# Coronavirus media exposure effects on psychological well-being, lifestyle changes, and gender differences in North Macedonia's adult population.

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## Abstract

During the coronavirus global pandemic, many followed the news to seek as much information as possible to feel in control. These behaviors ultimately have a negative effect.   As a result of excessively following the news, one increases anxiety by believing that one can control what might come or be prepared for it in the future. The main aim of this study is to examine the correlation between following the news too much, referring to the coronavirus outbreak of COVID-19, and the presence of anxiety and depressive symptoms in the adult population in North Macedonia. Mental health, anxiety, and depression were assessed through questionnaires administered to all participants. The survey included 900 adult respondents, ranging in age from 19 to 71+. The respondents were citizens of North Macedonia. The study proved that people who spend too much time following the news, not only on TV but also adding information throughout the internet daily, experience more anxiety and depressive symptoms.

*Keywords:* Anxiety; coronavirus; gender differences; lifestyle changes; mental health; news.

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## 1. Introduction

The coronavirus disease 2019 (COVID-19) pandemic has emerged as a significant and global public health crisis. Besides the rising number of cases and fatalities, the outbreak has also affected economies, employment, and policies alike. Midst this, there has been a hidden epidemic of "information" that makes COVID-19 stand out as a "digital infodemic" from the earlier outbreaks. Repeated and detailed content about the virus, geographical statistics, and multiple sources of information can all lead to chronic stress, depression, and confusion in times of crisis (Wang, Xu & Xie, 2023). With increased digitalization, media penetration has increased with a greater number of people aiding in "information pollution." Although the pandemic has been under control in some countries, a series of social, psychological, and ethical issues brought about by the infodemic still worth to be reconsidered (Lawrance et al., 2022; Mahamid, Veronese & Bdier, 2022). The World Health Organization declared that besides the pandemic threat originated by the COVID-19 virus, an infodemic has been generated by a large amount of information available on the matter, as well as by the difficulty to sort the veracious information from the false.

The heightened distress caused by the infodemic can also cause individuals' irrational behaviors during the crisis, such as health information avoidance, the spread of misinformation, overuse of healthcare services, panic purchases, and compliance with preventive measures (such as physical distancing, mask-wearing, and vaccination). The new coronavirus continues to spread throughout the world, and the number of confirmed cases globally has proliferated (Warchoł-Biedermann et al., 2021; Reveilhac, 2022). The outbreak of coronaviruses has continued to grow. Referring to gender differences, according to confirmed cases, since the outbreak in December 2019, the rate of male infections has always been higher than that of women (about 2:1).

For women around the world, the coronavirus has impacted not only their physical health but also their family, work, and everyday lives (Power, 2020). In addition, the pandemic has impacted industries such as catering and tourism, and many factories have been forced to shut down. Many low-income women financially depend on these jobs and are now facing unemployment. On the other hand, as the coronavirus pandemic continued to grow, kindergartens, elementary schools, junior high schools, and high schools around the world announced the suspension of classes. Many schools have postponed the start of the academic year, which has forced many women to take leave to stay at home with their children, affecting their right to work. Married women in North Macedonia traditionally bear excessive family responsibilities, and this coronavirus crisis has made women feel depressed and more anxious too.

Having all the above-mentioned factors in consideration, it remains a fact that male patients died from coronavirus at twice the rate compared to females (Wen et al., 2020). This difference in mortality can be explained by differences in the lifestyles of men and women (Gebhard et al., 2020). For example, men do not wash their hands as frequently as women, which may affect the infection rate but cannot independently explain the significant difference in mortality.

It is worth noting that gender can also provide different perspectives to examine the development of the pandemic and health inequalities. Women may endure a greater physiological and psychological impact because of the pandemic. A survey from UN Women shows that, although men are more likely to die from coronavirus, women may disproportionately shoulder the psychological and emotional impact of the pandemic (Bohlken et al., 2020). For example, increased unpaid care and domestic work, income loss, and domestic violence under quarantine measures may cause women to fall into a more serious predicament (Tashiro & Shaw, 2020).

