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Adaptability and cohesion of families in times of the COVID-19 pandemic

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ABSTRACT

Background & Aim: This Covid-19 pandemic represents a threat and a crisis for families' well-being. According to the Olson Circumplex Model, this study aimed to assess the family functioning through the components of cohesion and adaptability of Portuguese families during this pandemic.
Methods & Materials: This is a descriptive, exploratory, and correlational study. A non-probabilistic and convenience sample consisted of 376 people. Sociodemographic data, the family's characterization, the type of housing, the Vital Duvall cycle phase was collected from the participants, and FACES II was used to assess family cohesion and adaptability. The reliability of this instrument is high. The instruments for data collection were organized and sent through Google® forms, including the Informed Consent Form. The data were analyzed by SPSS-26 software using non-parametric tests were used for inferential analysis.
Results: The results showed that 14,6% have a disengaged family cohesion; 7,4% have a very rigid dimension in family adaptability, and about the type of family, 6,1% have an unbalanced dimension.
Conclusion: Although on average, the participants have a connected family cohesion and family flexible adaptability, many participants have extreme values, under which it will be necessary to intervene. It is a priority for family nursing to understand the experience of families living in this current social, economic, and health context.

Introduction

Family is the mainstay for humans. The level of adaption and cohesion that every family establishes in their household can indicate the type of functionality that predominates (1). According to Olson's Circumplex model, the family is considered whole, where the degree of functionality depends fundamentally on its cohesion and adaptability (2,3). The model was called Circumplex because it supports the dimensions of cohesion and adaptability, is particularly useful for "relational diagnosis" (2,4).

Family cohesion and adaptability are important indicators of healthy family functioning (5). According to Olson (2000), cohesion is defined as the emotional bond between family members, while adaptability is defined as the conjugal or family system's ability to change its power structure, role relationships, and relationship rules in response to situational and developmental needs (2). Combining the results obtained in these two evaluations allows categorizing the families in four types: unbalanced, midrange, moderately balanced, and balanced. This model aimed to demonstrate that families with more balanced values are more functional, compared to families with more extreme scores, so intermediate scores on the cohesion and adaptability scales indicate more balanced family systems (2,3). Despite this author's interpretation, he later developed the Circumplex Model that

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analyses the different dimensions, where high values of cohesion and adaptability indicate balanced families and lower values reveal types of extreme families (2).

In sum, Circumplex Model-based studies using the scale FACES have become an important research area comprising more than 1,200 studies conducted in many countries around the world (4).

In this time of uncertainty, the changes resulting from the Covid-19 pandemic have invaded the family system and created situations for which there are no previous models. This pandemic represents a threat and a crisis situation for the well-being of families due to challenges related to social changes, insecurity, overload, and stress-related to confinement (6).

Remember that COVID-19 was considered a pandemic on March 11, 2020, by the World Health Organization. At the time this article was written, there were 37 888 384 confirmed cases of COVID-19, including 1 081 868 deaths as reported by WHO (7). Portugal, like other countries, declared a state of emergency on March 18, based on the verification of a situation of public calamity (8), forcing the confinement of Portuguese families.

The assumption that the disease and its prevention are a family affair is manifested across the spectrum and scale of the current covid-19 pandemic (5).

It is assumed that the current phase of the COVID-19 pandemic is likely to disrupt specific subsystems within the family (6). Following the general theory of family systems, the health of the family system must be the central focus of family nursing and involves strengthening the relational and systemic level, requiring the ability to understand the interdependencies of multiple components of a system, relating the individual, the environment and the context (9).

There will be considerable variability in how families will be affected by the COVID-19 pandemic; some families will be more vulnerable to this crisis than others (6), highlighting the relevance of this study. The reactions to COVID-19 are the most widespread social and family experience of all time; their impact will take place at different levels and extend over time (10).

The COVID-19 pandemic has forced families to try to maintain balance, but with less support, including the closure of schools and nurseries. Now, new concerns are added to the multiplicity of previous family roles, such as eLearning, teleworking, financial concerns due to the loss of jobs and income, the separation with extended families to reduce exposure to the virus, physical and emotional contact with some elements 24 hours a day, among many others (11). Some families are trying to prevent and survive the infection, while others face the disease and the loss of family members (10) directly, but whatever the circumstances, in this context, the balance has become increasingly challenging.

