loneliness is correlated with anxiety. These results show that continuing to stay informed does not lead to anxiety reduction; on the contrary, it may amplify it. Moreover, high levels of social distancing do not show any correlation with anxiety and media exposures and subjective loneliness. In order to verify the causal relationship between media exposure and COVID-19 media exposure on the levels of anxiety, a linear regression was conducted, considering media exposure as a predictive variable and anxiety as a dependent variable. The data were highly significant: the beta index was equal to 0.276, $t = 1.769$, and $p < 0.001$. To evaluate the influence of high levels of anxiety on the performance of visual WM, Table shows the means and standard deviations for each parameter and Table 6 shows Pearson's correlations of anxiety and WM measurements.

Table 1. Descriptive statistics of media exposure, COVID-19 media exposure, subjective loneliness, social distancing and anxiety status.

	N	Mean	Std. Deviation
Media Exposure	40	1.7250	.45220
Subjective loneliness	40	1.3750	.49029
Social Distancing	40	1.5250	.50574
Anxiety	40	43.8250	9.06073
Valid N (listwise)	40		

Pearson Correlations

Table 2. Testing the mediation effect of subjective loneliness and social distancing between media exposure and anxiety.

		Media Exposure	Subjective loneliness	Social Distancing	Anxiety
Media Exposure	Pearson Correlation	1	.130	.199	.276*
	Sig. (1- tailed)		.212	.109	.042
	N	40	40	40	40
Subjective loneliness	Pearson Correlation	.130	1	-.194	.563**
	Sig. (1- tailed)	.212		.115	.000
	N	40	40	40	40
Social	Pearson Correlation	.199	-.194	1	-.035

		Media Exposure	Subjective loneliness	Social Distancing	Anxiety
Distancing	Sig.(1- tailed)	.109	.115		.414
	N	40	40	40	40
Anxiety	Pearson Correlation	.276*	.563**	-.035	1
	Sig. (1- tailed)	.042	.000	.414	
	N	40	40	40	40

**. Correlation is significant at the 0.05 level (1-tailed).*
***. Correlation is significant at the 0.01 level (1-tailed).*

Regression

Table 3 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	34.292	5.567		6.160	.000
	Media Exposure	5.527	3.124	.276	1.769	.025

a. Dependent Variable: Anxiety

Table 4 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.039	.324		.119	.000
	Anxiety	.030	.007	.563	4.205	.000

a. Dependent Variable: Subjective loneliness

Descriptive

Table 5 Descriptive Statistics

	N	Mean	Std. Deviation
Anxiety	40	43.8250	9.06073
working memory correct response	40	5.9750	2.59672
working memory reaction time (ms)	40	1039.0500	1643.54276
Valid N (listwise)	40		

Correlations
Table 6

		Anxiety	working memory correct response	working memory reaction time (ms)
Anxiety	Pearson Correlation	1	-.138	-.646**
	Sig. (1- tailed)		.199	.000
	N	40	40	40
working memory correct response	Pearson Correlation	-.138	1	.151
	Sig. (1- tailed)	.199		.177
	N	40	40	40

		Anxiety	working memory correct response	working memory reaction time (ms)
working memory reaction time (ms)	Pearson Correlation	-.646**	.151	1
	Sig. (1- tailed)	.000	.177	
	N	40	40	40

***. Correlation is significant at the 0.01 level (1-tailed).*

Table 7 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1604.197	148.559		10.798	.000
	Anxiety	-17.306	3.321	-.646	-5.211	.000

a. Dependent Variable: working memory reaction time (ms)

DISCUSSION

The current study investigated the relationships between media exposure, state anxiety and working memory during the COVID-19 pandemic, in a sample of healthy Indian adults. With the aim to examine the impact of media exposure on anxiety and working memory, the study was conducted on 40 healthy Indian adults (age range 18-25 years). The sample was collected through a purposive sampling method. After the collection of data, correlation analysis and regression analysis was done to obtain the results. The findings show that there exists a correlation between anxiety and media exposure. Also, subjective loneliness and anxiety are found to be correlated. High levels of social distancing, such as people who never or almost never meet others, or who do not go out of their home, do not show any correlations with anxiety. High levels of subjective loneliness, instead, show correlations with anxiety, meaning that it is not living in objective social distancing situations that generate anxiety, but rather how those situations are processed (perceived loneliness).

