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## Family Functioning In Patients with SARS-COV2

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### Abstract

**Background:** The SARS-CoV-2 pandemic is the first in the modern world where social distancing has been so widespread in people's minds as never before in such a short time. Although social distancing is less harmful than quarantine, both have the potential to alter lifestyle, cause fear, financial distress and uncertainty. The objective of this study was to determine the cohesion and adaptability of the patient's family during the pandemic of SARS-CoV-2 infection.

**Methods:** During the last quarter of 2020, we conducted a survey using the Google Forms platform using the FACES III questionnaire applied to families of patients on the UANL campus. Which has a Cronbach's alpha coefficient of 0.7%.

**Results:** this study included 99 patients. Most of family patients with COVID-19 were a nuclear family (72.4), followed by extended families (13.3%) and a single parent (8.2) of which all lived in urban areas. Regarding the severity of COVID-19, 63.3% of the patients had mild symptoms, 20.4% had moderate symptoms, and only 9.2% were asymptomatic. In general, they had high cohesion and adaptability. For the cohesion class, the mean tendency was linked / clumped and adaptability was chaotic / flexible; however, we did not find any relationship between family class-severity of the disease and family cohesion or adaptability.

### Keywords

SARS-CoV-2; Coronavirus; Social distancing; Anticipated grief

## Introduction

The Coronavirus SARS-CoV-2 (COVID-19) pandemic is the first in the contemporary world, where social distancing and mourning processes have been on people's minds [1] and many of them are suffering in a short period. Although the "healthy distance" is less restrictive than quarantine, both share elements or alteration of life, fear, financial repercussions, and uncertainty. The family impact is the virtual loss of the family member as well as a decrease in the space of each member; the most common form is home isolation and avoidance of physical contact [1], for which an uncertain isolation model has been proposed that emphasizes the unknown as the main cause of stress and impact on functionality [2]. Uncertain stress is a normalization of the response to abnormal circumstances [3].

Protective [5] [6] and risk factors have been described at a family level, among protectors they have proven useful in the current course of the epidemic [18] such as optimism, social network, being informed, using distraction strategies to have fun and laugh, use the online media, [7] and family support [8]. Demands potentiate and expose the negative effects of the stressor on the family before and after the stressful event [9]. Concerns about new infections in the family, prevent infection of others, the logistics involved isolation of the infected family, economic aspects intrinsic, duration of isolation are demanding that produce stress in the family. Family adaptability is conceptualized as the set of individual skills and abilities that can be used to respond to mental challenges, difficult feelings, and experiences that are critical to developing and maintaining a favorable environment in many aspects of life [10]. Social distancing practices during the COVID-19 contingency are causing social problems, such as separation from loved ones, loss of freedom, uncertainty about the state of the disease as well as long periods of leisure can be stressful resulting in effects harmful [11].

This stress produces a phenomenon called "anticipated grief"; however the loss and the reactions are real [12] and can affect the family system. The result of the flexibility of each individual can vary according to the type of strategy and context [13]. Each individual and family should determine for themselves the strategies that are most effective for them [4]. Family of COVID-infected patient requires long-term emotional adjustments [14]. The objective of this work was to determine the cohesion and adaptability in the family of the patient infected with SARS-CoV-2.

## Methods

A descriptive, cross-sectional, observational study in families of patients diagnosed with current SARS-CoV-2 infection. It was held at the facilities of the medical campus of the Autonomous University of Nuevo León, Mexico, from July to September 2020. Families of patients who had nuclear, extended, or single-parent family typology was included whose patient was present with SARS-CoV-2 infection was older than 18 years with and without comorbidities. Families of patients who were hospitalized or who had died from SARS-CoV-2 were not included.

## Data Collection

1. FACES III questionnaire and was applied by medical personnel of the research team, in electronic format through Google Forms questionnaires who received training on:

- Conceptual aspects of family systems

- Instrument administration training. The training includes the self-application of FACES III.
- Protection measures under current sanitary recommendations.

