

## Development and Validation of the FF Instrument to Assess Family Functioning

### *Desarrollo y validación del Instrumento FF para evaluar el funcionamiento familiar*

Mary I. Barreras-Miranda,\* Gerardo Muñoz-Cortés,\* Laura M. Pérez-Flores,\* Carlos Gómez-Alonso,\*\*  
Mónica Fulgencio-Juárez,\*\* María E. Estrada-Andrade.\*\*\*\*

#### Summary

**Objective:** to develop and validate a family functioning assessment instrument. **Methods:** validation study, conducted at the Family Medicine Unit No. 80 of the Mexican Institute of Social Security in Morelia, Michoacán, Mexico; from March 2018 to August 2019. Phase 1. The items were written using the McMaster model; phase 2. Test adequacy through qualitative analysis of items: presentation of the instrument, wording clarifying, relevance of variables to indicators, relevance of content and feasibility of application, application of statistical tests; item reduction, relevance, varimax rotation and variance; phase 3. Reliability and convergence validity against FF-SIL. **Results:** phase 1. Construction of an initial instrument of 107 items with six domains. Phase 2. After a pilot test on one hundred individuals, 79 items with relevance >90 were chosen; and after a factorial analysis with a reduction factor, made by ten judges, a final instrument of 35 items was created with redistribution of the items by the varimax rotation method, six domains were assigned: problem solving (7 items), communication (10 items), roles (5 items), affective involvement (2 items), affective responses (8 items) and behavioral control (3 items); with a total variance of 74.1. Phase 3. Final instrument of 35 items that categorizes families into: functional (141-175 points), mild dysfunctional (106-140 points), moderate dysfunctional (71-105 points) and severe dysfunctional (35-70 points). Final instrument with Cronbach's alpha of 0.962 vs. 0.905 of the FF-SIL. **Conclusion:** a reliable 35-item instrument measuring family functioning was constructed.

**Keywords:** Family; Evaluation Study; Family Relations

Received: 06/25/2021  
Accepted: 08/10/2021

\*Family Medicine Unit No. 80, Mexican Institute of Social Security, Morelia, Mexico.

\*\*Biomedical Research Center of Michoacán, Mexican Institute of Social Security, Morelia, Mexico.

\*\*\*Faculty of Psychology, University of Michoacan of San Nicolas de Hidalgo, Morelia, Mexico.

\*\*\*\*Primitive and National College of San Nicolas. University of Michoacan of San Nicolas de Hidalgo, Morelia, Mexico.

Suggestion of quotation: Barreras-Miranda MI, Muñoz-Cortés G, Pérez-Flores LM, Gómez-Alonso C, Fulgencio-Juárez M, Estrada-Andrade ME. Development and Validation of the FF Instrument to Assess Family Functioning. *Aten Fam.* 2022;29(2):65-71. <http://dx.doi.org/10.22201/fm.14058871p.2022.2.82027>

Correspondence:  
Gerardo Muñoz Cortés  
[gerardomunozcortes@gmail.com](mailto:gerardomunozcortes@gmail.com)

## Resumen

**Objetivo:** desarrollar y validar un instrumento de evaluación del funcionamiento familiar. **Métodos:** estudio de validación, realizado en la Unidad de Medicina Familiar No. 80 del Instituto Mexicano del Seguro Social en Morelia, Michoacán, México; de marzo 2018 a agosto 2019. Fase 1. Redacción de reactivos mediante modelo McMaster; fase 2. Adecuación de la prueba mediante análisis cualitativo de reactivos: presentación del instrumento, claridad en la redacción, pertinencia de las variables con los indicadores, relevancia del contenido y factibilidad de la aplicación, aplicación de pruebas estadísticas; reducción de reactivos, pertinencia, rotación varimax y varianza; fase 3. Fiabilidad y validez de convergencia contra FF-SIL. **Resultados:** fase 1. Construcción de un instrumento inicial de 107 reactivos con seis dominios. Fase 2. Tras prueba piloto en cien sujetos se eligieron 79 reactivos con pertinencia >90 y tras un análisis factorial con factor de reducción por diez jueces se creó un instrumento final de 35 reactivos con redistribución de los mismos por el método de rotación de varimax, se asignaron seis dominios: resolución de problemas (7 reactivos), comunicación (10 reactivos), roles (5 reactivos), involucramiento afectivo (2 reactivos), respuestas afectivas (8 reactivos) y control de conductas (3 reactivos); con una varianza total de 74.1. Fase 3. Instrumento final de 35 reactivos que categoriza las familias en: funcional (141-175 puntos), disfuncional leve (106-140 puntos), disfuncional moderada (71-105 puntos) y disfuncional severa (35-70 puntos). Instrumento final con alfa de Cronbach de 0.962 vs 0.905 del FF-SIL. **Conclusión:** se construyó un instrumento de 35 reactivos confiable que mide el funcionamiento familiar.

