

# Emotional responses and coping strategies in adult Mexican population during the first lockdown of the COVID-19 pandemic: An exploratory study by sex

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## ABSTRACT

**Introduction.** The COVID-19 outbreak has involved a permanent and significant increase of fear and worries related to the virus and the measures taken to avoid contagion, such as confinement. **Objective.** To explore the relationship between emotional responses and coping strategies used to face the first confinement among the Mexican adult population and inquire about differences by sex. **Method.** An exploratory study was conducted through a self-administered online survey. It included questions about sociodemographic characteristics, emotions about pandemic information, and coping strategies. An informed consent form was presented prior to data collection. Chi square and Kruskal-Wallis were performed for bivariate analyses. **Results.** A total of 2,650 participants completed the survey (21.6% were men). Significantly more men than women reported feeling calm ( $p < .001$ ), hopeful ( $p = .011$ ), and indifferent ( $p = .002$ ). In contrast, more women, compared to men significantly reported feeling worried ( $p < .001$ ), fearful ( $p < 0.001$ ), and sad ( $p < .001$ ). More women reported being emotionally close to other people ( $p = .027$ ), seeking help from friends and family to share emotions and concerns ( $p < .001$ ), and they frequently prayed as a coping strategy regardless of their emotions ( $p = .005$ ). **Discussion and conclusion.** While women are the least affected by the contagion and their symptoms are milder than in men, they present the most negative emotions, particularly of worry, but they also used more caring and helpful behaviors in comparison with men. These results can serve as a basis for developing research with a gender perspective that delves into the differences by sex found in this study.

**Keywords:** COVID-19, emotional responses, coping strategies, sex differences.

## RESUMEN

**Introducción.** El brote de COVID-19 ha implicado un aumento significativo y permanente en el miedo y las preocupaciones relacionadas con el virus y las medidas de mitigación, como el confinamiento. **Objetivo.** Explorar la relación entre emociones y estrategias de afrontamiento utilizadas durante el primer confinamiento en población adulta mexicana e indagar sus diferencias por sexo. **Método.** Estudio exploratorio mediante una encuesta en línea autoadministrada. Se obtuvo el consentimiento informado antes de recopilar la información. Se utilizó estadística no paramétrica para los análisis bivariados. Las respuestas de estrategias de afrontamiento se analizaron como variables cuantitativas y se reportaron las medias. **Resultados.** Un total de 2,650 participantes completaron la encuesta (21.6% fueron hombres). Significativamente, más hombres que mujeres informaron sentirse calmados ( $p < .001$ ), esperanzados ( $p = .011$ ) e indiferentes ( $p = .002$ ). Más mujeres, en comparación con los hombres, informaron sentirse significativamente preocupadas ( $p < .001$ ), temerosas ( $p < .001$ ) y tristes ( $p < .001$ ). Más mujeres informaron estar emocionalmente cercanas a otras personas ( $p = .027$ ), buscar ayuda de amigos y familiares para compartir emociones y preocupaciones ( $p < .001$ ) y utilizar frecuentemente la oración como una estrategia de afrontamiento ( $p = .005$ ). **Discusión y conclusión.** Aunque las mujeres son las menos afectadas por el contagio en comparación con los hombres, son las que presentan las emociones más negativas, particularmente de preocupación. Sin embargo, también han utilizado más comportamientos de cuidado y ayuda. Estos resultados pueden servir como base para desarrollar investigación con perspectiva de género que profundice en las diferencias por sexo encontradas en este estudio.

**Palabras clave:** COVID-19, respuestas emocionales, estrategias de afrontamiento, diferencias por sexo.

## INTRODUCTION

In early 2020, the World Health Organization (WHO) declared an international public health emergency due to the spread of a severe acute respiratory syndrome caused by coronavirus 2 (SARS-CoV-2). After pneumonia hospitalizations in Wuhan City, China, the outbreak rapidly spread out to various regions of the world, reaching a pandemic dimension (Sohrabi et al., 2020). The first case of COVID-19 in Mexico was confirmed on February 28th; and by March 20th the Secretariat of Health designed and implemented the *Jornada Nacional de Sana Distancia*, a massive strategy that included a stay home and social distancing at all levels, including public, social, and private sectors (Diario Oficial de la Federación, 2020).

From a mental health perspective, this epidemic involves psychosocial distress that may exceed the population's coping mechanisms. Fear and anxiety regarding the spread of disease can be overwhelming generating negative emotions (CDC, 2020). As Mertens, Gerritsen, Duijndam, Salemink, and Engelhard (2020) point out, fear is an adaptive emotion that serves to mobilize energy and cope a potential threat. However, when fear is not well calibrated against the actual threat, it can be maladaptive, as shown with SARS in 2003 and Ebola in 2014 (Lin, 2020).

Fear of the unknown leads to increased anxiety. In case of misinformation and misleading information on social media, a risk of distorted perception, an extreme fear of the unknown, and an uncertainty and public panic (Mukhtar, 2020) might show up. Excessive fear can be associated with panic buying or acts of discrimination directed at certain people or groups. On the other hand, when fear is insufficient, it can lead to indifference, lack of empathy, excessive exposure, and putting oneself and others at risk (Mertens et al., 2020). Furthermore, as in the case of COVID-19, when emergency circumstances called for a mandatory lockdown, people may feel uncomfortable and anxious (Dagli, 2020). All of this can lead to using coping strategies that are not necessarily the same as those used under ordinary circumstances.