In addition to the fear and uncertainty associated with COVID-19 (Mertens et al., 2020; Yang et al., 2021), the anxiety and distress caused by lockdowns and social distancing mandates, and limited access to mental health services, the unending barrage of news from legacy media outlets and social media

platforms has further complicated the situation (Zheng et al., 2020; Xu, 2022), with little consideration for how pandemic-related media coverage might influence people's mental health. Moreover, the misinformation and disinformation surrounding COVID-19 - ranging from a false and misleading "Chinese virus" narrative to using disinfectants to "cure" COVID-19 - has affected individual's mental and physical health and well-being (Wen et al., 2020). Although some useful insight is available, scarce research has explored ways to mitigate the mental health consequences of COVID-19 media coverage. Evidence shows that in times of global crisis such as COVID-19, crisis communication can, cost-effectively, address multifaceted issues.

COVID-19 media coverage is inherently harmful; the disease represents an ongoing, deadly pandemic. (John Hopkins University, 2020). This intrinsic negativity, which naturally transfers to media coverage of the virus, could cause mental health issues. Research on media effects has long documented that negative news can lead to mild to severe mental health issues among consumers. Importantly, due to the scale and severity of COVID-19, media attention has been disproportionately focused on pandemic-related news, which could further affect individuals already facing more significant mental health challenges.

Watching too much news regarding the ongoing situation with coronavirus infections, mutations, active cases, deaths, and so on, contributes to increased anxiety levels, which can influence other areas of life and make people deal with difficulties in concentrating, completing daily tasks, or taking a rest as much as they need to (Chen, Wang, Xia & Zhou, 2022). Over time, this state can affect moods and even lead to depression.

### 1.1. Purpose of study

The main aim of this study is to examine the correlation between following the news too much, referring to the coronavirus outbreak COVID-19, and the presence of anxiety and depressive symptoms in the adult population in North Macedonia. An association between this relationship and gender is another target of our study, through which we will have a clear judgment on how men vs. women consume the news and how this impacts their mental well-being. Also, another goal of this research is to explore and investigate how these relationships have impacted people's lifestyles and social relationship .

Taking into consideration the literature review on gender differences that suggests that women and men consume the news differently, we added to this study the other relater factor, which is based on gender. Therefore, we broadened the concept of this research by focusing on the impact of following the news and being under threat of the infodemic on mental health and lifestyle changes regarding gender comparisons.

This perspective is important as it can provide systematic knowledge of how diverse males and females can be in how following the news excessively can trigger psychological responses. In short, this study aimed to answer three research questions: 1) How are the mental issues (anxiety and depression) related to following the news excessively and infodemia; 2) How is following the news excessively related to lifestyle changes? 3) Do these relationships change among female and male participants?

### 2. Materials and Methods

### 2.1. Data collection instrument

### 2.1.1. Following the news

Information on the following the news was obtained by an item that requested the participants answer how much they follow the news referring to the coronavirus outbreak with the accompanying alternatives: No, I'm avoiding it; following only the highlighted news about COVID-19; regularly watching the news, and searching frequently on a daily basis  through the internet for new information.

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### 2.1.2. Mental Health

Aspects of mental well-being were studied using two variables: depressive symptoms and anxiety symptoms. Mental health, respectively anxiety, and depression was assessed through the following questionnaires: Coronavirus Pandemic Anxiety Scale created by Dr. Alan Bernardo contains 15 items, while depression was tested through the Patient Health Questionnaire -9 which contains 9 items. All items offer a 4-point Likert scale.

### 2.1.3. Gender

Information on gender was obtained through a question regarding gender identity (male/female).

### 2.1.4. Lifestyle and social interaction changes

Changes in lifestyles are measured throughout 17 items regarding the lifestyle and social relationship changes during the pandemic and the safety measures that demanded new habits and ways of interacting with each other.