The FACES III instrument, a self-applied scale of 20 Likert-type items with 5 options; 1 = never, 2 = almost never, 3 = sometimes, 4 = almost always, 5 = always. The instrument is validated in Spanish (37), achieving reliability of 70% and a Cronbach's alpha = 70%. This instrument has 8 questions for cohesion, corresponding to odd items, and 6 for adaptability, even items.

The total score of the instrument consists of the total sum of the cohesion and adaptability reagents where they are collated according to (Table 1). The results will be mapped in the matrix of (Table 2) to classify the family.

Cohesion	Classrange	Adaptability	Classrange
Unlinked	10-34	Rigid	10-19
Sem-linked	35-40	Organized	20-24
Linked	41-45	Flexible	25-28
Agglutinated	46-50	Chaotic	29-50

**Table 1:** Cohesion and adaptability classification.

		Adaptability			
		Rigid	Organized	Flexible	Chaotic
Cohesion	Unlinked	Rigid-unlinked	Organizedunlinked	Flexible unlinked	Chaoticunlinked
	Semi-linked	Rigidsemi-linked	Organizedsemi-linked	Flexible semi-linked	Chaoticsemi-linked
	Linked	Rigidlinked	Organizedlinked	Flexiblelinked	Chaoticlinked
	Agglutinated	Rigidagglutinated	Organizedagglutinated	Flexible agglutinated	Chaoticagglutinated
		Balanced	Intermediate	Extreme	

**Table 2:** Family class matrix.

Sociodemographic information was obtained from the subjects consisting of age, sex, education, marital status, type of economic income, place of residence, family structure, type of location, and degree of severity of the patient infected with SARS-CoV-2. The sample size from an infinite population was 99 patients with a precision of 10%, a power of 97.5%, and a significance level of 0.05. Verbal informed consent was applied to the relatives of patients for participation in the study.

## Statistical Analysis

The IBM SPSS program was used in its most recent version for Windows where the frequencies of the different variables studied were calculated. Description of family functionality based on the 3 most common types of families (Nuclear, Extensive and single parent). The frequency of the families of patients infected with SARS-CoV-2 and their classification according to (Table 3) in the total population and for each age group was analyzed. Chi-square will be used to assess the association between the different categorical variables, being a significant value of  $p < 0.05$  with a CI = 95%. The frequency of socio-demographic data was analyzed by sex and age group.

<b>Variable</b>	
<b>Age (years)</b>	33.2 ± 13.7
<b>Sex</b>	
<b>Male</b>	49 (50%)
<b>Female</b>	49 (50%)
<b>Schooling</b>	
<b>Elementary</b>	2 (2%)
<b>Junior High</b>	6 (6.1%)
<b>Highschool</b>	14 (14.3%)
<b>College</b>	76 (77.6%)
<b>Civil status</b>	
<b>Single</b>	56 (57.1%)
<b>Married</b>	38 (38.8%)
<b>Divorced</b>	3 (3.1%)
<b>Common partner</b>	1 (1%)
<b>Economic input</b>	-
<b>Fixed employment</b>	61 (62.2%)
<b>Self employment</b>	18 (18.4%)
<b>Casual employment</b>	12 (12.2%)
<b>Retired</b>	7 (7.1%)

**Table 3:** Sociodemographic characteristics.

## Results

98 patients diagnosed with COVID-19 were surveyed. The mean age of the patients was  $33.2 \pm 13.7$  years, 49 (50%) were women and 49 (50%) men. Most of the patients had a bachelor's degree (77.6%) and were single (57.1%) or married (38.8%). Most of the patients had a permanent job (62.2%) or their own (18.4%). The characteristics of the patients are summarized in (Table 3). By a relationship, the most frequent type of family was simple nuclear in 71 (72.4%) patients, followed by extended family in 13 (13.3%) and single-parent in 8 (8.2%). All the patients belonged to an urban family (Table 4).