Huang, ming Xu, and rong Liu (2020) considered that in this, as in other pandemic crises, coping strategies narrow to two basic dimensions: one focused on the problem and the other on emotions. The former seeks to solve the problem or to take steps towards to changing circumstances whereas the latter seeks to reduce emotional distress associated with stressful situations. A narrative review of Chew, Wei, Vasoo, Chua, & Sim (2020) on psychological and coping responses reported in emerging infectious disease outbreaks, found that these can be divided in positive and negative. Positive responses include problem solving (e.g., performing behaviors that individuals believed would serve to protect themselves or others), greater control of information regarding the outbreak and self-isolation, seeking

social support, praying and affiliating to a religious community. Negative responses included distraction, denial, or avoidance by either performing external actions or using mental avoidance. Finally, the author found other studies with people attempting to adopt a positive attitude towards the crisis.

It is noteworthy that sex differences have been widely reported in feelings and coping strategies. Overall, in general population, women are twice as likely to report stress and anxiety-related problems (Caraveo-Anduaga & Colmenares, 2000; Medina-Mora et al., 2003; Bruce et al., 2005; McLean, Asnaani, Litz, & Hofmann, 2011).

To date, COVID-19 related studies showed some evidence of sex differences in feelings and mood. Compared to men, women tend to be more worried, anxious, scared, and sad (van der Vegt & Kleinberg, 2020). Even among healthcare professionals, such as nurses, women showed more severe anxiety and fear than men (Huang et al., 2020). Accordingly, it is likely that gender roles influence this kind of reactions. Women are the traditional caregivers for their loved ones and tend to spend more time, than men focused on medical issues related to both their own healthcare and that of family members (Walter & McGregor, 2020).

Huang et al. (2020) suggested that emotions can lead to specific coping strategies and vice versa. In turn, the successful use of coping strategies will help people manage stressful events and reduce negative emotions. However, the direction of the relationship between emotional responses and coping strategies is unclear, not always constant, and can differ by sex.

This study aims to explore the relationship between emotional responses and coping strategies used to face the first lockdown among the adult Mexican population and enquire into sex differences.

## METHOD

An exploratory study was carried out through an online survey.

### Participants

From June 3 to July 5, 2020, a total of 2,650 people over 18 years from of all the country virtually answered a semi-structured questionnaire through the Questionpro platform. Exclusion criteria was haven't finished the survey and not living in Mexico. Of all the respondents, 1,438 (54%) lived in Mexico City, 359 (14%) in the Estado de México, 108 (4.1%) in Queretaro, 62 (2%) in Morelos, and 57 (2%) in Michoacán; from the rest of the states, a participation of less than 2% was obtained in each one, so this distribution is not specified.

## Measurements

A self-applied semi-structured questionnaire was designed based on the existing emotions and coping literature; a qualitative pilot study was previously performed. The questionnaire consists of 25 questions divided into six sections: 1. sociodemographics, 2. opinions on COVID-19 origins, 3. opinions about acceptance of imposed measures to reduce contagion and explanations about verbal/physical attacks on health personnel, 4. experiences during the pandemic, 5. coping strategies, and (6) four open-ended questions about: actions taken to feel good/bad, the three most worrisome things about the pandemic, and positive actions to face them. For the present research article, we explored the following sections.

**Sociodemographics.** Sex, marital status, education, employment status, source of income (salary/own income, couple's support, from social programs; from family or friends; scholarship; lost source of income due to the pandemic, no income prior to the lockdown); presence of at risk/vulnerable persons in household (elderly, persons with disabilities/chronic disease and/or underage persons).

**Emotions.** *Information's sources* (media, social, and personal networks) and feelings by the question *How do you feel when you read, listen to or receive information from those sources about COVID-19?* More than one option could be selected: Having fun, Calm, Hopeful, Willing to help others, Sad, Suspicious, Worried, Fearful, Angry, Indifferent, and Other.

**Coping strategies.** This section was designed based on previous literature on coping strategies used in any situation (Sandín & Chorot, 2003), including COVID-19 specific strategies (Chew et al., 2020; Gerhold, 2020). A total of 18 items assessed, in a three-point Likert scale (many times, sometimes, and never), the cognitive and behavioral efforts carried out by the respondent, to face specific environmental endanger situations to his/her well-being during COVID-19 pandemic (Sandín & Chorot, 2003).

## Procedure

On June 3, 2020, an invitation to participate in a study with a link to access it, began to be disseminated through personal emails and social networks (SN) – including the official page of the Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz (INPRFM, National Institute of Psychiatry). When accessing the link, informed consent was included on the home page. In this, the informant's voluntary participation was requested, the objective of the study and the expected contributions were explained in understandable terms, and it was emphasized that the information to be provided was anonymous and confidential and that the participant could withdraw at any time. A link with psycho-educational resources was also incorporated, so that they were available to all people, even those who decided not to

participate. The questionnaire had an average duration of 17 minutes. Likewise, those who responded to the questionnaire were asked to forward the invitation to other people through their SNs and emails; July 5, 2020 was the last day the questionnaire was available on the platform.

## Statistical analysis

For these analyses, those who answered “other” to sex question were excluded ( $n = 8$ ). Non-parametric statistics were performed for bivariate analyses. Chi-square was used to analyze emotion by sex and H of Kruskal-Wallis for coping strategies by sex and by emotion. Responses of coping strategies were analyzed as quantitative variables and means were reported. All analyses were performed in SPSS V. 21.0.0.0.