An important principle in systems theory is that times of crisis and life challenges have an impact on the whole family and, in turn, the main family processes mediate the adaptation (or lack of it) of all individual members, their relationship, and the family unit (13), which may occur in a pandemic phase.

As an open system, family balance indicates that the type of family is dynamic, and family members are free to move in any direction, as required by the family's life cycle or by family members' socialization (13). In times of stress, balanced systems will tend to switch to another type of system to adapt, while unbalanced systems tend to get stuck in their extreme pattern, which can generally create more stress (2).

In Portugal, families today have a significantly smaller size (2,6); although the couple continues to be the predominant form of family organization, their value has decreased. In contrast, childless couples, single parents, and people living alone increased. Simultaneously, the changing trends in life as a couple have increased with the increase in de facto unions, out-of-wedlock births, and family reconstitution. The fertility rate has reached very worrying levels, and the average life expectancy has increased. These changes implied a progressive and persistent shift towards new living ways with the family (14). These

family structures may not be favourable in times of pandemic.

Awareness of the importance of nurses in observing families due to their unique character and from a systemic perspective, integrating the family as the focus of nursing care (15), this study aimed to assess the family functioning according to the Olson Circumplex Model, through the components of cohesion and adaptability of Portuguese families during this pandemic.

Methods

A descriptive, exploratory, and correlational study was used to evaluate family cohesion and family adaptability of Portuguese Families in a time of social confinement by COVID-19.

Setting and participants

The sample, no probabilistic and for convenience, consisted of 376 people. The inclusion criteria included: being over 18 years of age and voluntarily consenting to participate in the study.

Data collection

The instruments for data collection were organized and sent through Google® forms, including the Informed Consent Form (ICF). Data collection was carried out through social networks. The questionnaires were applied during the state of emergency in Portugal (March 20 to May 2).

In this study, a questionnaire was used, including sociodemographic data, with questions related to gender, age, marital status, educational qualifications, data on the characterization of the family, housing, family cohabitation in a pandemic period, and the phase of the Vital Duvall cycle (1976). To assess family cohesion and adaptability, FACES II was used.

The FACES II instrument was developed by Olson, Portner, and Bell translated and adapted to the Portuguese population by the Family Therapy Society and later by Fernandes (1995) (16). The Family Adaptability and Cohesion Scale II is a 30-item scale used to measure an individual's perceptions of adaptability, family cohesion, and the family's general functioning. There are 16 questions that measure family cohesion and 14 that measure family adaptability, on a Likert-type scale from 1 (almost never) to 5 (almost always) (2).

For the assessment of cohesion, items 1, 5, 7, 11, 13, 19, 21, 23, 27, and 30 are positively rated, and items 3, 9, 15, 17, 25, and 29 are in the negative direction. The dimensions of cohesion are classified as disengaged, separated, connected, and very connected.

To assess adaptability, items 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, and 26 are rated positively, and items 24 and 28 are rated negatively. The adaptability dimensions are classified as rigid, structured, flexible, and very flexible. The instrument is recommended for research purposes (alpha de Cronbach: family cohesion 0.87; family adaptability 0.78) (16).

Ethical considerations

Authorization was obtained from the Ethics Committee to carry out the study (approval number was 2020/12). The participant was informed about the purpose of the study and the guarantee of data confidentiality, validating the informed consent in the electronic form.

Data analysis

Data analysis was performed using the IBM SPSS® Statistics software. Nonparametric tests were used for inferential analysis, as a normal sample distribution was not verified. When indicated, non-parametric tests (Mann-Whitney U or Kruskal-Wallis, respectively) were used, considering a level of statistical significance for values of $p<0.05$.

Results

The sample consisted of 376 people, and the average age was 40.40 (Standard deviation=11,9, with a minimum of 18 years and a maximum of 74 years. Of the individuals surveyed, 77.7% are from the northern region, 82,7% are women, 53,5%

are married, 48,9% have a degree. Regarding the family situation, the number of family members is 3, 3, and a standard deviation=1, 23. The majority are legal couples with children (Marriage) (55,3%), and according to Duval's life cycle, the majority are in the families with school-age children (21,8%) stage (Table 1).