### 2.2. Participants

The respondents were invited personally via a message and asked to willingly fulfill and share the survey link with their contacts through social media. The identity of the respondent was completely anonymous. We decided to add the Respondent Anonymity Assurance in the welcoming message, because we believe that this principle not only protects the identity of the participants but also helps us gather more honest opinions or answers, without worrying about the repercussions. We had a total of 900 adult respondents ranging in age from 19 to 71+ years old. All of them were citizens of North Macedonia.

### 2.3. Statistical analyses

Data analyses are processed with psychometric and statistical procedures. For data analysis, we have been using the statistical software SPSS (Statistical Package for Social Sciences) version 20.0 which facilitates the process of organizing data into table graphics and charts for the sake of better visualization of the results and their interpretation.

### 2.4. Hypothesis

**H1.** People who follow the news too much experience higher levels of anxiety.

**H2.** Peoplewho follow the news too much are those who experience higher levels of depression.

**H3.** Regarding the amount they spend on following the news, women follow the news more often than men do.

**H4.** People who spend more time following the news are also those who manifest more changes in their lifestyles and social interactions.

**H5.** Regarding the amount they spent following the news, females manifest higher levels of anxiety and depression than men.

**H6.** People who follow too much news are those who also experience higher levels of stress.

## 3. Results and Findings

Regarding the first hypothesis analysis we have come to the following data:

### 3.1. H1. People that follow the news too much are those who experience higher levels of anxiety.

**Table 1**

Table 1 shows the levels of anxiety based on the amount of following the news on the coronavirus outbreak.

*Descriptives*

| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean Lower Bound | Upp | Min | Max |
|---|---|---|---|---|---|---|---|---|
| No, I'm avoiding it. | 260 | 26.78 | 11.257 | .698 | 25.41 | 28.16 | 15 | 60 |
| Following only the highlighted news about COVID-19 | 413 | 30.33 | 10.513 | .517 | 29.31 | 31.35 | 15 | 60 |
| Regularly watching the news | 119 | 31.66 | 10.379 | .951 | 29.78 | 33.55 | 15 | 60 |
| Searching frequently on daily bases through the internet for new information. | 108 | 36.54 | 11.658 | 1.122 | 34.31 | 38.76 | 15 | 60 |
| Total | 900 | 30.23 | 11.223 | .374 | 29.49 | 30.96 | 15 | 60 |

**Table 2**

Table 2 displays the Anxiety and following the news data analyses.

*ANOVA*

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 7631.200 | 3 | 2543.733 | 21.581 | .000 |
| Within Groups | 105610.560 | 896 | 117.869 | | |
| Total | 113241.760 | 899 | | | |

Looking at Tables 1 and 2 above, we come to the understanding that people who follow the news in a greater amount on a daily basis are those who suffer more from anxiety (M= 36.54) in comparison to those who consume the news less or insufficiently (M=31.66, M= 30.33) or try to avoid them (M=26.78). Referring to the data analysis, we got the following results: the sig. value (ρ=0.001) is lower than the alpha value 0.01, therefore, we confirm that there are significant differences between the means. According to these data outcomes, we can verify our hypothesis and conclude that following the news excessively leads to increased levels of anxiety.

### 3.2. H2. People that follow the news too much are those who experience higher levels of depression.

**Table 3**

Table 3 displays the levels of depression based on the amount of following the news on the coronavirus outbreak.

*Descriptives*

| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean Lower Bound | Up. B | Min | Max |
|---|---|---|---|---|---|---|---|---|
| No, I'm avoiding it. | 260 | 16.50 | 7.092 | .440 | 15.63 | 17.36 | 9 | 36 |
| Following only the highlighted news about COVID-19 | 413 | 17.15 | 6.905 | .340 | 16.48 | 17.82 | 9 | 36 |
| Regularly watching the news | 119 | 17.53 | 7.606 | .697 | 16.15 | 18.91 | 9 | 36 |

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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Searching frequently on daily bases through the internet for new information. | 108 | 19.45 | 8.249 | .794 | 17.88 | 21.03 | 9 | 36 |
| Total | 900 | 17.29 | 7.266 | .242 | 16.81 | 17.76 | 9 | 36 |

### Table 4

Table 4 displays the depression and following the news data analyses (PHQ_sum).