## Ethical considerations

The project was reviewed and approved by the Research Ethics Committee of the INPRFM, and an informed consent was obtained prior to data collection.

## RESULTS

### Sociodemographic

A total of 2,642 out of 2,650 respondents were included on the analyses. Table 1 shows demographic characteristics of the sample by sex. It is noteworthy that only 21.6% were men. The mean age was 29 years old. More than a third of the participants reported being single, and a similar proportion reported being married. Regarding education, half of the participants had completed college, followed by one third with postgraduate education, and only 15% had a high school education or less. In terms of occupation, participants were mainly employees followed by independent workers. A slightly higher percentage of men fell in this category compared to women; but there is a considerably higher proportion of housewives among women in comparison to men. The main source of income was salary in more than two thirds of the participants, also a bit higher in men compared to women, while shared expenses with a partner and financial support from family/friends was higher in women than in men. More than a third of participants cohabit with an older adult, a slightly higher percentage among men than women, while living with people with disabilities or chronic diseases or with children were reported by more women than men. One out of three participants reported to live with vulnerable persons.

### Information emotion-related

In the total sample, the most frequently reported emotion was feeling worried when exposed to information about

Table 1  
Sociodemographic characteristics

	Men (n = 572)		Women (n = 2070)		Total (n = 2642)	
	n/ mean	%/ SD	n/ mean	%/ SD	n/ mean	%/ SD
<b>Marital status</b>						
Single	190	33.3	749	36.4	939	35.7
Married	244	42.8	713	34.6	957	36.4
Cohabitation	72	12.6	258	12.5	330	12.5
Separated	27	4.7	92	4.5	119	4.5
Divorced	28	4.9	183	8.9	211	8.0
Widow	9	1.6	65	3.2	74	2.8
Total	570	100	2060	100	2630	100
Age (mean/SD)	29.31	14.65	29.15	13.55	29.18	13.79
<b>Educational attainment</b>						
No studies	0	0	1	0	1	.04
Primary	4	.7	7	.3	11	.4
Secondary	12	2.1	38	1.9	50	1.9
High school	79	14.0	241	11.8	320	12.3
Undergraduate	284	50.3	1034	50.7	1318	50.6
Postgraduate	176	31.2	655	32.1	831	31.9
Other	10	1.8	62	3.0	72	2.8
Total	565	100	2038	100	2603	100
<b>Employment status</b>						
Employee	294	51.6	902	43.6	1196	45.3
Student	44	7.7	140	6.8	184	7.0
Trader	20	3.5	57	2.8	77	2.9
Housewife	3	.5	295	14.3	298	11.3
Independent worker	137	24.0	442	21.4	579	21.9
Unemployed	5	.9	19	.9	24	.9
Other <sup>a</sup>	67	11.8	213	10.3	280	10.6
Total	570	100	2068	100	2638	100.00
<b>Source of income<sup>b</sup></b>						
Salary / own income	452	79.02	1413	68.3	1865	70.6
Expense contributed by the couple	57	10.0	414	20.0	471	17.8
Financial support from social programs	19	3.3	55	2.7	74	2.8
Financial support from family or friends	39	6.8	217	10.5	256	9.7
Scholarship	22	3.9	72	3.5	94	3.6
Lost source of income due to the pandemic	49	8.6	156	7.5	205	7.8
No income prior to the lockdown	17	3.0	81	3.9	98	3.7
<b>At risk/vulnerable persons in household<sup>b</sup></b>						
Elderly	216	37.8	717	34.6	933	35.3
Persons with disabilities / chronic disease	66	11.5	280	13.5	346	13.1
Underage persons	153	26.8	627	30.2	780	29.5
None of the above	223	39.0	793	38.3	1016	38.5

Notes: SD = Standard deviation. <sup>a</sup>Most frequent response was retired (n = 101) and it is included in Other. <sup>b</sup>Response options for the current employment situation and cohabitation are not mutually exclusive, they may add up to more than 100. Differences between the n and category's totals are no response.

COVID-19 (64.2%); around one in four participants showed a willingness to help others (empathy), but they also felt distrust, fear, and sadness in front of this situation. More men than women significantly reported to feel calm (21.9% vs. 11.4%,  $p < .001$ ), hopeful (15.2% vs. 11.3%,  $p = .011$ ), and indifferent

(4.4% vs. 2.0%,  $p = .002$ ). In contrast, more women, compared to men, significantly reported to feel worried (67.7% vs. 51.6%,  $p < .001$ ), fearful (27.7% vs. 15.9%,  $p < .001$ ) and sad (26.7% vs. 16.0%,  $p < .001$ ). Not significant differences were found on emotions by level of education. (Table 2)

**Table 2**  
*Emotions during pandemic's lockdown by sex*

Emotions	Men (n = 572)		Women (n = 2070)		Total (n = 2642)		Chi-square	p-value
	n	%	n	%	n	%		
Worried	295	51.6	1402	67.7	1697	64.2	50.91	< .001
Willing to help others (empathy)	149	26.0	547	26.4	696	26.3	.033	.857
Suspicious	155	27.1	526	25.4	681	25.8	.67	.414
Fearful	91	15.9	573	27.7	664	25.1	33.00	< .001
Sad	91	15.9	552	26.7	643	24.3	28.16	< .001
Angry	82	14.3	295	14.3	377	14.3	.003	.959
Calm	125	21.9	237	11.4	362	13.7	41.03	< .001
Hopeful	87	15.2	234	11.3	321	12.1	6.40	.011
Indifferent	25	4.4	42	2.0	67	2.5	9.94	.002
Having fun	5	.9	16	.8	21	.8	.06	.809

Note: Emotions are not mutually exclusive; they may add up to more than 100.