Table 1. Participants characterization (N=376)

Variables	N	%
Gender		
Male	65	17.3
Female	311	82.7
Age groups		
18-29	62	16.5
30-41	136	36.2
42-53	129	34.3
54-65	36	9.6
66-77	13	3.5
Marital status		
Single	102	27.1
Civil union	51	13.6
Married	201	53.5
Divorced	17	4.5
Widowed	5	1.3
Residence region		
North	292	77.8
Center	34	9.0
Lisbon area	28	7.4
Alentejo	5	1.3
Algarve	6	1.6
Azores	3	0.8
Madeira	8	2.1
Educational Level		
Basic (1 to 4 years)	2	0.5
Basic 2 (5 to 6 years)	1	0.3
Basic 3 (7 to 9 years)	14	3.7
Secondary school (10 to 12 years)	69	18.3
Bachelor degree	10	2.7
Licensed degree	184	48.9
Master degree	74	19.7
PhD	22	5.9
Profession		
Occupations in the armed forces;	1	0.3
Representative of legislative power and executive organs;	21	5.6
Intellectual and scientific experts;	230	61.1
Technicians and intermediary-level occupations	48	12.8
Administrative staff	8	2.1
Workers of personal. Protection and safety services and salespeople;	15	3.9
Workers skilled in farming and agricultural trades	7	1.9
Workers skilled in industrial. construction and operational trades	7	1.9
Workers no qualified	19	5.1
Student	20	5.3
Employment situation during the COVID-19 pandemic		
Retired	19	5.1
Domestic	7	1.9
Unemployed	12	3.2
Active worker (face-to-face)	169	44.9
Active worker (telecommuting or similar)	93	24.7
Worker on vacation	10	2.7
Worker in a lay-off situation	24	6.4
Student	42	11.2

Housing type		
Luxurious. spacious home or floor. offering its residents maximum comfort	50	13.3
House or floor that is spacious without being luxurious	209	55.6
Modest house or floor. well-built and in good condition. well lit. airy. with kitchen and WC.	112	29.8
House with kitchen and W.C.. but: - Degraded and/or - Without essential appliances.	5	1.3
Number of household members		
1 member	21	5.6
2 members	75	19.9
3 members	124	33.0
4 members	106	28.2
5 members	35	9.3
6 members	8	2.1
≥7 members	7	1.9
Situation of household members during social isolation		
All elements of the household are in isolation	150	39.9
One of the family members is not in social isolation	164	43.6
All family members are not in social isolation	34	9.0
More than one element is not in social isolation	28	7.4
Type of Family		
Father with at least one child	1	0.3
Mother with at least one child	28	7.4
Civil union couple without children	16	4.3
Married couple without children	21	5.6
Married couple with children	208	55.3
Civil union couple with children	49	13.0
Couple without children with other people	3	0.8
Couple with children with other people	12	3.2
Families with two nucleus without children	2	0.5
Families with children in only one of the nucleus	9	2.4
Families with children only in one nucleus with other people	2	0.5
Families with children in both nucleus	4	1.1
Families with children in two nucleus with other people	1	0.3
Single-person families	20	5.3
Vital cycle phase		
Couples without children	46	12.2
Families with newborn (oldest child: birth - 30 months)	29	7.7
Families with preschool children (eldest child: 5 to 6 years)	38	10.1
Families with school children (oldest child: 6 to 13 years old)	82	21.8
Families with teenage children	80	21.3
Families with young adults (departure of first child - departure of last child)	72	19.1
Middle-aged couple (empty nest - retirement)	26	6.9
Aging (retirement - death of one spouse)	3	0.8

Regarding the FACES II scale results, Table 2 shows that 14, 6% have disengaged family cohesion and family adaptability, 7,4%, have a rigid dimension. With regard to the type of family, 6,1% have an unbalanced dimension. Table 3 shows the association between the FACES II score and the variables under analysis, highlighting an association between marital status, education, professions, type of housing, number of family members, type of family, and life cycle stage.

