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Negative emotional symptoms during COVID19 confinement: The relationship with reading habits

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ABSTRACT

Background: Coronavirus disease (COVID19) is an ongoing pandemic, which forced governments across the globe to implement confinement measures to limit the spread of the disease. These measures have impacted the daily life and psychological status of people. However, no studies have examined the relationship between changes in psychological status with reading habits during the COVID19 pandemic.
Objectives: The study aims at examining the relationship between changes in reading habits and negative emotional states.
Method: The psychological status was measured using the Depression, Anxiety, Stress Scales (DASS). In addition, the participants reported changes in four types of reading experiences during COVID19 confinement. These reading types are specialized, general knowledge, story/novels, and religious material. An internet-based survey was used to collect the data among adults.
Results: A total of 1711 individuals participated in the study. About 60.0%, 55.1%, 60.5% and 61.0% reported participating in scientific, religious, general, and novel reading, respectively. Additionally, the ANOVA revealed differences ($p < 0.05$) in DASS scores according to the changes in scientific, religious, newspaper, and novel/story reading. Subgroup post hoc comparisons showed that DASS scores were associated with a no-change or increase in all types of reading habits indicating a main effect of emotional state on all types of reading.
Conclusions: Current results might suggest that the participants who experienced greater negative emotions, tended to either not change or increase their reading habits. Additionally, individuals with lower negative emotion scores reported a decrease in reading during the COVID19 pandemic.

1. Introduction

In December 2019, coronavirus disease (COVID19) emerged with symptoms like that of SARS-CoV-1. In March of 2020, the World Health Organization (WHO) declared the disease a pandemic. Since then, the disease has spread across the globe claiming ~515 million cases and 6.27 million fatalities as of May 2022. In Jordan (population = ~10 million), the total as of May 2022 is ~1.67 million cases and ~14,000 fatalities [1]. The pandemic was reported to be associated with significant levels of psychological distress that requires immediate international public responses [2,3]. A systematic review showed that governments that applied stringent confinement measures to limit the spread of the virus also promoted the mental health of their populations [4]. Several virulent and more contagious strains of the disease have recently been identified in the UK, South Africa, Brazil, California/USA, and India [5]. The disease can be transmitted through person-to-person, zoonotic, respiratory droplets, contact and fomites, and nosocomial [6]. COVID19 patients usually suffer from fever, coughing, sneezing, myalgia, malaise, and cognitive/olfactory impairments [7–10]. With the spread of the COVID-19 across continents, high levels of anxiety, depression and stress were reported in several countries [11,12].

To limit the spread of the disease, WHO has recommended several preventive procedures such as wearing a mask, social distancing, ventilating indoor spaces, frequent handwashing, regular respiratory

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hygiene, and avoiding touching the eyes, nose, or mouth. Additionally, many governments have resorted to confinement measures including lockdown, contact tracking, and sheltering at home [13,14]. These procedures are associated with negative mental impacts. Studies have reported increased anxiety, depression, and stress with mask use [15], physical distancing [16], and lockdowns [17] in many countries.

Confinements are considered among the harshest living conditions [18]. They usually are associated with reduced social activities, deprivation from outdoor entertainment [19], insufficient resources [20], and being worried about contracting the disease [21–23]. These changes usually result in excessive food intake, sleeping habits, physical inactivity, and obesity [24,25]. They as well include increased risk for musculoskeletal, cardiovascular, neural, immune, and metabolic disorders [26]. It has been previously reported that confinement and subsequent consequences are associated with psychological complications [27]. Studies from Spain and Algeria showed increases in psychological symptoms and disturbances during COVID19 [20,28–30]. These symptoms were attributed to COVID19-induced confinement, found across age groups and comorbidities, and expected to increase if the confinement continues [28,29].