**Palabras clave:** familia, estudio de evaluación, relaciones familiares

## Introduction

Family as an object of research has an importance that only few social institutions possess; this conformation has been the most historically studied, not only by the social sciences but also in all disciplines and scientific areas.<sup>1</sup>

Family functioning is defined as the set of attributes that characterize the family as a system and that explain the regularities found in the way in which the family system operates, evaluates or behaves.<sup>2</sup> The evaluation of family functioning allows knowing if the functions of the members of a family are being fulfilled and helps to know how a crisis is being faced.<sup>3</sup>

Family Medicine is the medical specialty that arises to respond to the imperative social and health needs of the population, attending to individuals and families and not only to illnesses or diseases.<sup>4</sup>

The Family Medicine specialist must know how the family functions and provide guidance on this functioning in conditions that could organically affect a family member.<sup>5,6</sup>

There are several instruments to measure family functioning, some of them are applied by the psychologist, while others, such as the FACES IV and the FF-SIL,<sup>7-9</sup> are commonly used by the family physician,

The FACES IV is a family cohesion and flexibility assessment scale that provides the “inside perspective” of family functioning. This instrument evaluates the two central dimensions of Olson’s Circumplex Model of Marital and Family Systems.<sup>7</sup> It presents a structure that integrates three dimensions: cohesion, flexibility and

family communication; it consists of 23 multiple-choice Likert-type items with five response options: strongly agree, generally agree, undecided, generally disagree and strongly disagree. It has a Cronbach’s alpha that ranges between 0.71-0.77.<sup>8</sup>

The FF-SIL is an instrument that allows to measure family functioning, designed in 1994 by a Primary Health Care group and validated in 2004<sup>9</sup>, it categorizes families in: functional, moderately functional, dysfunctional, and severely dysfunctional. Its objective is to evaluate seven processes involved in intrafamily relationships: cohesion, roles, harmony, communication, affectivity, permeability and adaptability. It is composed of 14 items with Likert-type responses with five options as response alternatives. Scoring is done by assigning points according to the option selected on the scale: almost never 1, seldom 2, sometimes 3, many times 4, and almost always 5. It has a Cronbach’s alpha of 0.859.

On the other hand, the McMaster model, designed in 1979, proposes to measure family functioning through six dimensions: problem solving, communication, roles, affective involvement, affective responses and behavioral control.<sup>5</sup>

Problem solving refers to the family’s ability to solve problems to the degree that it maintains effective functioning;<sup>5</sup> communication refers to the exchange of information among family members;<sup>10</sup> roles refer to the patterns of behavior by which individuals are assigned their functions;<sup>11</sup> affective involvement measures the degree to which the family values the activities and interests of each member;<sup>12</sup> affective responses refer to the family’s ability to respond with appropriate feelings to a

stimulus, and behavioral control represents the patterns a family adopts to manage behavior in situations of danger, socialization and its needs.<sup>13</sup>

Considering that there is no instrument that measures family functioning using the six dimensions above mentioned, the objective of this study was the developing and validating of a family functioning assessment instrument based on the McMaster model.

### Methods

Study of construct and convergence validation conducted in the Family Medicine Unit (FMU) No. 80 in Morelia, Michoacán, of the Mexican Institute of Social Security, from March 2018 to August 2019. The work was carried out in three phases: construction of the instrument, adaptation of the instrument, and convergence validation.

The construction of the instrument was carried out in four stages: 1. Definition of the construct through a literature review on family functioning; 2. Identification of the domains using the McMaster model; 3. Drafting of the initial construct by a team of six experts that included: a family physician, two Masters in Education and Teaching, a Master in Pedagogy, a Doctor in Educational Sciences, and a Doctor in Psychology; and 4. Drafting of the initial instrument of 107 items, with Likert-type multiple choice responses that included five response options.