Table 2. FACES II evaluation

Factors	Dimensions	N	%
Family cohesion	Disengaged	55	14.6
	Separated	86	22.9
	Connected	175	46.5
	Very connected	60	16.0
Family adaptability	Rigid	28	7.4
	Structured	31	8.2
	Flexible	105	27.9
	Very flexible	212	56.4
Types of family	Unbalanced	23	6.1
	Midrange	61	16.2
	Moderately balanced	144	38.3
	Balanced	148	39.4

Table 3. Face II and variables (N=376)

Variables	Family cohesion				P	Family adaptability				P
	Mean	**SD**	**Min**	**Max**		**Mean**	**SD**	**Min**	**Max**	
Gender										
Male	60.7	9.8	36	76	0.690	53.1	9.6	22	66	0.425
Female	61.2	9.6	30	77		54.1	9.7	19	70	
Age groups										
18-29	59.7	12.9	30	77		51.9	12.7	19	66	
30-41	63.0	8.8	33	76		54.2	8.5	20	70	
42-53	60.4	8.0	36	75	0.071	54.7	7.9	29	66	0.248
54-65	60.5	10.5	38	76		55.9	10.8	20	69	
66-77	57.9	9.6	41	69		48.5	14.0	21	64	
Marital status										
Single	57.4	11.8	30	70		50.9	12.1	19	66	
Civil Union	64.7	9.1	36	76		55.9	9.2	20	66	
Married	62.1	8.1	41	76	0.001	54.8	7.7	21	70	0.034
Divorced	61.6	7.9	46	75		55.2	11.7	28	67	
Widowed	62.4	5.1	57	70		58.4	8.9	43	66	
Residence region										
North	61.35	9.9	30	77		54.4	9.5	19	70	
Center	9.6	9.2	34	75		59.6	11.6	20	64	
Lisbon area	61.9	8.1	45	76	0.934	61.9	8.7	36	66	0.467
Alentejo	62.6	7.3	57	74		62.6	8.2	41	58	
Algarve	59.2	10.3	48	71		59.2	8.0	42	63	
Azores	61.3	13.1	51	76		61.3	10.2	44	63	
Madeira	62.3	9.9	48	76		62.3	8.4	40	66	
Educational level										
Basic (1 to 4 years)	58.5	14.8	48	69		53.0	15.6	42	64	
Basic 2 (5 to 6 years)	58.0	0	58	58		53.0	0	53	53	
Basic 3 (7 to 9 years)	56.8	6.4	49	69		49.4	8.1	38	65	
Secondary school (10 to 12 years)	58.9	12.2	30	77	0.098	50.7	12.3	19	66	0.008
Bachelor degree	58.4	4.9	51	65		51.9	8.1	39	62	
Licensed degree	61.8	9.1	33	76		54.5	9.1	21	70	
Master degree	62.1	9.6	38	76		55.5	8.5	27	66	
PhD	63.7	5.9	52	74		58.6	6.1	44	67	
Profession										
Occupations in the armed forces;	64.0	0	64	64		56.0	0	56	56	
Representative of legislative power and executive organs;	57.8	9.1	45	75		50.3	8.4	31	65	
Intellectual and scientific experts;	61.9	9.1	33	76		55.1	9.2	20	70	
Technicians and intermediary-level occupations	60.3	8.8	34	76		52.8	10.4	19	66	
Administrative staff	55.8	8.5	45	70	0.028	49.8	6.7	41	58	0.010
Workers of personal. Protection and safety services and salespeople;	59.1	9.0	40	73		52.8	7.3	38	63	
Workers skilled in farming and agricultural trades	64.1	8.4	46	70		55.3	6.3	43	60	
Workers skilled in industrial. construction and operational trades	64.9	7.6	50	72		56.95	5.1	51	63	
Workers no qualified	64.4	10.6	33	76		6.6	8.8	29	66	
Student	55.5	15.3	30	77		46.8	14.7	66	66	
Employment situation during the COVID-19 pandemic										
Retired	59.4	10.9	41	76		50.2	14.4	21	66	
Domestic	63.0	3.0	61	69		52.6	5.6	49	65	
Unemployed	60.4	14.1	35	75		47.9	15.3	25	66	
Active worker (face-to-face)	61.8	8.9	33	76	0.449	55.3	7.8	29	70	0.176
Active worker (telecommuting or similar)	59.9	8.7	34	76		53.7	8.7	20	67	
Worker on vacation	65.7	7.8	49	76		60.3	5.9	50	69	
Worker in a lay-off situation	61.5	9.7	38	76		53.7	10.4	20	66	
Student	60.7	12.7	30	77		51.8	12.9	19	66	
Housing type										
Luxurious. Spacious home or floor. offering its residents maximum comfort	64.4	7.5	49	76		55.2	9.1	19	66	
House or floor that is spacious without being luxurious	61.9	9.4	34	77		54.8	9.5	20	70	
Modest house or floor. Well built and in good condition. Well lit. Airy. With kitchen and WC.	58.9	10.1	30	76	0.000	52.8	9.5	29	29	0.003
House with kitchen and W.C.. but: - Degraded and/or - Without essential appliances.	46.6	5.1	38	38		37.6	9.1	27	27	

