Gender Disparities in COVID Deaths

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PSY 590: Scientific Writing and Analysis

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March 5th, 2022

Abstract

The public health response to the breakout of COVID-19 requires fundamental changes in individual behavior, such as isolation at home or social distancing. However, the difference in COVID mortality rates between men and women could indicate gender differences in COVID-19 attitudes and behavior. In this study, we used a sample of 512 participants to examine whether there were relationships between gender and degree of adherence to social distancing and quarantining protocols. An independent samples t-Test was conducted to evaluate the hypothesis that men spend fewer days social distancing than women. The test was not significant. Another independent samples t-Test was conducted to evaluate the hypothesis that men spend fewer days in quarantine than women. The test was also not significant. While the results did not support the hypothesis that men follow COVID precautions less than women, it may provide helpful insights into what causes the gender difference in COVID-related deaths.

Gender Disparities in COVID Deaths

The coronavirus disease 2019 (COVID-19) outbreak poses a serious public health threat throughout the globe. As communities worldwide respond to the rapidly evolving situation around COVID-19, biological sex and gender remain an under-appreciated variable when interrogating differences in morbidity and mortality. Men die of COVID more often than women do. However, the reason for this phenomenon is still not known. A biopsychosocial approach can explain the sex disparities concerning men's lack of preventive measures against the virus, such as wearing masks, frequent handwashing, and quarantining. Therefore, this study will explore the relationship between gender and preventative health measures, particularly days spent in quarantine and adherence to social distancing protocols.

The COVID-19 pandemic, caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), had its first case in Wuhan, China, in late 2019 (Usher et al., 2020). There is no doubt that this is one of the worst pandemics in the 21st century, resulting in millions of infections and hundreds of thousands of deaths worldwide. While COVID cases rise, so does COVID-19-related research. However, while researchers have dedicated multiple studies to the pandemic, there is an apparent lack of consideration for research on gender differences regarding COVID-19.

According to one study, 96% of studies investigating therapeutic approaches for COVID-19 registered on ClinicalTrials.gov failed to integrate the sex variable as an analytical variable, even though there are sex disparities in COVID-19 outcomes worldwide (Brady et al., 2021). An apparent male bias in mortality has emerged in the COVID-19 pandemic. However, this is to be expected, as the biological and hormonal factors involved in the susceptibility of

SARS-CoV-2 viruses are also involved in the pathogenesis of other viral infections. For example, the European Center for Disease Prevention and Control (ECDC) reported that the male-to-female ratio for COVID-19 deaths across the EU was 2 to 1 (ECDC, 2020). Also, In the United States, as of June 2020, 57% of deaths caused by COVID-19 have been men (Bischof et al., 2020).

Generally, adult females have stronger innate and adaptive immune responses than males because of differing sex chromosome genes and sex hormones (Klein & Flanagan, 2016). Biological women have two X chromosomes, whereas biological men only have one. Since the X chromosome has a larger number of immune-related genes, it gives women better immunity to fight off the coronavirus, SARS-CoV-2. Another biological factor that helps women with their immune system is estrogen production, which has an immune-enhancing effect on the immune system (Taneja, 2018).

The pandemic has exacerbated historically existing health disparities, but biology alone cannot explain the sex gap in COVID-19–associated mortality. While men, on average, die more of COVID worldwide, in some countries, there is no gap (Dehingia & Raj, 2021). In some regions, the mortality rate of women is even more than men. The mortality variation shows that male bias cannot be solely biological. If biological factors only influenced the disproportionate death rate, the death rates would be pretty consistent between regions. There has to be another risk determinant that may impact the outcomes of COVID-19.

In addition to sex differences, psychosocial, cultural, and environmental factors can cause the gender gap in death rates. In general, there are gender disparities in health and healthcare. On average, men go to the doctor less than women and underutilize medical and mental health

services. Also, their mortality rate is higher, and they suffer chronic conditions and fatal diseases more than women (Mansfield et al., 2003). Gender norms or social rules that dictate the behavior of girls, boys, women, and men in society, might be to blame for this trend. Men with high masculinity ideology, who believe men should be self-reliant, were more likely to minimize their symptoms and were less likely to seek medical help (Himmelstein & Sanchez, 2014).

