

IMPACT OF COVID-19 HOME CONFINEMENT ON FAMILY COHESION ANALYSIS IN MCA

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ABSTRACT

This paper investigates the impact of the abrupt and generalized home confinement imposed by the spread of COVID-19 on family cohesion. Therefore, a questionnaire with a 7-item scale was designed. The objective is to describe and explain the variation of family cohesion in comparison with the pre-confinement state. Using the MCA, variables reflecting levels of family confinement density were examined in relation to the levels of family cohesion. A graph representing the relationships among all variables was analyzed. This revealed the social contexts of families that showed improved cohesion, stable cohesion and decreased cohesion.

Keywords: Family Cohesion, Home Confinement, Covid-19, Familial Behavior, Multiple Correspondence Analysis

INTRODUCTION

Family cohesion refers to the emotional bond between family members (Olson, et al., 1979, 1983) that creates and sustains the family as a real group (Bourdieu, 1993). Although essential, this cohesion does not have the same strength in all families (Moos, 1974; Epstein, et al., 1982; Skinner, et al., 1983; Olson, et al., 1979, 1983). Moreover, it is of an evolving nature under the influence of more or less structural events affecting the singular family life (Price et al., 2017). While this is the case for 'normal' events (developmental events) in the family life course for which the family is more or less prepared, it is certainly more so for non-normative or situational events such as divorce, suicide, accidents, natural disasters, war, etc., which Hill (1958) calls stressors or crisis events. The latter informs us that the same event does not have the same impact on families. In addition to its "real" weight, which depends on the different difficulties that may accompany it, the meaning that the family gives to it contributes to its influence. Olson & colleagues, (2019) provide a case that illustrates the effect that a non-normative event might have on family cohesion. A family, one of whose members (the father) was threatened during the 9/11 attacks, experienced several changes in distances and boundaries between its members over a six-week period. Eventually, the family found itself in a new state of cohesion representing a detectable change from the initial state prior to the destruction of the Twin Towers.

Involving families directly, the mandatory home confinement ordered since the first months of 2020 in many countries of the world in response to the rapid progression of the COVID-19 pandemic is one of those events likely to have an impact on family cohesion. In the absence of a vaccine or effective antiviral to counter the pandemic (D Sleator, et al., 2020), the quarantine was widely imposed (Koh, 2020; Hamzelou, 2020; Block et al., 2020). Millions of families on five continents around the world were forced to stay home all day for months at a time. Beyond the example presented, the measure has the particularity of directly affecting, from the outset, family distances and boundaries, at least the physical ones. The residential criterion so important in the construction of the 'standard' family (Burgess & Locke, 1945; Bales & Parsons, 2014; Sharma, 2013) seems to become even more important. In the context of an increasingly fluid, mobile, nomadic, networked, distributed, delocalized, outsourced social life (Giddens, 2013, 2003; Castells, 2011; Bauman, 2000, 2013; Urry, 2002a, 2002b, 2012; Trask, 2013), a sudden

physical disconnection from the outside world(s) forces families to conduct the most localized and immediate social life available, one almost entirely devoted to family life at home.

As a result of the COVID-19 lockdown, the individual's open physical and social space was more or less closed within the confines of the social space of the family and the physical space of the residence. Most connections to the outside world (including work, school, and shopping) are now done remotely or more remotely (Dwivedi, et al., 2020; Garbe, et al., 2020; Dong, et al., 2020; Bhatti, et al., 2020). Time has become exclusively familial: "This difference in time (which) punctuates the majority of family lives by alternating moments of distance - the day, the week, working hours - and moments of proximity - evenings, weekends, vacations" (Hachet, 2018) is no more. The importance of this 'experiment', then, is that it brought people home, reversing 'the growing tendency of family members to spend less and less time together' (Lehto et al., 2012), a tendency that has contributed, as Rainie & Wellman, (2012) mention, to the weakening of the physical unity of families.

Would the experience of intensified family time/contact generated by home confinement put the family in crisis? Would proximity affect family cohesion?

Compared to other pandemic-related experiences (loss of work, illness, death...), the experience of quarantine may not be the most painful, but it is certainly the most profane and widespread (common). If for an idealist this experience could be a golden opportunity to revive the traditional, close-knit family from its ashes, the sociologist sees it as a real test for the modern family based on the autonomy of its members and the distance between them.