The adaptation of the instrument had three stages: application of the first construct, item analysis, and final composition of the instrument.

For the application of the first construct, a pilot test was carried out on one hundred participants, aged 18 to 39 years, with prior informed consent, and beneficiaries of the IMSS FMU No. 80.

After the pilot test, the items were analyzed by a round of experts with a qualitative evaluation in which five characteristics of the instrument were rated: presentation, clarity in the wording of the items, relevance of the variables with the indicators, relevance of the content and feasibility of application. The round of experts included ten judges from the health area: five family physicians, one psychologist, two Masters in Education and Teaching, one Doctor in Educational Sciences and one Doctor in Psychology with Psychometrics expertise.

Statistical tests were applied for the final composition of the instrument, including relevance and variance, varimax rotation and factor reduction analysis. After this phase, a 35-item with Likert-type multiple-choice answers final instrument was obtained, including five response options: never, almost never, sometimes, almost always and always, with scores ranging from 1 (never) to 5 (almost always).

The final “FF Instrument” was applied, for the third phase, to 280 participants, companions of the FMU No. 80 beneficiaries, aged 18 to 59 years, in the waiting rooms. In addition, the participants were asked to answer the FF-SIL for convergence validity. Cronbach’s alpha and the Split-Half Method were used to measure the reliability of the instrument.

The SPSS v. 23 software for Windows was used to capture and code the responses to the instrument. The present study was authorized by the IMSS Local Health Research and Ethics Committee under registration number R-2017-1602-48.

### Results

After reviewing the literature, the results of the construction of the initial instru-

ment, served to establish six domains with their respective study variables, see Figure 1.

For the initial instrument 107 items were created, after the round of experts, and were assigned to the six domains as follows: problem solving (21 items), communication (4 items), roles (30 items), affective involvement (5 items), affective responses (20 items) and behavioral control (27 items).

The initial instrument was measured to have a Cronbach’s alpha of 0.64, after, the analysis of the results obtained from the pilot test carried out on 100 participants,

The results of the qualitative evaluation round of the initial instrument of 107 items by the judges on the first construct are shown in Figure 2, it was identified that most of the items were rated as fair and good, and a smaller number of items were measured as excellent.

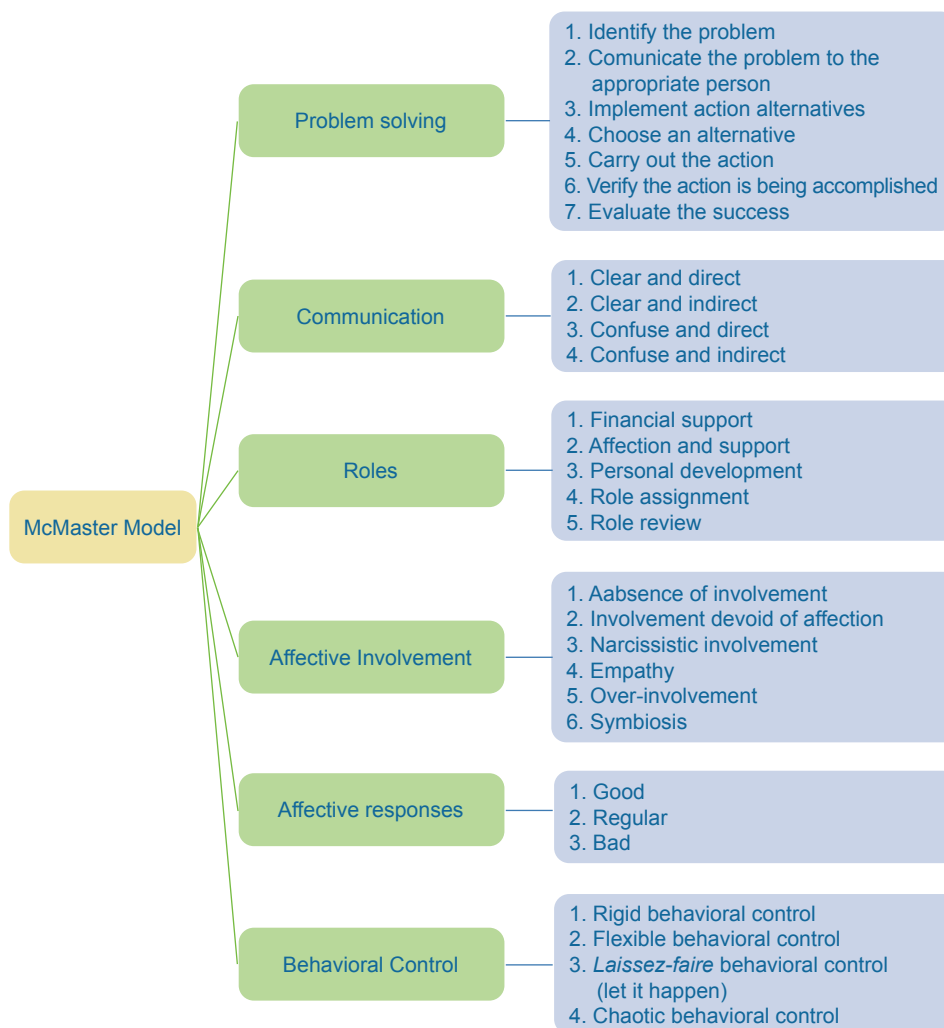
The relevance calculation results of the 107 items showed that 79 presented a relevance >90, 21 items a relevance <90, and 7 items were categorized as “not assessable”, these seven were eliminated.