Number of household members										
1 member	52.7	9.2	38	67		48.7	12.2	27	64	
2 members	62.9	9.9	33	76		54.8	10.4	20	67	
3 members	61.4	9.4	30	76		54.5	9.6	20	66	
4 members	61.3	9.3	33	77	0.001	54.6	8.2	25	70	0.041
5 members	61.4	9.6	36	76		52.3	10.7	19	66	
6 members	56.1	6.7	49	65		47.4	6.4	38	60	
≥7 members	67.5	8.1	51	72		58.3	5.1	48	61	
	61.0	0	61	61		54.0	0	54	54	
Situation of household members during social isolation										
All elements of the household are in isolation	60.8	10.1	33	76		53.2	10.3	20	67	
One of the family members is not in social isolation	62.4	8.9	35	76	0.091	55.3	8.3	22	70	0.332
All family members are not in social isolation	58.9	9.3	36	75		53.5	9.6	28	69	
More than one element is not in social isolation	58.8	11.1	30	77		51.1	12.4	19	65	
Type of family										
Father with at least one child	52.0	0	52	52		52.0	0	52	52	
Mother with at least one child	60.9	7.8	48	75		56.2	7.9	42	66	
Civil union couple without children	64.2	11.1	38	76		56.1	11.2	20	66	
Married couple without children	63.0	10.3	41	76		52.0	11.6	21	62	
Married couple with children	61.4	9.4	30	77		54.1	9.2	19	70	
Civil union couple with children	64.1	7.3	46	76		56.5	7.1	41	66	
Couple without children with other people	52.7	15.5	38	69	0.027	52.7	15.6	27	58	0.025
Couple with children with other people	58.46	10.7	45	75		58.4	9.3	36	63	
Families with two nucleus without children	7.0	0	67	67		67.0	0	64	64	
Families with children in only one of the nucleus	55.4	10.6	38	71		55.4	11.5	31	62	
Families with children only in one nucleus with other people	52.5	23.3	36	69		52.5	21.2	29	59	
Families with children in both nucleus	61.0	8.4	51	68		61.0	11.3	47	67	
Families with children in two nucleus with other people	62.0	0	62	62		62.0	0	63	63	
Single-person families	53.9	10.3	34	71		53.9	10.3	20	62	
Vital cycle phase										
Couples without children	62.9	9.0	40	76		55.0	7.8	35	66	
Families with newborn (oldest child: birth - 30 months)	67.0	7.0	48	76		55.9	7.1	41	65	
Families with preschool children (eldest child: 5 to 6 years)	62.0	7.0	48	76		54.4	8.1	31	66	
Families with school children (oldest child: 6 to 13 years old)	61.7	8.1	36	77	0.002	55.1	6.9	29	70	0.159
Families with teenage children	59.8	9.8	30	76		52.4	10.8	19	66	
Families with young adults (departure of first child - departure of last child)	60.1	10.7	33	76		54.9	10.2	22	69	
Middle-aged couple (empty nest - retirement)	57.4	13.3	34	76		49.5	15.4	20	66	
Aging (retirement - death of one spouse)	46.3	5.5	41	52		38.3	9.2	28	46	

Discussion

In this study, the assessment of family cohesion and family adaptability in the pandemic phase was measured using FACES II. On average family, cohesion corresponds to a connected cohesion. Slightly higher values were obtained on average in the adaptability, which corresponds to flexible adaptability. With regard to the type of family, the average value obtained corresponds to a moderately balanced family.