### Coping strategies during pandemic's lockdown by sex

Table 3 shows the coping strategies distributed by sex, from the most used – trying to be on good terms with the family – to the least used – panic buying. Women used strategies related to the expression of positive emotions to face the pandemic more often than men, such as seeking to be on good terms with the family ( $p = .027$ ), getting emotionally close to other people through virtual means ( $p < .001$ ) and supporting family or close people in the best possible way ( $p = .006$ ). They also used more self-care practices: they tried to feel better taking care of themselves through reading, meditation, or exercise ( $p < .001$ ). The least used strategies also showed significant differences by sex; more men than women reported never being easily angry or irritated with others ( $p < .001$ ), nor did they seek professional help when they felt physically or mentally ill ( $p < .001$ ), they never thought that everything they did would go wrong ( $p = .031$ ), nor did they make panic buying ( $p < .001$ ). Trying to feel better by eating, drinking, smoking, or taking medication was a strategy used in a similar proportion by men and women (around 33% had done it sometimes and many times).

More than 90% of the participants reported a positive assessment of the situation: sometimes and many times they laughed and sought to have fun or have the best time possible and tried to focus on solving problems such as listening to the experts and following their advice. Both men and women reported in a similar proportion, four out of five, seeking to be distracted to avoid the problem: spending too much time watching series, television, using cell phones or playing video games, and sleeping too much/staying in bed during the entire day; also two thirds felt powerless and unable to do something positive to change the situation, that is, they focused on negative emotions.

Likewise, significant differences by sex were observed in concentrating on some activity to distract themselves and forget the pandemic ( $p = .015$ ), seeking a family member or friend to listen when they needed to express their feelings and concerns ( $p < .006$ ), and in worrying too much ( $p < .001$ ), where women were the ones who most reported these strategies of avoidance, seeking social support, and focusing on negative emotions, respectively. When it comes to praying, almost twice as many women (30%) used this strategy more often compared to men (15.3%,  $p < .001$ ). No significant differences were found in coping strategies by educational level.

### Coping strategies during pandemic's lockdown by emotion and sex

Table 4 shows the means of the coping strategies used to face the pandemic's lockdown, according to the emotion provoked when being exposed to information from the mass media on the subject and according to sex using the Kruskal-Wallis test to observe statistical differences. On a scale of 1 to 3, the number closest to three indicates greater use of that strategy. Having fun, feeling indifferent, and other emotions were excluded due to the small sample size.

No differences were observed in strategies for approaching and supporting family members and significant others or in trying to feel better by eating, drinking, smoking, or taking medications; nor in feeling unable to do something positive to change the situation, falling asleep / staying in bed all day, thinking that whatever you do will go wrong and trying to feel better with self-care (diet, exercise, meditation, etc. ) or laughing/looking to have fun to have the best possible time. That is, these were carried out by the participants without being associated with any of the emotions reported when exposed to information or with any sex.

It stands out that women pray more frequently than men, showing that it is a strategy used in the face of positive emo-

Table 3  
Coping strategies during pandemic's lockdown by sex

	Men				Women				Kruskal Wallis $X^2_{(1)}, p$
	Many times n (%)	Sometimes n (%)	Never n (%)	Total n (%)	Many times n (%)	Sometimes n (%)	Never n (%)	Total n (%)	
Try to be on good terms with your family	412 (81.7)	87 (17.3)	5 (1.0)	504 (100)	1574 (85.7)	249 (13.6)	13 (0.7)	1836 (100)	4.9, $p = .027$
Emotionally close to others with virtual social networks <sup>b</sup>	308 (61.2)	175 (34.8)	20 (4.0)	503 (100)	1335 (72.6)	469 (25.5)	36 (2.0)	1840 (100)	25.36, $p < .001$
Supports family members or close people in the way that you can	288 (57.4)	202 (40.2)	12 (2.4)	502 (100)	1176 (64.0)	633 (34.4)	29 (1.6)	1838 (100)	7.70, $p = .006$
Try to feel better by taking care of own diet, exercising, meditating, reading, writing, or playing	253 (50.1)	221 (43.8)	31 (6.1)	505 (100)	1076 (58.6)	654 (35.6)	106 (5.8)	1836 (100)	10.36, $p < .001$
Laughing, seeking fun or new activities to have the best time possible	262 (52.1)	212 (42.1)	29 (5.8)	503 (100)	958 (52.3)	806 (44.0)	68 (3.7)	1832 (100)	0.212, $p = .645$
Concentrate on some activity to distract yourself and forget about the pandemic	250 (49.6)	199 (39.5)	55 (10.9)	504 (100)	988 (54.0)	729 (39.8)	113 (6.2)	1830 (100)	5.96, $p = .015$
Listen to experts and follow their advice	238 (47.2)	241 (47.8)	25 (5.0)	504 (100)	939 (51.1)	816 (44.4)	83 (4.5)	1838 (100)	2.32, $p = .128$
Make sure that a family member or friend listens to you when you need to express your feelings and concerns	125 (24.9)	288 (57.3)	90 (17.9)	503 (100)	632 (34.4)	1031 (56.2)	172 (9.3)	1835 (100)	30.73, $p < .001$
Worry too much	86 (17.1)	311 (61.7)	107 (21.2)	504 (100)	443 (24.1)	1149 (62.6)	244 (13.3)	1836 (100)	23.58, $p < .001$
Spending most of the time watching series, tv, the cell phone or playing video games	117 (23.1)	301 (59.5)	88 (17.4)	506 (100)	371 (20.2)	1108 (60.3)	358 (19.5)	1837 (100)	2.52, $p = .112$
Pray	77 (15.3)	181 (36.0)	245 (48.7)	503 (100)	553 (30.1)	736 (40.1)	548 (29.8)	1837 (100)	74.673, $p < .001$
Feel helpless and unable to do something positive to change the situation	89 (17.7)	253 (50.3)	161 (32.0)	503 (100)	355 (19.3)	922 (50.2)	560 (30.5)	1837 (100)	.79, $p = .374$
Annoyed, easily getting angry at others	42 (8.3)	287 (57.1)	174 (34.6)	503 (100)	200 (10.9)	1174 (63.8)	466 (25.3)	1840 (100)	16.54, $p < .001$
Sought professional help when you have felt physically or mentally ill	40 (8.0)	173 (34.5)	289 (57.6)	502 (100)	233 (12.7)	763 (41.7)	834 (45.6)	1830 (100)	24.51, $p < .001$
Oversleeping or staying in bed all day	41 (8.2)	191 (38.0)	271 (53.9)	503 (100)	163 (8.9)	659 (35.8)	1019 (55.4)	1841 (100)	.16, $p = .689$
Think that whatever you do things will always go wrong	20 (4.0)	155 (30.8)	329 (65.3)	504 (100)	74 (4.0)	665 (36.2)	1096 (59.7)	1835 (100)	4.64, $p = .031$
Try to feel better by eating, drinking, smoking or taking medicine	29 (5.8)	138 (27.4)	337 (66.9)	504 (100)	119 (6.5)	533 (29.0)	1187 (64.5)	1839 (100)	.99, $p = .319$
Panic buying <sup>a</sup>	5 (1.0)	72 (14.4)	424 (84.6)	501 (100)	33 (1.8)	381 (20.8)	1422 (77.5)	1836 (100)	12.34, $p < .001$