Family classification	
By relation	
Nuclear family	71 (72.4%)
Extended	13 (13.3%)
Monoparental	8 (8.2%)
Nuclear	3 (3.1%)
Monoparental extended	1 (1%)
Monoparental extendida composed	1 (1%)
Non parental	1 (1%)
By demography	
Urban	98 (100%)
Rural	0 (0%)

**Table 4:** Family classification.

According to the severity of the disease, most of the patients had the mild disease (64.3%), followed by moderate disease (20.4%) (Table 5).

Disease severity	
Asymptomatic	9 (9.2%)
Slight	63 (64.3%)
Mild	20 (20.4%)
Severe	6 (6.1%)

**Table 5:** Disease severity.

According to the FACES III instrument, by cohesion, the most frequent type of family was the related family in 42.9%, and the least frequent, the unrelated family (12.2%); and due to adaptability, the most frequent was the chaotic family in 54.1%, and the least frequent, the rigid one (4.1%) (Table 6).

The relationship of the type of family by kinship with the type of family by cohesion and adaptability, no statistically different relationship was found ( $p = 0.957$  and  $p = 0.78$ , respectively) (Table 7).

No relationship was found between the severity of the COVID-19 disease and the cohesion and adaptability of the family according to FACES III ( $P = 0.34$  and  $P = 0.184$ , respectively) (Table 8).

FACES III	
Cohesion	
Score	41.3 $\pm$ 5.3
Family class	
Unlinked	12 (12.2%)
Semi-linked	23 (23.5%)
Linked	42 (42.9%)

<b>Agglutinated</b>	21 (21.4%)
<b>Adaptability</b>	
<b>Score</b>	29.0 ± 5.6
<b>Family class</b>	
<b>Rigid</b>	4 (4.1%)
<b>Organized</b>	12 (12.2%)
<b>Flexible</b>	29 (29.6%)
<b>Chaotic</b>	53 (54.1%)

**Table 6:** FACES III results.

	<b>Nuclear</b>	<b>Monoparental</b>	<b>Extended</b>	<b>P</b>
<b>Cohesion</b>				0.957
<b>Unlinked</b>	9 (12.2%)	1 (10%)	2 (14.3%)	
<b>Semi-linked</b>	17 (23%)	2 (20%)	4 (28.6%)	
<b>Linked</b>	33 (44.6%)	5 (50%)	4 (28.6%)	
<b>Agglutinated</b>	15 (20.3%)	2 (20%)	4 (28.6%)	
<b>Adaptability</b>				0.78
<b>Rigid</b>	3 (4.1%)	0 (0%)	1 (7.1%)	
<b>Organized</b>	11 (14.9%)	1 (10%)	0 (0%)	
<b>Flexible</b>	21 (28.4%)	3 (30%)	5 (35.7%)	
<b>Chaotic</b>	39 (52.7%)	6 (60%)	8 (57.1%)	

**Table 7:** Association between Family classification and FACES III class.

	<b>Asintomático</b>	<b>Leve</b>	<b>Moderado</b>	<b>Severa</b>	<b>P</b>
<b>Cohesion</b>					0.34
<b>Unlinked</b>	1 (11.1%)	7 (11.1%)	4 (20%)	0 (0%)	
<b>Semi-linked</b>	4 (44.4%)	14 (22.2%)	3 (15%)	2 (33.3%)	
<b>Linked</b>	2 (22.2%)	32 (50.8%)	6 (30%)	2 (33.3%)	
<b>Agglutinated</b>	2 (22.2%)	10 (15.9%)	7 (35%)	2 (33.3%)	
<b>Adaptability</b>					0.184
<b>Rigid</b>	2 (22.2%)	1 (1.6%)	1 (5%)	0 (0%)	
<b>Organized</b>	0 (0%)	10 (15.9%)	2 (10%)	0 (0%)	
<b>Flexible</b>	2 (22.2%)	17 (27%)	7 (35%)	3 (50%)	
<b>Chaotic</b>	5 (55.6%)	35 (55.6%)	10 (50%)	3 (50%)	