Only those items remaining above 0.64 were selected, obtaining a final instrument with 35 items, after the reduction analysis.

Subsequently, the 35 selected items were assigned to one of the six corresponding domains using a coefficient matrix.

Finally, the items were distributed by the varimax rotation method, assigning each of the corresponding domains and reorganized into: problem solving (7 items), communication (10 items), roles (5 items), affective involvement (2 items), affective responses (8 items), and behavioral control (3 items); see Table 1.

**Figure 1. Representation of the six Dimensions According to the McMaster Model**



The results of the internal consistency of the final instrument of 35 items, after calculating Cronbach's alpha and the Split-Half Method, were 0.962 and 0.970, respectively. The results of these two tests by domain were: communication 0.941 and 0.956; affective responses 0.918 and 0.929; problem solving 0.914 and 0.911; roles 0.889 and 0.857; behavioral control 0.798 and 0.776; affective involvement had a Cronbach's alpha of 0.767.

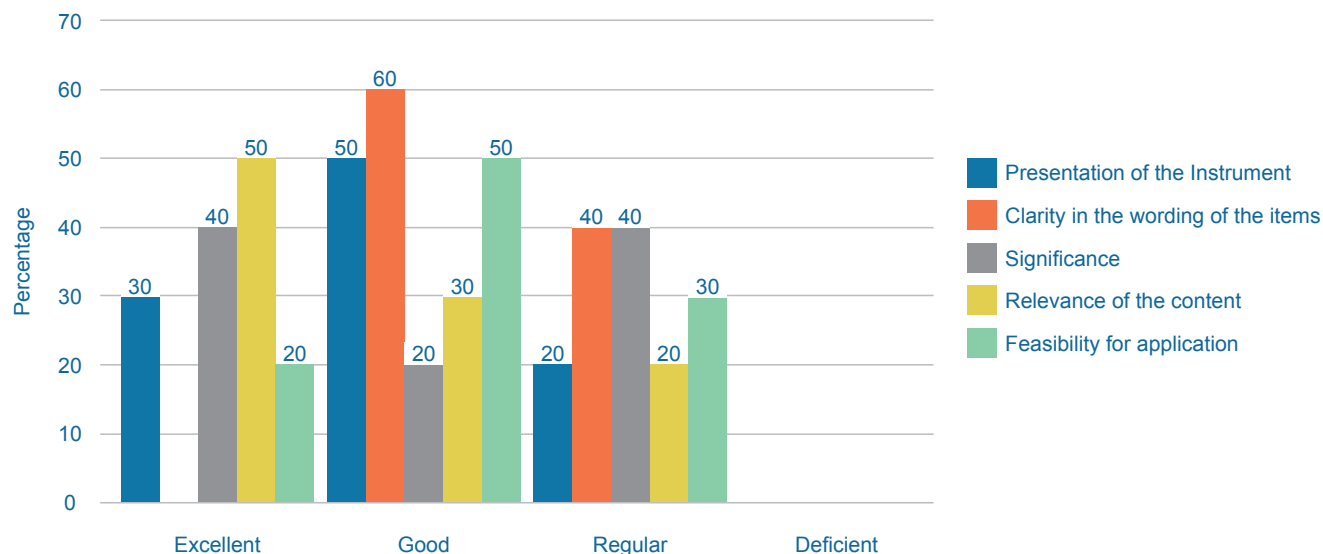
Figure 3 shows the results of family functioning after the application of both instruments, final instrument (FF instrument) vs FF-SIL. The FF instrument identified more patients with functional category and fewer patients in the category of mild and severe dysfunction.