Notes: <sup>a</sup>Excessively buying groceries or hygiene items, even if you do not need them. <sup>b</sup>Facebook, Whatsapp, Skype, etc.

**Table 4**  
Coping strategies during pandemic's lockdown by emotion and sex

	Calm		Hopeful		Willing to help others		Sad		Suspicious		Worried		Fearful		Angry	
	M	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W
Try to be on good terms with your family	2.9	2.9	2.9	2.9	2.9	2.9	2.8	2.9	2.8	2.8	2.8	2.9	2.8	2.8	2.8	2.9
Emotionally close to others with virtual social networks <sup>d</sup>	2.6	2.7 <sup>a</sup>	2.6	2.7 <sup>a</sup>	2.6	2.8 <sup>b</sup>	2.6	2.7	2.6	2.7 <sup>a</sup>	2.6	2.7 <sup>a</sup>	2.6	2.7	2.7	2.7
Supports family members or close people in the way that you can	2.6	2.6	2.7	2.7	2.7	2.7	2.6	2.6	2.5	2.6	2.6	2.6	2.5	2.6 <sup>a</sup>	2.5	2.7 <sup>b</sup>
Try to feel better by taking care of own diet, exercising, meditating, reading, writing, or playing	2.5	2.7	2.6	2.6	2.6	2.6	2.5	2.5	2.4	2.5	2.4	2.5	2.4	2.4	2.5	2.5
Laughing, seeking fun or new activities to have the best time possible	2.6	2.6	2.6	2.6	2.5	2.6	2.4	2.4	2.4	2.5	2.4	2.5	2.5	2.4	2.5	2.5
Concentrate on some activity to distract yourself and forget about the pandemic	2.3	2.5	2.5	2.6	2.4	2.5 <sup>a</sup>	2.5	2.5	2.5	2.5	2.4	2.5	2.4	2.5	2.4	2.6 <sup>a</sup>
Listen to experts and follow their advice	2.5	2.6	2.5	2.6	2.5	2.6	2.4	2.4	2.3	2.4	2.5	2.5	2.4	2.4	2.4	2.4
Make sure that a family member or friend listens to you when you need to express your feelings and concerns	2.0	2.2 <sup>b</sup>	2.1	2.2	2.2	2.3	2.2	2.3	2.0	2.2 <sup>b</sup>	2.1	2.3 <sup>b</sup>	2.1	2.3 <sup>a</sup>	1.9	2.3 <sup>b</sup>
Worry too much	1.7	1.8	1.9	2.0	1.9	2.0 <sup>a</sup>	2.3	2.3	2.1	2.2	2.1	2.2 <sup>a</sup>	2.4	2.4	2.2	2.2
Spending most of the time watching series, tv, the cell phone or playing video games	2.1 <sup>a</sup>	1.9	2.1	2.0	2.0	1.9	2.0	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.0	2.2
Pray	1.6	1.9 <sup>a</sup>	1.8	2.1 <sup>a</sup>	1.8	2.0 <sup>a</sup>	1.8	2.0 <sup>a</sup>	1.7	2.0 <sup>b</sup>	1.7	2.0	1.7	2.1 <sup>b</sup>	1.8	2.0 <sup>a</sup>
Feel helpless and unable to do something positive to change the situation	1.6	1.6	1.9	1.7	1.8	1.8	2.1	2.1	2.0	2.0	2.0	2.0	2.2	2.2	2.0	2.1
Annoyed, easily getting angry at others	1.7	1.7	1.6	1.8 <sup>a</sup>	1.7	1.8 <sup>a</sup>	1.9	2.0 <sup>a</sup>	1.8	1.9	1.8	1.9 <sup>a</sup>	2.0	2.0	1.8	2.0 <sup>a</sup>
Sought professional help when you have felt physically or mentally ill	1.5	1.7	1.6	1.7	1.6	1.7	1.5	1.7 <sup>a</sup>	1.5	1.7 <sup>a</sup>	1.5	1.7	1.5	1.7 <sup>a</sup>	1.4	1.7 <sup>b</sup>
Oversleeping or staying in bed all day	1.5	1.4	1.5	1.4	1.5	1.4	1.7	1.7	1.6	1.6	1.5	1.6	1.6	1.7	1.6	1.7
Think that whatever you do things will always go wrong	1.2	1.3	1.3	1.3	1.3	1.3	1.5	1.6	1.5	1.5	1.5	1.5	1.6	1.6	1.5	1.6
Try to feel better by eating, drinking, smoking or taking medicine	1.3	1.2	1.3	1.3	1.3	1.4	1.5	1.6	1.5	1.5	1.4	1.5	1.6	1.6	1.5	1.5
Panic buying <sup>c</sup>	1.1	1.1	1.1	1.2	1.1	1.2 <sup>b</sup>	1.2	1.3	1.2	1.3	1.2	1.3 <sup>a</sup>	1.3	1.4	1.2	1.3