*ANOVA*

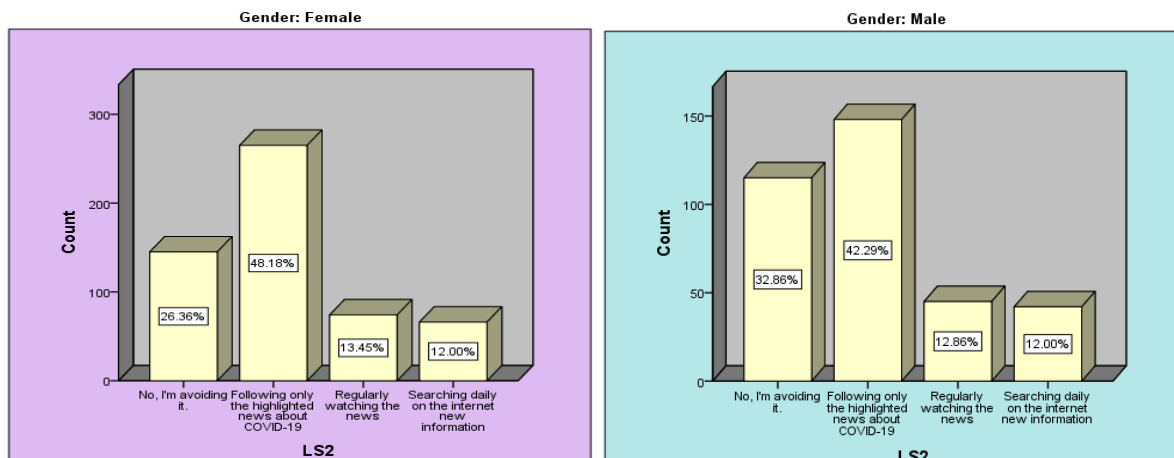| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 684.638 | 3 | 228.213 | 4.371 | .005 |
| Within Groups | 46775.402 | 896 | 52.205 | | |
| Total | 47460.040 | 899 | | | |

Regarding the data from the ANOVA test, (Tables 3 and 4), we come to findings that confirm our set hypothesis that people who follow excessively the pandemic news are those who help or trigger the development of depressive symptoms. Looking at Table 3. we see that there are differences among the means, the highest means go to those who consume news more frequently (M= 19.45) regarding the coronavirus outbreak, and the lowest mean goes to those who ignore them (M=16.50). At table 4. these differences are verified to be statistically on the borderline since ($\rho$=0.05) is equal to the alpha value (0.05). We conclude that since $\rho \leq 0.05$) it is statistically significant. It indicates strong evidence against the null hypothesis, as there is less than a 5% probability that the null is correct (and the results are random). Therefore, we reject the null hypothesis and accept the alternative hypothesis, meaning that our hypothesis stated that people who consume pandemic news frequently are those who also experience greater depressive symptoms.

### 3.3. H3. Regarding the amount they spent on following the news, women follow the news more often than men do.

Regarding the gender differences, referring to the hypothesis that stated that women tend to follow the news more frequently than men, our findings indeed didn't support such an assumption. The graphs below confirm that there are no significant differences in how much men and women follow the news.

Figure 1 displays the pandemic news according to gender differences.

### Figure 1
*Gender differences*

Luma, N. B. & Sinani, A. (2022). Coronavirus media exposure effects on psychological well-being, lifestyle changes, and gender differences in North Macedonia's adult population. *International Journal of Emerging Trends in Health Sciences. 6*(2), 90-99. https://doi.org/10.18844/ijeths.v6i2.8797

### 3.4. H4. People that spent more time following the news are those who also manifest more changes in their lifestyles and social interactions.