**Table 8:** Association between FACES III class and disease severity.

## Discussion

During the SARS-CoV-2 pandemic, the objective was to determine the level of cohesion and adaptability of the family of the patient infected with SARS-CoV-2. Family dynamics is a process that on many occasions can result in changes in its structure and functioning secondary to situations that act as generators of stress [15].

The accumulation of stressful situations in the family can produce unhealthy behavior patterns that can threaten the integrity of the family [16]. Families should receive interventions to reinforce adaptive behaviors and deflect unhealthy behaviors that lead to maladaptive [18]. No association was found between the family type by kinship and the severity of the COVID-19 disease with the adaptability and cohesion of the family, however, as an interesting finding in our work. We found a tendency for cohesion and high adaptability, being for cohesion related and agglutinated, and for adaptability, flexible and chaotic. It was not found that the type of family and the severity of the disease increased cohesion or adaptability in any way, however, we observed that in the population with SARS-CoV-2 infection there could be an increase in both, with a tendency to agglutination and chaos, to be able to handle the family situation through which it happens, in the middle of a global pandemic crisis. A comparative study is proposed to investigate the effect on the family. There is an emotional impact on the family after the presence of critically ill patients in the nucleus, mainly with the increase in the stay in intensive care [19]. In the case of the COVID-19 pandemic, an important role of physical distancing has also been observed in family dynamics, in such a way that there has been a decrease in support from formal and informal networks, a climate of sustained tension, and distribution of inequitable roles with female overload, the recurrent appearance of conflicts and changes in daily routines. In other diseases, such as HIV infection, there has been a trend towards less family cohesion, but greater adaptability and rigid and unrelated families have a poorer quality of life [20]. However, in this type of infection, due to its chronicity, the family has the opportunity to prepare for the possibility of fatal outcomes.

Contrary to this, in the case of abrupt diagnoses, there may be some type of arrangement of family dynamics similar to that presented by the COVID-19 disease, especially depending on the severity of the association of the infection. Similar to our work, AlviaMacías et al. have found that in diarrheal diseases, the agglutinated-chaotic family tends to prevail over the other family types and that the type of family cohesion and adaptability correlates with the level of knowledge of diarrheal diseases, so there may be some modification of family dynamics through educational interventions for the family [21].

In an earlier study by Clover et al., It has been found that family dynamics and family dysfunction can increase the prevalence of infections, such as influenza B infection, with the hypothesis that family dysfunction can alter the immune response, increasing the susceptibility of infection [20]. This may be relevant, especially in a scenario before the COVID-19 infection, because more than the response to the infection that a person can present, -since- the family can influence the health measures that are applied, promoting greater support in the family and the activation of family resources.

## Conclusion

According to the family typology, by kinship, the main types of families identified in patients with COVID-19 disease were simple nuclear in 72.4%, followed by extended family in 13.3% and single parent in 8.2%. All the patients belonged to an urban family. We found 63.3% of patients with mild severity of COVID-19 disease, 20.4% with moderate severity, 6.1% severe, and 9.2% were asymptomatic.

We observe a greater tendency towards the type of family with high cohesion and adaptability, being by cohesion related and agglutinated, and by adaptability, flexible and chaotic, however, we did not find any association between the family type by kinship and the severity of the COVID-19 disease with the adaptability and cohesion of the family. The role of the family doctor in family support and the application of family interventions from the diagnosis of the disease, the follow-up, the recovery, and later is important, given the enormous psychosocial impact that the disease entails and the degree of stress and anxiety involved, as well as the relationship that the disease has on rearrangements in family dynamics and functionality.

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