Although the average values seem healthy, extreme positions are identified when the results are observed in a detailed way. Considering the Olson (2000) model, the unbalanced types of family may be less functional in relation to individual and family development (2,13).

Extreme behaviour in both dimensions may be appropriate for certain life cycle stages, but they can be problematic when families are stuck at the extremes (2,17).

Figure 1 allows observation of the results adapted in the light of Olson's model (2000). In the Circumplex Model hypothesis, systems in the balanced family tend to be more functional than unbalanced systems (18).

Thus, there is greater family functionality among members at balanced levels, with individuals being able to oscillate between the other levels in crises, which does not happen at the most extreme levels considered as unbalanced (2).

The model is presented as a continuum, from detached families (extremely low levels, to entangled families (extremely high

levels), crossing several moderate levels. This conception of continuum states that the central levels correspond to balanced degrees associated with the family's healthy functioning. In contrast, the extreme levels correspond to unbalanced levels, which tend to be problematic for long-term family members (18). In figure 1, at the intersection of family cohesion and adaptability, it is possible to observe these results by identifying cases' prevalence in extreme situations.

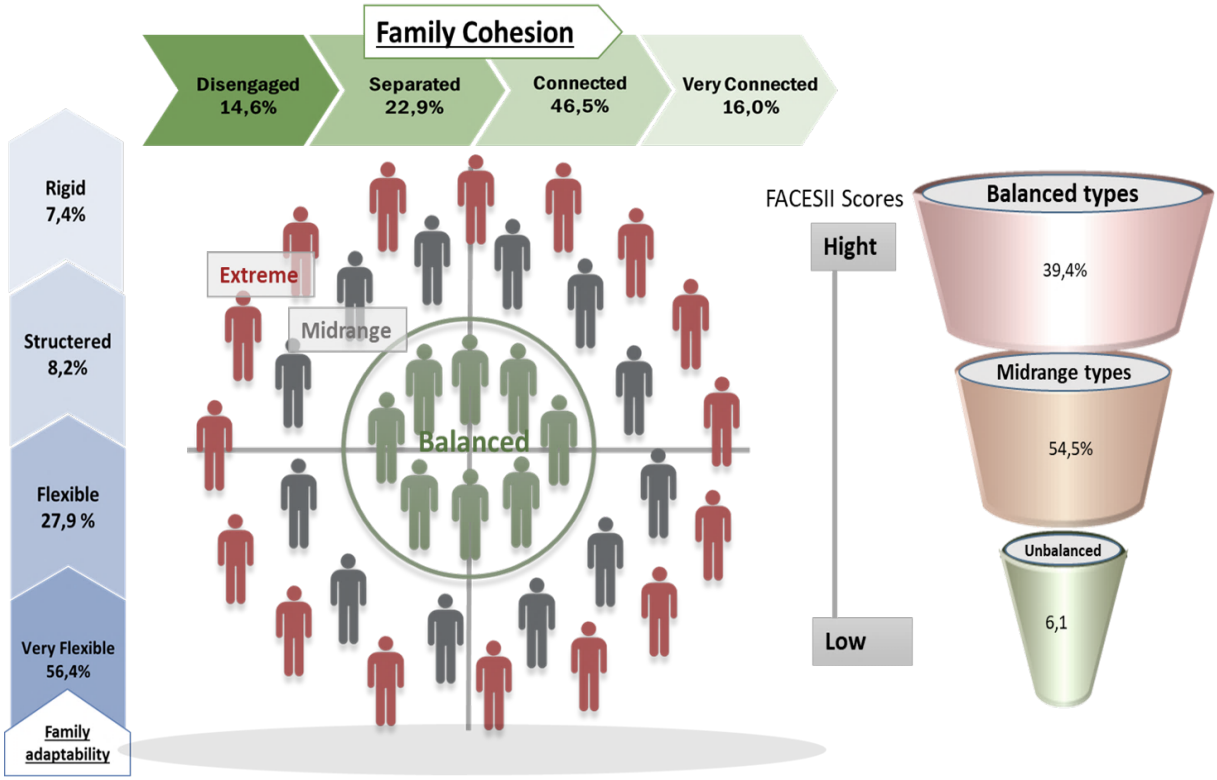

Figure 1. Adapted from Olson's circumplex model (2000)

In Table 3, when the results and their association with the variables are analysed, there is an association with marital status, where lower values are obtained for singles. There is an association between family adaptability and education and professions.

Regarding housing, associations were obtained with cohesion and family adaptability, with higher values in better housing conditions. Concerning the number of household elements, this variable was associated with family cohesion and family adaptability, where the lowest scores exist in households with fewer elements. These data are in line with the authors of this article where they report that the perceived family cohesion and the family size were positively related (19). When the type of family is observed, there is an association with cohesion and family adaptability. Although the average score is lower in the type of family, "Father with at least one child," this assumes little relevance because there is only one sample element with these characteristics. However, it is observed that single-person families have lower values. The type of family or the family structure is subject to a dynamic process that changes according to the stage of the life cycle in which the family is, or under the influence of the so-called stressful events in life (20), as it is the current case. Indeed, throughout the family's life cycle, family resilience focuses on adapting to critical events and major transitions (12). The family life cycle phases involve new and different roles, which can generate conflicts (20).

Finally, there is an association between the life cycle phase and family cohesion, where the lowest values are obtained in the Aging phase (retirement-death of one spouse). The elderly, due to changes in the