People who spend more time following the news also manifest more changes in their lifestyles and social relationships, according to our data findings from the ANOVA test, where those who other than following the news on TV, also require additional information through the internet on a daily basis are those who express more changes in their lifestyles and social relationship (M=51.56) in comparison to those who avoid such news (M=43.69). These findings are statistically significant since the p-value (ρ=0.001) is lower than the alpha value of 0.01, meaning that we reject the null hypothesis that there is no difference between the means. The graph below (figure 2) is a visual demonstration of such findings.

**Figure 2**
*Lifestyle and social relationship changes regarding the amount of following the news*
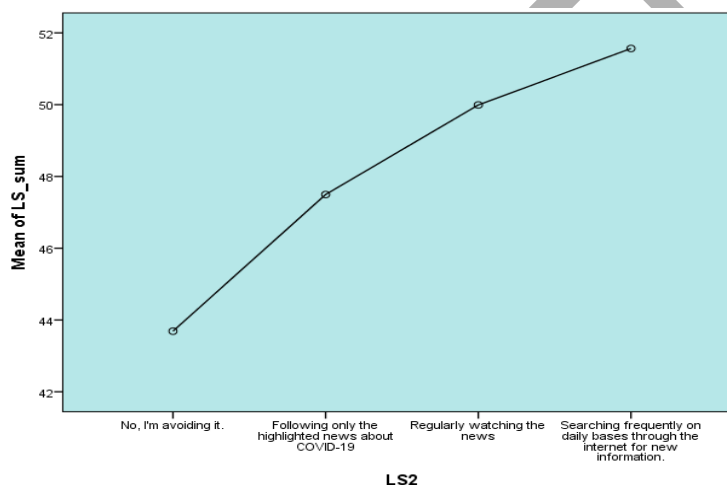


**Table 5**

Table 5 displays the anxiety and depression levels regarding following the news based on gender differences analyzed through group statistics.
*Group Statistics*

| Gender | | LS2 | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|---|
| Female | CPAS_sum | >= 2 | 140 | 35.22 | 11.309 | .956 |
| | | < 2 | 410 | 30.78 | 11.220 | .554 |
| | PHQ_sum | >= 2 | 140 | 19.46 | 7.956 | .672 |
| | | < 2 | 410 | 18.13 | 7.282 | .360 |
| Male | CPAS_sum | >= 2 | 87 | 31.99 | 10.924 | 1.171 |
| | | < 2 | 263 | 26.12 | 9.844 | .607 |
| | PHQ_sum | >= 2 | 87 | 16.80 | 7.729 | .829 |
| | | < 2 | 263 | 14.97 | 6.005 | .370 |

Looking at the table where the T-test was conducted to compare the means of the variables, we have come to the understanding that, obviously, females experience a greater presence of depressive symptoms and anxiety than males. The mean of women who follow the news regularly or excessively achieves a mean of (M=19.46) for depression and (M=35.22) for anxiety, which in comparison to men is significantly higher. Men achieve a mean of (M=16.80) in the depression test and (M=31.99) in the anxiety test.

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According to these findings, our hypothesis is verified, those women who follow the news and seek more information on the pandemic outbreak are more preoccupied and tend to suffer more from anxiety and depressive symptoms, than men. Detailed presentations of such findings are visually presented in Figure 3 below. Figure 3 displays the gender comparison on anxiety regarding the amount of following the news and the gender comparison on depression regarding the amount of following the news.