Notes: M = men. W = women; <sup>a</sup> $p < .05$  for Kruskal Wallis; <sup>b</sup> $p < .001$  for Kruskal Wallis; <sup>c</sup>Excessively buying groceries or hygiene items, even if you do not need them. <sup>d</sup>Facebook, Whatsapp, Skype, etc.

tions, such as calm ( $X2 [1] = 7.831, p = .005$ ), hope ( $X2 [1] = 5.179, p = .023$ ), and willingness to help others (empathy) ( $X2 [1] = 4.763, p = .029$ ), but also in the face of sadness ( $X2 [1] = 8.049, p = .005$ ), suspicion ( $X2 [1] = 24.891, p = .000$ ), fear ( $X2 [1] = 13.111, p = .000$ ), or anger ( $X2 [1] = 6.056, p = .014$ ). They also reported getting emotionally close to others through virtual social networks in the presence of tranquility ( $X2 [1] = 4.917, p = .027$ ), hope ( $X2 [1] = 6.481, p = .011$ ), and empathy ( $X2 [1] = 14.801, p = .000$ ), although also when reporting mistrust ( $X2 [1] = 4.845, p = .028$ ). They also sought social support to express their feelings and concerns, mainly in the face of emotions of distrust ( $X2 [1] = 11.272, p = .001$ ), worry ( $X2 [1] = 10.885, p = .001$ ), fear ( $X2 [1]$

$= 4.966, p = .026$ ), and anger ( $X2 [1] = 14.891, p = .000$ ); although they did the same when they were calm ( $X2 [1] = 12.982, p = .000$ ).

Women expressed negative emotions to other people, both when reporting hope ( $X2 [1] 3.993, p = .046$  M) and empathy ( $X2 [1] 4.974, p = .026$ ), and when reporting sadness ( $X2 [1] 3.949, p = .047$ ), worry ( $X2 [1] 9.838, p = .002$ ), and anger ( $X2 [1] 7.210, p = .007$ ). They also sought more professional help if they felt physically or emotionally ill when they reported negative emotions such as sadness ( $X2 [1] 5.632, p = .018$ ), suspicion ( $X2 [1] 8.349, p = .004$ ), worry ( $X2 [1] 11.957, p = .001$ ), fear ( $X2 [1] 7.196, p = .007$ ), and anger ( $X2 [1] 13.407, p = .000$ ); they mostly supported family members

or individuals when reporting fear ( $X^2 [1] = 5.956, p = .015$ ) and anger ( $X^2 [1] = 4.176, p = .041$ ); reported concentrating on some activities to distract themselves and forget the pandemic when they were willing to help others ( $X^2 [1] = 3.930, p = .047$ ) and angry ( $X^2 [1] = 4.309, p = .038$ ); they indicated being overly concerned as a coping strategy if they reported empathy ( $X^2 [1] = 3.998, p = .046$ ) and concern when exposing themselves to the media ( $X^2 [1] = 5.245, p = .022$ ). Finally, women reported more panic purchases due to being willing to help ( $X^2 [1] = 10.616, p = .001$ ) and worry ( $X^2 [1] = 9.926, p = .002$ ).

The only strategy reported more by men was to spend most of the time watching series, television, using the cell phone or playing video games when reporting calm in the face of exposure to information about the pandemic ( $X^2 [1] = 4.917, p = .027$ ).

## DISCUSSION AND CONCLUSION

This study provides evidence of the emotional impact of the COVID-19 pandemic on adult population in Mexico as it has been reported in other countries (Gerhold, 2020; Talevi et al., 2020; Cortés-Álvarez, Piñeiro-Lamas, & Vuelvas-Olmos, 2020; Walter & McGregor, 2020). It is interesting to note that although women are less affected by the contagion, and their symptoms are less severe than those reported by men, they have the greatest burden in caring for people who are sick or at risk, thus, similarly to other studies (Gerhold, 2020), women present the most negative emotions, particularly worry. However, empathy -willingness to help others- appeared second followed by suspicious, fear and sadness. On this regards, it will be important to delve into the emotional responses to the pandemic's information exposure, considering the syndrome referred as *headline stress disorder* (Talevi et al., 2020), characterized by high emotional response (stress and anxiety) that may lead to a several disorders.