Men's behaviors and reluctance to seek care place their health at risk, especially during COVID-19. Gender norms prescribe men to be tough, so they avoid "soft" emotions such as fear (Mansfield et al., 2003). The COVID-9 pandemic is no exception. Men are less likely to view COVID-19 as a serious health problem compared to women. Since men do not consider the pandemic a big problem, they are less likely to agree with or comply with activity-restraining public policy measures like wearing masks (Mahalik et al., 2021). This reluctance to follow preventative measures is dangerous because they are essential to stopping the spread of the virus.

Some studies have discussed the importance of social distancing, avoiding scenarios in which you may be exposed to other people, and quarantining, situated in the same place, with minimal or no physical contact with other people (Saha & Samanta, 2020; Wilder-Smith & Freedman, 2020). Previous studies have also documented the health disparities by gender and the male gap regarding COVID deaths, but few have formed a link between the two (Kalgotra et al., 2017; Kim et al., 2021). Therefore, this study will investigate the relationship between gender and responses toward COVID-19 and compliance to COVID-19 measures. Also, taking account of gender norms, we can expect men will report adhering to preventative health measures, particularly days spent in quarantine and adherence to social distancing, protocols less than women.

Methods

Participants

There were 512 participants in this study (M age=35.36, SD=15.50). One hundred twelve participants identified as male, while 398 participants identified as female. One participant identified their gender as other, and 1 participant preferred not to respond. A majority of participants identified as Caucasian/White (68%), while the second-largest group identified as African American/Black (13%). The rest of the sample group varied with 9% Hispanic or Latino, 7% Asian or Pacific Islander, 2% Other, and 1% Native American or American Indian. An additional .39% of the sample did not identify their race. Participants for this study were sought out exclusively via snowball sampling on social media. Only individuals aged 18 and over and residing in the United States were allowed to participate. Participants who completed the study had the option to enter into a drawing for one of 5 $50 Amazon gift cards.

Procedure

After completing the consent form, participants were asked to answer some background demographic information, including their gender, race, age, and marital status. The second portion of the survey included the measures of the study. The study was a correlation study that explored the relationship between gender and preventative health measures. The independent variable in this study was gender, while the dependent variables were days in quarantine and days social distancing.

Measures

Days in Quarantine and Social Distancing

The participants were asked, "Are you currently engaged in any of the following?" The options were "Quarantine or isolation (i.e., are you situated in the same place, with minimal or no physical contact with other people, either voluntarily or mandated by a medical or governmental figure?)," "Social distancing (i.e., are you minimizing your exposure to large groups of people and avoiding scenarios in which you may be exposed to other people)," and "None of the above." A participant who selected either of the first two options was then asked to report the number of days they had engaged in each of them.

Results

Two independent samples t-Tests were conducted to evaluate the hypothesis that men follow COVID precautions less than women. Specifically, an independent samples t-Test was conducted to evaluate the hypothesis that men spend fewer days social distancing than women. The test was not significant [$t(393) = -1.50, p= 0.14$]. See Table 1.

Another independent samples t-Test was conducted to evaluate the hypothesis that men spend fewer days in quarantine than women. The test was not significant [$t(290) = -0.94, p= 0.35$]. See Table 2. The results did not support the hypothesis that men spend fewer days social distancing and quarantining than women.

Discussion

The results did not support the hypothesis that men follow COVID precautions less than women. Specifically, there was not a significant relationship between the number of days in quarantine and adherence to social distancing between genders.