Psychological well-being is essential to maintain physiological health and function, and overall quality of life [31]. Therefore, many people resort to different strategies to maintain mental health and wellbeing during confinement, among which is reading. Reading materials include scientific journals and books, periodic magazines, daily newspapers, and story/novels [32]. Reading is essential for knowledge, creativity, exercising the brain, and shaping of identity, personality, perspective, and attitude [33,34]. Furthermore, it is helpful for relaxation, entertainment, leisure, and pleasure [35]. Most importantly for stress relief [36,37], and mental and psychological wellbeing [38], especially during confinements [39,40]. One study reported that reading for only 6 min a day is an effective strategy to reduce stress levels by up to 68% enabling people to clear their minds and reduce bodily tension. The authors concluded that engaging in reading, regardless of the type, is the ultimate relaxation strategy and an escape from worries and stresses [41].

Previous studies have reported several confinement-induced changes in lifestyle during the COVID19 pandemic. These changes include a reduction in physical activity [21], an increase in high fat–caloric food consumption [20], smoking [42], and sleep disturbance [20]. However, no studies have reported the effect of confinement on the relationship between changes in reading habits and psychological status. In the current study, the negative emotional status indices were compared among adults who increased, decreased, and never changed reading habits during COVID19 confinement. The results of the current study are critical to shed the light on the importance of reading habits for psychological health during confinement, particularly disease-related confinement.

2. Methods

2.1. Design and recruitment

The study was cross-sectional to examine the relationship between changes in reading habits with psychological status during COVID19-induced confinement. Individuals (≥18) years were recruited from Jordan using a web-based electronic survey. The survey was distributed anonymously via social media venues. Prior to filling out the survey, the participants were informed about the study objectives and subsequently provided electronic informed consent to participate in the study. The Institutional Review Board (IRB) of Jordan University of Science and Technology approved the study procedures (approval ID: 245/2020).

2.2. Survey

Three domains were collected for the purpose of the current study, personal demographics, changes in reading habits, and psychological status. The research team developed the current survey to make it suitable for COVID19. The questions were modified from previous similar surveys [43].

2.3. Personal demographics

Age, gender, weight, height, job type (i.e., educational, medical, versus managerial), education, and income were among the demographics collected from the participants. Additionally, the participants were asked about the likelihood of getting infected, knowing somebody infected with COVID19, and the implemented governmental confinement procedures.

2.3.1. Changes in reading habits

The participants reported changes in four types of reading experienced during the confinement of COVID19. These reading types are specialized, general knowledge, story/novels, and religious material. Specialized reading includes scientific books and journals, general knowledge reading includes newspapers and magazines, and religious material includes holly books and religion-related material. The questions in the survey would ask: “What changes have you experienced in the following reading types due to the spread of COVID19?”. Four choices were available, “increase”, “decrease”, “no change”, and “never practiced this behavior”.

2.3.2. Psychological status

The Depression, Anxiety, Stress Scale (DASS) was used to obtain the psychological states of the participants. DASS-21 is a well-validated questionnaire that was used during the COVID-19 pandemic in different countries [44–48]. The questionnaire is a self-report instrument of twenty-one items that measures negative emotional status in three domains, depression, anxiety and tension/stress [49]. The scale includes 7 items in each domain [49]. The survey can yield meaningful discrimination in a variety of settings and measure current or change status. The survey has been validated and found reliable [50] including the Arabic version [51].

2.4. Statistics

SPSS package (version 22.0; Chicago, IL) was used for all statistical analyses. ANOVA was used to compare the means of indices for negative emotional symptoms among the participants who reported a decrease, no-change, versus an increase in reading habits. The least significant difference post hoc test was used for subgroup comparisons. A p-value of less than 0.05 was considered significant and data were expressed as means ± SD or percentage (%). The indices for negative emotional symptoms included stress, anxiety, depression, and total scores. The reading habit types included reading scientific, religious, general knowledge (i.e., newspapers), and novel materials.

3. Results

3.1. Participants

A total of 1711 participants gave information about reading habits and distress status. Table 1 shows the participant characteristics. The mean age of the subjects was 33.7 ± 11.2 (range: 18–72 years), whereas the mean BMI was 26.2 ± 5.1. Obese/overly obese represents about 20% of the sample. The ratio of men to women was 68.9: 31.1. The majority held a university degree and earned a middle income. The reported confinements that were experienced by most of the participants (>90%) included self-quarantine, social distancing, lockdown, school/university closure, and banning of social gatherings. Table 2 shows scores for negative emotions among study participants.