In the case of men, it has been pointed out that depression may be *hidden* behind addictive, risky behaviors, irritability and impulsiveness (Branney & White, 2008). Nevertheless, our data did not find evidence to sustain this argument; it is possible that men underreport their mental health problems or emotional distress, considering a masculinity's construction that should not be "soft" or "looking for care" because normative expectations relating to masculinity (also called *hypermasculinity* or *hegemonic masculinity*) demand them to be physically tough and fearless in the face of risk or danger (Stergiou-Kita et al., 2015).

In terms of coping strategies, it is important to consider that these could be adaptive or not. Even if traditional literature separates them in two big dimensions, problem-focused and emotion-focused, it is difficult to define at this time the role of these strategies in the face of a problem with cata-

strophic consequences –not only in terms of health–, such as the COVID-19. What the results of this survey shows is that the most used strategies are predominantly positive; the first three relate to the ability to connect and communicate: Trying to be in good terms with family, being emotionally close to others through a virtual social network and supporting family members or close people. The fourth one is related to self-care as dieting, exercising, reading etc. Nevertheless, women did these four actions more frequently than men. Traditionally in Mexico, women tend to use self-care practices to alleviate their emotional distress (Berenzon-Gorn, Saavedra-Solano, & Alanís-Navarro, 2009). Those strategies don't entirely solve their emotional distress but enable them to cope with such situations.

The less frequent strategies used can be categorized as "negative": feeling helpless, annoyed, oversleeping, thinking that whatever you do will be wrong, "self-medication" (alcohol, drugs, smoking, medicine); and panic buying. In this case, women reported with major frequency easily getting angry at others, thinking that whatever they do will be wrong and panic buying.

Results related to coping strategies distributed by emotion and sex are difficult to interpret. Nevertheless, women use positive but also negative coping strategies more than men, to all emotional reactions. In this sense, it is interesting to observe that women pray in all emotional states evaluated, except when worried.

Also, it is important to consider that, like in other research experiences, this study has gathered higher participation of women whom in turn reported having their own income/salary in a lower percentage than men. Moreover, a higher percentage of women reported living with someone who is part of the COVID-19 risk group (older adults, people with disabilities or chronic diseases, or minors). Together, these data are relevant to women's mental health and well-being, considering available evidence about women reports of greater stress associated with events that impact family members and daily life, including disease and death processes or risks of financial insecurity, as those generated by the current pandemic. Although men get sicker for COVID-19, women are more socially "at risk" since they have lesser opportunities to enjoy financial autonomy, situation that constitutes one of the main vulnerabilities for women's lives and their families at large. Moreover, it could be intensified by loss of support networks or work options, in addition to greater exposure to environments of violence during the lockdown (Gausman & Langer, 2020).

It is important to mention the limitations of the study. Due to temporal sensitivity and outbreak blocking conditions, random selection of a sample was not possible and a snowball technique was used instead. There is a selection bias in the sample, since it represents more women, over 40 years of age and people living in the Metropolitan Area (Mexico City and the *Estado de México*), who have a high



school degree or more, and who also they had a job or a fixed income, so the results cannot be generalized to the entire population of the country.

Nevertheless, preliminary findings from this research are in line with international studies that place sex and gender as crucial variables to understand and properly address the impact of the pandemic on different populations (Gausman & Langer, 2020; Sharma, Volgman, & Michos, 2020; Walter & McGregor, 2020). As it is, these results can serve as a basis for developing research with a gender perspective that delves into the differences by sex found in this study.

These findings emphasize the need to integrate mental health care, as well as the promotion of prosocial behaviors as fundamental axes of action to provide the population with more adequate coping resources to face the challenges imposed by the pandemic. All this, within a culturally sensitive and adequate gender perspective that promotes the strengthening of social ties, empathy and, solidarity beyond social lockdown.

Of course, it would be useful to carry out a follow-up study which could provide greater knowledge to know if these coping responses are maintained, as well as the emotional implications of the pandemic over time; future studies could investigate more about it, at three, six months or a year after the pandemic.

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### Conflict of interest

The authors declare they have no conflicts of interest.