According to the obtained results, the overall rating of the final "FF Instrument" of 35 items allows measuring family functioning in four categories: functional 141-175 points, mild dys-

functional 106-140 points, moderate dysfunctional 71-105 points, and severe dysfunctional 35-70 points.

The instrument also allows identifying the results of family functioning by domain: communication (items 1 to 10): adequate 31-50 points or inadequate 10-30 points; affective response (items 11 to 18): adequate 24-40 points and inadequate 8-23 points; problem solving (items 19 to 25): adequate 19-35 points and inadequate 7-18 points; roles (items

**Figure 2. Percentage of Qualitative Appreciation by Judges**



26 to 30): accomplished 16-25 points and not accomplished 5-15 points; behavioral control (items 31 to 33): adequate 9-15 points, inadequate 3-8 points; and affective involvement (items 34 and 35): with involvement 7-10 points, and without involvement 2-6 points.

### Discussion

The present study was carried out to develop and validate a new instrument that assesses family functioning by the McMaster model through its six dimensions,<sup>5</sup> and from the perspective of the family physician it could be applied during the comprehensive care of the patient to obtain a perception that approximates the reality of his or her family.

The psychometric properties of the scales for measuring the perception of family functioning are very varied. There are tools used by family physicians with the aim of providing

comprehensive care to every individual seeking medical care.<sup>14-16</sup>

An adequate measurement instrument is one that records observable data that truly represent the concepts or variables of interest to the researcher, consequently it should have a series of stages to be considered a valid, reliable and objective instrument.<sup>17</sup> In this study, construct and convergence validity and internal consistency of the instrument were performed.

The instrument here presented has 35 items, a Cronbach's alpha of 0.926 and measures six domains: problem solving, communication, roles, affective involvement, affective responses, and behavioral control; and after its application it allows categorizing the family as: functional, mild dysfunctional, moderate dysfunctional, and severe dysfunctional with a score ranging from 35-175; unlike the FF-SIL whose instru-

ment has 14 items, a Cronbach's alpha of 0.905 measures cohesion, harmony, communication, adaptability, affectivity, role, and permeability, it categorizes families as: functional, moderately functional, dysfunctional and severely dysfunctional with scores ranging from 14 to 70 points.<sup>12</sup>

In relation to the instruments that evaluate family functioning, these have been used mainly as a diagnostic support and not as a screening method to focus on interventions, which in some way prejudices and diminishes their real usefulness for those who are the subjects of intervention.<sup>18</sup> Therefore, the construction of a new instrument should contemplate obtaining a practical tool that allows its application in less than fifteen minutes; the average time was eight minutes for patients who self-applied, and ten minutes for those who the researcher applied it, which is