Table 1
The demographic characteristics of the participants (n = 1711).

Age (yrs, mean ± SD)	33.7 ± 11.2
Weight (kg, mean ± SD)	72.7 ± 16.4
Height (cm, mean ± SD)	166.5 ± 9.8
BMI (kg/m^2, mean ± SD)	26.2 ± 5.1
Gender (%; women/men)	68.9/31.1
BMI Classifications	
Underweight (%)	8.9
Normal weight (%)	36.9
Overweight (%)	35.0
Obese (%)	14.7
Overly obese (%)	4.6
Level of Education (%)	
High school and less	18.6
Associate degree	13.8
Bachelor degree	52.0
Graduate degree	15.7
Income (%)	
Low	15.7
Middle	77.1
High	7.2
Job sector (%)	
Unemployed/retired	51.1
Government	24.3
Private	24.6

Table 2
Levels of negative emotions among the participants during COVID19.

Stress	13.3 ± 10.8
Anxiety	7.7 ± 8.2
Depression	11.9 ± 9.9
Total	33.0 ± 26.8

3.2. Reading habits during the COVID19 pandemic

Among the participants, 60.0%, 55.1%, 60.5% and 61.0% reported partaking in scientific, religious, general, and novel reading, respectively.

3.3. Emotional status according to changes in reading habits

Table 3 shows negative emotional states according to changes in reading habits during COVID19 pandemic. The ANOVA revealed differences ($p < 0.05$) in DASS scores according to the changes in scientific, religious, newspaper, and novel/story readings. Subgroup post hoc comparisons are shown in Table 3. Greater DASS scores were associated with a no-change and an increase in all types of reading habits indicating a main effect of emotional state on all types of readings by comparable magnitudes.

4. Discussion

The rapid spread of COVID19 has forced the WHO and governments around the world to implement several confinement measures. These confinements were usually associated with dramatic changes in lifestyle and psychological status. However, no studies examined the effect of COVID19-induced confinement on reading habits and psychological status among adults.

The current study compared the negative emotional status indices among adults who experienced a decrease, a no-change, or an increase in reading habits during the COVID19 pandemic. The participants of the current study reported 60.0%, 55.1%, 60.5%, and 61.0% involvement in scientific, religious, general, and novels reading, respectively. Remarkably, the analyses showed that greater DASS scores were associated with a no-change and an increase in reading habits. These results are of interest as they might suggest that the participants who experienced

Table 3
Negative emotional status according to changes in reading habits during COVID19.

Types of Readings	Emotional Status	Decrease	No change	Increase
Scientific Reading	Stress	12.4 ± 10.4	16.8 ± 10.7*	14.9 ± 11.7*†
	Anxiety	7.8 ± 8.5	10.4 ± 8.7*	8.0 ± 8.5†
	Depression	11.5 ± 9.5	14.9 ± 10.5*	13.2 ± 10.4*†
	Total	31.6 ± 26.1	42.1 ± 27.2*	36.0 ± 28.6*†
Religious Reading	Stress	12.3 ± 10.4	17.3 ± 11.2*	14.5 ± 11.6*†
	Anxiety	8.2 ± 8.6	11.1 ± 9.2*	7.6 ± 8.1†
	Depression	11.5 ± 9.6	15.1 ± 10.4*	13.2 ± 10.4*†
	Total	32.0 ± 26.7	43.80 ± 28.6*	35.1 ± 28.2†
Newspaper Reading	Stress	13.0 ± 10.5	16.6 ± 10.6	14.5 ± 11.6*†
	Anxiety	8.5 ± 8.5	10.2 ± 8.4	7.7 ± 8.3†
	Depression	11.9 ± 9.8	14.7 ± 10.0	12.7 ± 10.0†
	Total	33.3 ± 26.6	41.6 ± 26.8	34.8 ± 27.9†
Novel Reading	Stress	12.7 ± 10.6	16.5 ± 10.6	14.4 ± 11.4*†
	Anxiety	8.0 ± 8.5	10.2 ± 8.2	7.8 ± 8.5†
	Depression	11.5 ± 9.7	15.2 ± 10.1	12.8 ± 10.1*†
	Total	32.2 ± 26.8	41.7 ± 26.5	35.1 ± 28.0†

Values are in mean ± SD. *$p < 0.05$ versus decrease. †$p < 0.05$ versus no-change.

greater negative emotions tended to either not change or increase their reading habits. Additionally, individuals with lower scores of negative emotions reported a decrease in reading during the COVID19 pandemic.