Methodological problems are a possible explanation for why male participants were not significantly less likely to report following COVID safety precautions. Collecting information

through a self-report has its limitations, especially participant bias. The social desirability bias, the tendency to underreport socially undesirable attitudes, could have affected how the participants reported (Grimm, 2010). If participants believe that COVID-19 risk mitigation behaviors are socially desirable, some who do not follow guidelines may be reluctant to respond truthfully. Participants might have felt they had to overestimate the days they spent adhering to covid protocols to maintain a level of presenting oneself favorably.

Another limitation of this study is its measure of social distancing and quarantining. While some studies have statistically significant results, they all have different questions to measure social distance and quarantine (Olcaysoy Okten et al., 2020; Coroiu et al., 2020). Estimates of compliance with COVID-19 guidance vary substantially with how the question is asked. The framing of our questions could impact the respondents' answers.

Practical Implications of Study Results

Despite the non-significant results, the gender bias in COVID deaths should not be underestimated. Past research suggests that further exploration of gender differences in COVID-19 attitudes and behavior is necessary (Alsharawy et al., 2021; Okten et al., 2020). The study's results further demonstrate the importance of more research needed to dissect the reasons why men, on average, die of COVID more than women. The results warrant comment if maybe there's more of a biological factor involved than previously hypothesized.

Crucially, any gender difference in mortality should not be taken lightly. Currently, measures to increase men's participation in preventative health measures such as social distancing, handwashing, and mask-wearing are far from optimal. Research has shown that educational sessions and promotion programs that consider male gender scripts in program

planning have worked to increase men's healthcare-seeking behavior (Gast & Peak, 2010).

Differential public messages by gender may be required to increase public knowledge of the

gender disparities in COVID deaths.

Study Limitations

There are at least two potential limitations concerning the results of this study. The first

limitation concerns the generalizability of our sample. Our sample was predominately white, and

all participants were from the United States. The application of our results is limited because we

only sampled a 'WEIRD' (Western, educated, industrialized, rich, democratic) country. The

mortality rate of COVID is not the same across the world, and gender does not necessarily

function in the same way across cultures or subcultures (Costa et al., 2001). It is prudent to

consider that our assumptions, findings, and interpretations of data offered may be

culture-specific.

A second potential limitation is the way the data was collected. Collecting information

through a self-report has limitations. People are often biased when they report on themselves and

their behaviors, especially when it comes to the content being of a sensitive nature (Larsen et al.,

2020). Because of fear of judgment, respondents may have skewed their answers to 'look good'

in the survey, even if the survey is anonymous.

Future Research

Despite these limitations, the present study has enhanced our understanding of the

relationship between gender and preventative health measures. We hope that the current research

will stimulate further investigation of this crucial area. In terms of future research, it would be

useful to extend the current findings by examining traditional masculinity vs. adherence to

COVID protocols. While previous studies have linked a correlation between masculine norms and men's health outcomes, there is still limited research on masculine identity and adherence to social distancing and quarantining (Hooker et al., 2012; Lacasse & Jackson, 2019).

Another research opportunity would be to change the data collection methodology to observational instead of surveys. Gender differences may occur differently in reporting than in actual behavior. To facilitate greater understanding and reliable experimental data and limit the social desirability bias, researchers can observe whether men or women social distance more in public spaces. Still, much work remains to be done before a full understanding of the extent of the gender bias in COVID deaths is established.

Appendix

Table 1

Independent Samples T-Test Days Social Distancing

	t	df	p
DaysInSocialDist	-1.50	39	0.14

Note. Student's t-test.

Descriptives

Group Descriptives

	Group	N	Mean	SD	SE

DaysInSocialDist	**Male**	76	28.64	13.68	1.57
	Female	319	31.47	15.04	0.84

Table 2

Independent Samples T-Test Days Quarantining

	t	df	p
DaysInQ	-0.94	290	0.35

Note. Student's t-test.

Descriptives

	Group Descriptives				
	Group	**N**	**Mean**	**SD**	**SE**
DaysInQ	**Male**	59	28.15	17.22	2.24
	Female	233	30.19	14.24	0.93

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