**Table 1. Final Distribution of the Items after Using the Varimax Rotation Method**

Items	Domain
1. Do you feel you have the necessary support from your family to face your problems?	2
2. Are you satisfied with your family's support in dealing with your problems?	3
3. Do you feel satisfied with the way problems are discussed at home?	3
4. In your family, do you get together to talk about the problems you are going through?	3
5. Do you always think about how to solve problems in your family?	3
6. Do you feel that you receive the necessary support from your family members to face any problems?	3
7. Does everyone in your family participate in making decisions to deal with problems?	3
8. Are you satisfied with the decision making at home when faced with problems?	3
9. When faced with a problem, is it done what it is proposed to solve it?	4
10. When a family problem is solved, do you get together to see how satisfied you are with the solution?	5
11. Do you feel that the members of your family are attentive to the resolution of your problems?	1
12. Are the actions taken in response to your family's problems verified by you?	1
13. Do you feel that your family solves your problems?	1
14. Do you have the confidence to talk about your problems with your family?	5
15. Are your family members able to tell each other how they feel about each other?	1
16. Do you feel confident to talk to your family about your needs?	1
17. Do you feel satisfied about how problems are communicated in your family?	1
18. Are you able to tell your family how you feel?	2
19. Is your family committed to your life activities?	1
20. When you accomplish something, do other members of your family like to tell other people about it?	2
21. Do your family members want to be the first to know about everything you have accomplished because they can possibly be involved in it?	2
22. Does your family get involved in all your activities without expecting anything in return?	2
23. When you are at home, are there limits on respect and obedience among family members?	1
24. Do you feel that your family members can express what they feel?	6
25. Are you free to tell the members of your household how much you love them?	1
26. If you were to evaluate your family, do you think everyone fulfills their activities?	1
27. When there is a problem, is it solved on the basis of the decision of the head of the household?	6
28. In order to face the needs of the members of the household, is the decision made by only one member?	4
29. When there are problems in the family, does everyone have a say in solving them?	4
30. In order to carry out something in the family, are the opinions of all the members considered?	2
31. When there is a situation in which a member of the family is at risk, do all the other members of the family support the one at risk?	5
32. Do you feel that in your home you have all the comfort to be stable?	2
33. Do you feel satisfied with the love you have for your parents?	2
34. Do you feel that your family is interested in your good health?	4
35. Do you feel that you are considered in your family to carry out household activities?	4

a disadvantage in relation to the time it took to answer the FF-SIL, during which the average time was 4.5 minutes.

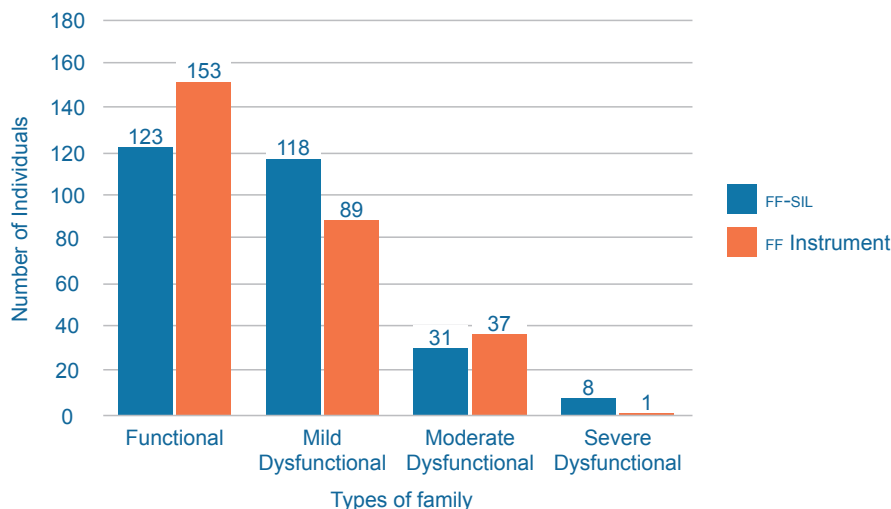
A strength of this study was the qualitative evaluation process of the instrument, since it measured the presentation, clarity in the wording, significance of the variables with the indicators, relevance of the content and feasibility for application, as well as the evaluation of the relevance and designation of domains using the varimax rotation method. In addition, the created instrument showed a high internal correlation, with a Cronbach's alpha of 0.962, in which "communication" and "affective response" were the two domains resulting with such high internal correlation.

Among the limitations of the study are that the sample of subjects for the pilot test included patients with and without comorbidities, and it was not identified whether they had any mental health problem that caused alterations in the responses. On the other hand, both instruments (FF Instrument and FF-SIL) were administered on the same day, which may cause a bias due to the total number of items. Another limitation of the study is that the results shown are the perception of an individual about his or her functioning within the family, so it would be appropriate to apply this instrument to all members of the family in order to have a more realistic approximation of family functioning.

### Conclusion

A reliable 35-item instrument was constructed to measure family functioning based on a model that includes six dimensions. This instrument can be very useful in medical practice, the community is invited to use it to assess one of the key structures within family medicine.