Few studies examined the effect of COVID19 confinement on psychological status. One study reported increased anxiety, stress, and depression, during the COVID19 pandemic [27]. Similarly, anxiety and depression symptoms were greater than usual among children whose parents reported a higher level of stress during the COVID19 pandemic [52]. In addition, COVID19-induced stress resulted in more psychological issues among individuals with mental health disorders. These issue included emotional distress and affliction with an inclination for suicide [53]. Another study reported increased emotional, physical, and mental fatigue due to excessive and persistent stress [54]. Poor mental and physical well-being conditions among individuals who ceased working during the COVID19 pandemic were also reported [54]. Moreover, psychological stress was apparent among people with direct contact with infected patients, especially the ones with psychological problems and frontline healthcare providers [55]. Similar symptoms were reported among individuals heavily following the news about COVID19 [56–60]. These psychological effects have been attributed to confinement-induced behaviors including social distancing, poor health, lifestyle changes, loss of jobs, and fear of conducting the disease [27,53,56–61].

Previous studies have demonstrated dramatic changes in lifestyle during COVID19-induced confinement [20,21,62]. Among these changes were reduced physical activity [21,62], increased fat/caloric intake, and sleep disturbance [20]. A unique finding of the current study was the changes in reading habits during the COVID19 pandemic. Many participants resorted to reading activities to cope with the consequences of confinement such as reading magazines, books, or daily papers. This might have offered assistance to decrease loneliness and maintain mental wellbeing [32,63]. Reading is associated with many benefits, including knowledge, creativity, exercising the brain, leisure, and shaping identity, personality, and perspective [33]. For example, it has been reported that leisure reading is essential for the advancement of

health sciences students as well-being experts. Most of the students preferred to read books, newspapers, and magazines in print [63]. Reading was also reported as an important entertainment tool during social isolation conditions as books were the most noteworthy individual possessions that space travelers stuffed in long missions [40,64].

Interestingly, no studies have examined the impact of COVID19 confinement on the relationship of psychological status with reading habits. However, increasing evidence have shown the efficacy, acceptability, and feasibility of non-medical strategies, including shared reading intervention, to improve mental health and well-being [35,65]. According to the current results, individuals who did not experience changes in reading habits scored the greatest values, while the ones who experienced a decrease in reading habits scored the least values in all negative emotional status parameters. These findings are consistent with a study conducted by Madani et al. The result of that study showed that during the first three weeks of confinement, the respondents were anxious, stressed, and in a bad mood. The participants attributed these negative feelings to being worried about contracting the disease. Interestingly, these negative feelings were attenuated among the participants who devoted 3 h per day to reading [30]. Furthermore, a study that was conducted by the University of Sussex found that reading for only 6 min could relieve stress levels by up to 68% enabling the person to clear their minds and reduce bodily tension [41]. Similarly, past studies have shown that people who indulge in reading during confinement experience fewer psychological symptoms including sadness, nervousness, and stress [35,65].

4.1. Implications

This study examined the relationship of negative emotional symptoms with reading habits during COVID19 confinement. This study may contribute to identifying the best types of reading for people during quarantine to reduce negative psychological symptoms. However, further studies are needed to show the importance of reading for well-being, especially mental well-being during compulsory confinement and quarantine.

5. Conclusions

COVID19-induced confinement has affected many life aspects. In the current study, the majority of the participants were involved in scientific, religious, general, and novel reading. Additionally, the data showed less negative emotional symptoms among the participants who reported either a “no-change” or an “increase” in reading habits. However, more studies are needed to further understand changes in reading habits in relation to negative emotional symptoms. Subsequently, plans must be designed to encourage coping with distress via reading during long-term disease-induced confinement.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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