### REFERENCES

- Berenzon-Gorn, S., Saavedra-Solano, N., & Alanís-Navarro, S. (2009). Estrategias utilizadas por un grupo de mujeres mexicanas para cuidar su salud emocional: Autoatención y apoyo social. *Salud Pública de México*, 51(6).
- Branney, P., & White, A. (2008). Big boys don't cry: depression and men. *Advances in Psychiatric Treatment*, 14(4), 256-262. doi: 10.1192/apt.bp.106.003467
- Bruce, S. E., Yonkers, K. A., Otto, M. W., Eisen, J. L., Weisberg, R. B., Pagano, M., ... Keller, M. B. (2005). Influence of psychiatric comorbidity on recovery and recurrence in generalized anxiety disorder, social phobia, and panic disorder: A 12-year prospective study. *American Journal of Psychiatry*, 162(6), 1179-1187. doi: 10.1176/appi.ajp.162.6.1179
- Caraveo-Anduaga, J. J., & Colmenares, E. (2000). Prevalencia de los trastornos de ansiedad fóbica en la población adulta de la ciudad de México. *Salud Mental*, 23(5), 10-19.
- Centers for Disease Control and Prevention [CDC]. (2020). *Coronavirus Disease 2019 (COVID-19) - February 11*. Retrieved from <https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/managing-stress-anxiety.html> (Access date July 28)
- Chew, Q., Wei, K., Vasoo, S., Chua, H., & Sim, K. (2020). Narrative synthesis of psychological and coping responses towards emerging infectious disease outbreaks in the general population: Practical considerations for the COVID-19 pandemic. *Singapore Medical Journal*, 61(7), 350-356. doi: 10.11622/smedj.2020046
- Cortés-Álvarez, N. Y., Piñero-Lamas, R., & Vuelvas-Olmos, C. R. (2020). Psychological Effects and Associated Factors of COVID-19 in a Mexican Sample. *Disaster Medicine and Public Health Preparedness*, 14(3), 413-424. doi: 10.1017/dmp.2020.215
- Dagli, R. (2020). Fear and anxiety-coping strategies during COVID-19 pandemic in lockdown. *Journal of International Oral Health*, 12(3), 187-188. doi: 10.4103/JIOH.JIOH\_133\_20
- Diario Oficial de la Federación. (2020). ACUERDO por el que se declara como emergencia sanitaria por causa de fuerza mayor, a la epidemia de enfermedad generada por el virus SARS-CoV2 (COVID-19). *Diario Oficial de la Federación* - Marzo 30.
- Gausman, J., & Langer, A. (2020). Sex and gender disparities in the COVID-19 pandemic. *Journal of Women's Health*, 29(4), 465-466. doi: 10.1089/jwh.2020.8472
- Gerhold, L. (2020). COVID-19: Risk perception and Coping strategies - Results from a survey in Germany. *PsyArXiv Preprints*. doi: 10.31234/osf.io/xmpk4
- Huang, L., ming Xu, F., & rong Liu, H. (2020). Emotional responses and coping strategies of nurses and nursing college students during COVID-19 outbreak. *medRxiv*. doi: 10.1101/2020.03.05.20031898
- Lin, C.-Y. (2020). Social reaction toward the 2019 novel coronavirus (COVID-19). *Social Health and Behavior*, 3(1), 1. doi: 10.4103/SHB.SHB\_11\_20
- McLean, C. P., Asnaani, A., Litz, B. T., & Hofmann, S. G. (2011). Gender differences in anxiety disorders: Prevalence, course of illness, comorbidity and burden of illness. *Journal of Psychiatric Research*, 45(8), 1027-1035. doi: 10.1016/j.jpsychires.2011.03.006
- Medina-Mora, M. E., Borges, G., Lara Muñoz, C., Benjet, C., Blanco Jaimes, J., Fleiz Bautista, C., ... Aguilar-Gaxiola, S. (2003). Prevalencia de trastornos mentales y uso de servicios: Resultados de la Encuesta Nacional de Epidemiología Psiquiátrica en México. *Salud Mental*, 26(4), 1-16.
- Mertens, G., Gerritsen, L., Duijndam, S., Salemink, E., & Engelhard, I. M. (2020). Fear of the coronavirus (COVID-19): Predictors in an online study conducted in March 2020. *Journal of Anxiety Disorders*, 74, 102258. doi: 10.1016/j.janxdis.2020.102258
- Mukhtar, S. (2020). Psychological health during the coronavirus disease 2019 pandemic outbreak. *International Journal of Social Psychiatry*, 66(5), 512-516. doi: 10.1177/0020764020925835
- Sandin, B., & Chorot, P. (2003). Cuestionario de Afrontamiento del Estrés (CAE): Desarrollo y validación preliminar. *Revista de Psicopatología y Psicología Clínica*, 8(1), 39-53. doi: 10.5944/rppc.vol.8.num.1.2003.3941
- Sharma, G., Volgman, A. S., & Michos, E. D. (2020). Sex Differences in Mortality from COVID-19 Pandemic: Are Men Vulnerable and Women Protected? *JACC: Case Reports*, 2(9), 1407-1410. doi: 10.1016/j.jaccas.2020.04.027
- Sohrabi, C., Alsafi, Z., O'Neill, N., Khan, M., Kerwan, A., Al-Jabir, A., ... Agha, R. (2020). World Health Organization declares global emergency: A review of the 2019 novel coronavirus (COVID-19). *International Journal of Surgery*, 76, 71-76. doi: 10.1016/j.ijsu.2020.02.034
- Stergiou-Kita, M., Mansfield, E., Bezo, R., Colantonio, A., Garritano, E., Lafrance, M., ... Travers, K. (2015). Danger zone: Men, masculinity and occupational health and safety in high risk occupations. *Safety Science*, 80, 213-220. doi: 10.1016/j.ssci.2015.07.029
- Talevi, D., Soccì, V., Carai, M., Carnaghi, G., Faleri, S., Trebbi, E., ... Pacitti, F. (2020). Mental health outcomes of the CoViD-19 pandemic. *Rivista di Psichiatria*, 55(3), 137-144. doi: 10.1708/3382.33569
- van der Vegt, I., & Kleinberg, B. (2020). Women worry about family, men about the economy: Gender differences in emotional responses to COVID-19. *arXiv preprint arXiv:2004.08202*.
- Walter, L. A., & McGregor, A. J. (2020). Sex-and Gender-specific Observations and Implications for COVID-19. *Western Journal of Emergency Medicine*, 21(3), 507-509. doi: 10.5811/westjem.2020.4.47536