The direct relationship between media exposure and anxiety seems to indicate that continuing to stay informed does not lead to anxiety reduction, but on the contrary it may amplify it. According to the Social Compensation Hypothesis (SCH), increases in interactions through the media should compensate for reductions in in-person interactions. Moreover, as pointed out by the theory of media dependency, it is precisely during a serious social disturbance that a high need to find information, as well as to maintain and strengthen interpersonal relationships in the name of comparison and mutual support, emerges. The independent variable in the study is Media exposure and the dependent variable is Anxiety. From the regression table, it is quite evident that there exists a significant relationship between media exposure and anxiety. Also, working memory and Anxiety are negatively correlated, indicating that increased anxiety can decrease performance in working memory tasks. However, it is important to note that there is no relationship between anxiety and correct responses in working memory test, rather the relationship exists between Anxiety and Working memory reaction time. Heightened anxiety decreases the reaction time of working memory task. Also, the SCH theory has to be handled with caution for several reasons: (a) during a time of crisis, people tend to increase their dependency on the media in an insistent and continuous search for increasingly accurate and updated information, in order to make adequate decisions on protective behaviors; (b) the increase in dependency on the media does not decrease anxiety levels, but may increase them; (c) interactions through the media and exposure to media can lead to a decrease in working memory accuracy. As

confirmed by Boursier et al., isolation probably reinforced the individuals' sense of loneliness, thus strengthening the need to be part of virtual communities, and prolonged access to social media during the pandemic risked further increases in anxiety, thereby generating a vicious cycle. From the results of this study, it can, therefore, be concluded that high exposure to media can increase state anxiety of individuals which in turn, can lead to decreased working memory performance and has consequences for how effectively citizens can process and comply with rapidly evolving government directives. From a political communication standpoint, this argues for crisis messaging strategies that account for audience cognitive load; clear, infrequent and consistent directive communication rather than the high-frequency, high-uncertainty coverage that characterized much of India's early pandemic media environment since information frequency itself may undermine the working memory needed to retain and act on the content of messages.

CONCLUSION

The objective of the present study aimed to examine the impact of media exposure on anxiety and working memory on healthy Indian adults. The results of the study indicated that there exists a significant relationship between media exposure and anxiety and also, there is a significant relationship between anxiety and working memory. It was found that media exposure and anxiety are positively correlated whereas anxiety and working memory (particularly, working memory reaction time) are negatively correlated. Hence, Two main conclusions can be drawn:

1) it is not social distancing due to the COVID-19 pandemic that influences anxiety levels, but rather the way in which people perceive, comprehend, and interpret the social distancing, that creates subjective loneliness, and consequently increases anxiety levels;
2) social distancing and the consequent increase in media exposure can negatively influence not only anxiety but also working memory processes.

Limitations

The sample size and age group is limited. The correlational method was used to analyse the data which cannot be used to draw conclusions about the causal relationships among the measured variables. The respondents may have biased the results due to social desirability or acquiescence. Convenient and purposive sampling method was used to collect data, which may lead to researcher bias, inability to generalize the results of the survey to the population as a whole, more limited external validity etc. Working N-Back test was used for memory testing, there are increased chances of participant bias because they are free to take as much trials as they want apart from the instruction.

Future suggestions

Role of media in our daily life is getting increased day by day, therefore research related to social media in psychological perspective is very important to keep a constant check on mental health of the people. Our research methods and data can be used for reference in future research and the research gaps and limitations in this study like small number of participants and limited age group participants, sampling technique etc. can be overcome in further studies. Our study was related to mass media exposure anxiety and its effect on working memory, further studies can be done using different combinations of variable like media exposure and anxiety, media and self-esteem, anxiety and memory etc.

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Conflict of Interest

The author(s) declared no conflict of interest.

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