**Figure 3. Categories Comparison of Family Functioning Using both Instruments**



### Authors Contribution

Muñoz-Cortés G: conceptualization, development, and writing; Barreras-Miranda MI: survey application and data analysis; Pérez-Flores LM: survey application, and data analysis; Gómez-Alonso C: conceptualization, analysis and discussion of results, and writing; Fulgencio-Juárez M: conceptualization, analysis and discussion of results, and writing; Estrada-Andrade ME: conceptualization, analysis and discussion of results, and writing. All authors approve the publication of this paper.

### Funding

This research did not receive external funding.

### Conflicts of Interest

The authors declare not having conflicts of interest.

### References

1. Fuentes AP, Merino JM. Validación de un instrumento de funcionalidad familiar Ajayu. 2016;14(2):247-283.

2. Delfín-Ruiz C, Cano-Guzmán R, Peña-Valencia EJ. Funcionalidad familiar como política de asistencia social en México. *Revista de Ciencias Sociales*. 2020;XXVI(2):43-53.
3. Reynaldo C, Diaz KY, Román P. El concepto de Familia en México: una revisión desde la mirada antropológica y demográfica. *Ciencia Ergo Sum*. 2016;23(3):219-230.
4. Varela-Rueda CE, Reyes-Morales H, Albavera-Hernández C, Ochoa-Díaz-López H, Gómez-Dantés H, García-Peña C. La medicina familiar en México: presente y futuro. *Gac Med Mex*. 2016;152:135-140.
5. González GM, González GI. Un enfoque para la Evaluación del Funcionamiento Familiar. *Rev Mex Orient Educ*. 2008;6(15):1-6.
6. Cid-Rodríguez MC, Montes De Oca-Ramos R, Hernandez-Diaz O. La familia en el cuidado de la salud. *Rev Med Electrón*. 2014;36(4):462-472.
7. Olson DH. Circumplex model of family systems. *Journal of Family Therapy*. 2000;22 (2):144-167.
8. Costa-Ball D, Luján-González M, Del Arca D, Masjuan N, Olson DH. Propiedades psicométricas del FACES IV: estudio de validez en población uruguaya. *Ciencias Psicológicas*. 2013;VII (2):119-132.
9. Cassinda MD, Angulo L, Guerra M, Bernal IL, Martínez E. Estructura factorial, confiabilidad y validez de la prueba de percepción del funcionamiento familiar en adultos angolanos. *Revista Cubana de Medicina General Integral*. 2016;32(4):1-8. [Internet]. 2016 [citado 14 Feb 2022]; 32 (4) Disponible en: <http://revmgi.sld.cu/index.php/mgi/article/view/137>
10. Gallego-Henao AM. Recuperación crítica de los conceptos de familia, dinámica familiar y sus ca-

racterísticas. *Revista Virtual Universidad Católica del Norte*. 2012;35:326-345.

11. Viveros-Chavarría EF. Roles, patriarcado y dinámica interna familiar: reflexiones útiles para Latinoamérica. *Revista Virtual Universidad Católica del Norte*. 2010;31:388-406.
12. Plasencia ML, Eguiluz LL, Osorio M. Relación entre la dinámica familiar y las fortalezas humanas. *Journal of Behavior & Social Issues*. 2016;8(2):1-8.
13. Pi-Osoria AM, Cobián-Mena MA. Componentes de la función afectiva familiar: una nueva visión de sus dimensiones e interrelaciones. *MEDISAN*. 2009;13(6):1-11.
14. Valenzuela CL. La salud, desde una perspectiva integral. *Revista Universitaria de Educación Física y el Deporte*. 2016;9(9):50-59.
15. Galván RR, Fernández VAT. La investigación científica: reto y compromiso actual para la Medicina General Integral. *Medi Sur*. 2013;11(6):712-714.
16. García M, Méndez M, Rivera S, Peñaloza R. Escala de funcionamiento familiar: Propiedades psicométricas modificadas en una muestra mexicana. *Revista Iberoamericana de Psicología*. 2017;10(1):19-27.
17. Medina-Díaz MR, Verdejo-Carrión A. Validez y confiabilidad en la evaluación del aprendizaje mediante las metodologías activas. *Alteridad*. 2020;15(2):270-284.
18. Zicavo N, Palma C, Garrido Y. Adaptación y validación del FACES-20-ESP: Reconociendo el funcionamiento familiar en Chillán, Chile. *Revista Latinoamericana de Ciencias Sociales, Niñez y Juventud*. 2012;10:219-234.