**Figure 3**

*Gender comparison and anxiety*
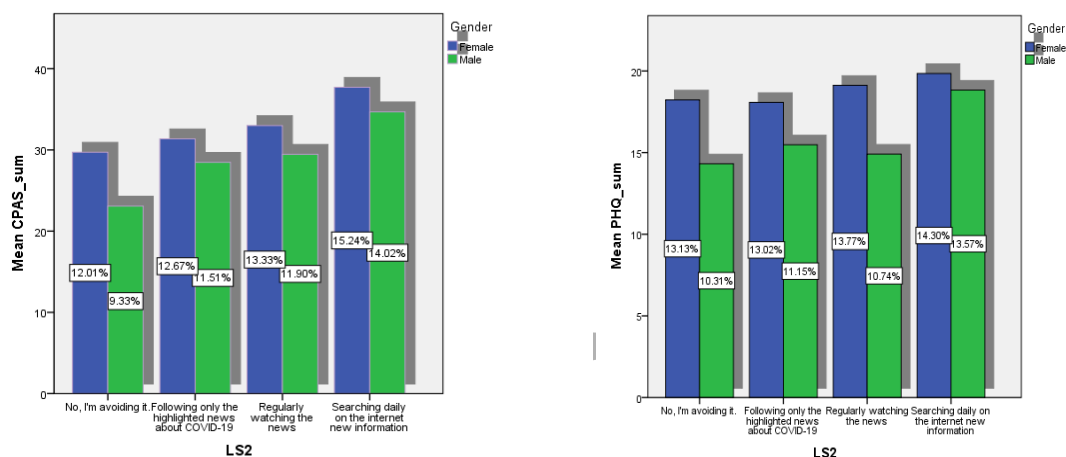


Another finding is that people who follow too much news are more likely to experience higher levels of stress. We used the ANOVA method to come to this understanding, where those who followed the news by adding or gaining additional information through the internet, are those who have achieved a mean (M=3.33) leaving behind, those who regularly follow the news (M=3.16), followed by those then only follow the highlighted news on pandemic (M= 3.12), leaving behind the group of respondents who avoided the pandemic news (M=2.91). According to the supported data ($\rho$=0.001) which is lower than the alpha value of 0.01, we conclude that our hypothesis has enough evidence to be supported as true.

## 4. Discussion

During a global crisis like the coronavirus pandemic, it's understandable that people would want to follow the news. When uncertainty is high, it drives people's brains to seek as much information as possible to feel in control. Staying glued to the television or constantly refreshing our social media feeds may help us feel slightly less anxious in the short term. These behaviors ultimately have the opposite effect. Indeed, in the long term, these behaviors that are linked with following the news too much would increase our anxiety by feeding the idea that we could control what might come or what to expect and be prepared for it, but taking into consideration that COVID-19 is so unpredictable that we could never be too sure about what the future holds for humanity.

Watching too much news; consuming limitless social media news portals that are full of misinformation, rumors, and conspiracy theories circulating every day can lead to certain psychological issues that may interfere with the quality of life. The recent study has focused on many variables, including the amount of time people spent following the news regarding the coronavirus outbreak, the mental issues that arise from media impact, gender differences in these associations, and lifestyle changes due to the influence of the media has on the way we behave and interact with others.

The study did prove that people who spend too much time following the news, not only on TV but also adding information throughout the internet daily, experience more anxiety and depressive

Luma, N. B. & Sinani, A. (2022). Coronavirus media exposure effects on psychological well-being, lifestyle changes, and gender differences in North Macedonia's adult population. *International Journal of Emerging Trends in Health Sciences.* *6*(2), 90-99. https://doi.org/10.18844/ijeths.v6i2.8797

symptoms. Also, we did come to the conclusion that women do not exceed men in following the news, indeed, we didn't find any statistical differences among them, although women tend to experience greater levels of stress and anxiety from following the news excessively, than men. Stress is another outcome of following the pandemic news too much, and lifestyle changes are also verified to come as a result of such influence.

## 5. Conclusion

Through the implementation of this research study, we were able to come to various conclusions. From the data analyses, we were able to prove our hypothesis that people who follow the news too much are those who show higher levels of anxiety and depression. The study did not find gender differences in whether women tend to follow the news more than men do, but we did come to the understanding that women are those who suffer significantly more than men do, from anxiety and depression, referring to pandemic news consumption.

The study could not prove through the implementation of this study, that people who follow too much news are more impacted by their power and therefore show significant changes in their lifestyle and social relations too. Following the news excessively has not only been verified to increase the presence of anxiety and depressive symptoms but also elevates significantly the levels of stress as well.

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