stage of the life cycle, such as retirement or age-related losses (for example, death of a partner or friends), with declining health and increasing mobility limitations, may experience feelings of loneliness and isolation (21), which may have been greatly aggravated by the phase of social confinement experienced. The lowest family cohesion and adaptability values were obtained in the age groups between 66 and 77 years old, single, retired or unemployed, and with worse housing conditions.

One of the great difficulties of this study was the difficulty in finding, in the literature, results of the Portuguese population, which would allow us to compare. Some studies were found with the evaluation of Faces II but aimed at groups with specific problems resulting from dissertations (15,22).

Future studies quantifying variation in well-being metrics within families and communities and over time could reveal best- and worst-case scenarios for families, expose critical inequities, and help uncover novel risk and protective factors to guide policy (23). The authors of this manuscript suggest long-term consequences that will affect the people quarantined (24), which may be visible in future studies. In this study, limitations include the higher proportion of participants from the north of the country, which did not allow comparison by regions of the country. This fact may be related to the convenience bias reflecting the researchers' contacts. However, it may also be related to the fact that the north of the country was the most affected area at the beginning of the pandemic. On the other hand, the application of the online form may have led to a participation bias. Another issue is related to the procedures of applying the form, which did not allow it to be applied to different family members without knowing the number of households that participated.

Conclusion

Although on average, the participants are mostly in connected family cohesion and in the flexible family adaptability, the results correspond to the perception of a balanced family. It should also be noted that family nursing has never been more relevant than now; the consequences of the COVID-19 pandemic require nurses to assess and intervene in families that need support.

The results highlighted important information that should be valued for nursing assessment that contributes to improving health care provided to families in the pandemic phase.

It is suggested to continue this research with longitudinal studies to assess the impact on families of social confinement by pandemic by Covid-19, which will certainly go far beyond this phase. These data reinforce the family's systemic principle, which must be present in family nursing, in which the challenges of life affect the family unit and the family's health. This is especially true for the current covid-19 pandemic that creates hardship and suffering for many families around the world. It is a priority for family nursing to understand families' experience in the current social, economic, and health context.

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Conflict of interests

The authors declared no potential conflicts of interest for the research, authorship, and/or publication of this article.

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