Sociology of the Detached Family

Based on more or less contrasting concepts and analyses, sociological theory on the family reports the same creative process of the modern family: individualization. For Durkheim (1921), as family communism weakened, each member of the family now has a distinct individuality and its own sphere of action: family solidarity has become interpersonal solidarity. Burgess & Locke, (1945) consider that the family loses all signs of social institution and turns into an association of people (companionship) who interact for their needs and wants. Family issues are now psychological issues that are resolved through individual efforts or with the help of consultants on marriage and family matters. Urbanization and geographic mobility have reduced family and community surveillance over individuals (Rosenfeld, 2007; Klinenberg, 2013; Tillman, et al., 2019). Beck & Beck-Gernsheim, (2002) emphasize the growing importance of individual autonomy from institutional orientations and links with traditional values and norms, including those of the traditional family: individuals are forced to construct their own biography and not submit to a standard biography. In daily domestic life, family members spend less time physically together in the same room and even in the same house (Turcotte, 1986). Beck and Beck-Gernsheim (2002) refer to the family as a "zombie category", dead but still alive. Hoffmann-Nowotny (1991, 1995) even predicts the "end" of the family and the society of loners. The surge in the number of one-person households worldwide due to delayed or declining marriages, increasing divorce, and growing geographic mobility (OECD, 2013; Yeung & Cheung, 2015) is one aspect of this. The family at a distance (Holmes, 2010), translocal (Baldassar, et al., 2007) and transnational (Barou, 2001; Baldassar, et al., 2007; Beck & Beck-Gernsheim, 2014; Acedera & Yeoh, 2019) is another. In the same way, if for some (e.g. de Singly, 1984; Kaufmann, 1994; Hiekel, et al., 2014) cohabitation "does not really represent an alternative way of life but rather a new sequence in the conjugal cycle" (Kaufmann, 1994), for others (e.g. Roussel, 1989; Clarkberg et al., 1995; de Singly, 1996) its rise expresses this quest for ephemeral, easily unravelled links, preserving as much as possible the individual's individuality.

In the background of this individualization of the family, the weight of the extra-familial in general and the extra-domestic in particular is very important. The modern family, characterized by the abandonment of most of its traditional functions (Ogburn, 1938; Burgess,

1948; Cooper, 1971), had to support/accompany its members in the extensions of their existence outside the home, extensions that determine their success and its own success. Individual biographies are now much less subject to the institution of the nuclear family than to the directives and rules of the labor market, the welfare state, and the education system (Beck & Beck-Gernsheim, 1995; 2002). Individuals are invited to live a "life of their own", beyond their ties to the family or other groups, and they are pushed to free themselves from these ties and to act without taking them into account (Beck & Beck-Gernsheim, 2004). While individual engagement is increasingly moving towards concerns about privacy (Hirshman, 1982), this is no longer limited to the family or domestic sphere. In a society whose model is fluidity and mobility (e.g. Bauman, 2000), "private life as it was traditionally conceived appears to be more of a confinement than a freedom" (Vitalis, 2002).

The evolution of the concept of intimacy reflects very well the importance of the extra-familial and extra-domestic for current family life, whether it is called post-modern (according to Shorter, 1975), individual (according to Dubar, 2000) or post-familial (according to Beck and Beck-Gernsheim, 1995; Beck-Gernsheim, 1998; Beck and Beck-Gernsheim, 2004). As early as 1977, Keiffer spoke of patched intimacy, an intimacy that reflects a complex pattern of relationships and experiences that extend far beyond family (Libby & Whitehurst, 1977). Later, Walsh's concept of distance intimacy reflected this tendency for children to move away from their parents as they grew older. Communication and support are maintained, but at some distance (Walsh, 1998). De Singly (2003) describes a transition from greater family intimacy to greater individual intimacy. According to this sociologist, men and women have become more individual and therefore less receptive to the cost of family life. This increasing individuality has made family intimacy difficult for many people to assume. Giddens (2013) uses the concept of pure relationship to express an intimacy, qualified as democratic, which leaves individuals wide margins of autonomy with respect to family sub-structures. It is, in the sense of Dubar (2000), an intimate identity that is realized in "the history of its uprooting from the family of origin, from traditional roles". Remote family intimacy, as a manifestation of increasing geographical mobility and other processes of individualisation, is becoming increasingly important at the expense of traditional close relationships (Holmes, 2010). In various forms, so-called 'online' intimacy increasingly competes with conventional 'offline' intimacy that relies on physical contact (Lomanowska & Guitton, 2016). Geographic research has established the concept of geographic non-exclusivity of intimacy, according to which the geography of intimacy is broader than domestic space and it is therefore inappropriate to believe that intimacy is achieved exclusively within the family (Valentine, 2008).

Reflecting a family based on the spacing of its members, such theses hint at the problematic nature of any situation that intensifies family life. Thus, although there is research that supports the importance of strong ties, especially in times of crisis and uncertainty (Krackhardt, 1992), home confinement (intensification of family life) can be problematic for the ideal-typical family cohesion, that of the separated family described by Olson et al., (1979; 1983).

The mandatory and widespread COVID-19 home confinement thus offers an exceptional opportunity to "test in vivo" this hypothesis of a negative impact of proximity on family cohesion. It also offers the opportunity to review a wide range of more or less contrasting counter-hypotheses. For example, those that emphasize the importance of weak ties (Granovetter, 1973; Montgomery, 1992), especially for certain categories of people (Torres, 2019). On the other hand, those contained in the rather controversial notion of cocooning implying a strong adaptation to the situation of "staying at home" and keeping the outside world at a distance (Popcorn, 1991) can also be questioned.

Contrasting Results of the Imposed Approximation

Early research to date on the impact of COVID-19 lockdown on the family provides more

or less contradictory results. For Collins (2020), the social distancing caused by covid-19 resulted in impacts on family solidarity ranging from negative to positive. On the negative side, Taub's (2020) article asserts a link between covid-19 home confinement and the increase in domestic violence in American society. What he calls "intimate terrorism" acts like a parasitic infection that thrives in confinement, as is the case whenever family members spend more time together. Tom & Chipenda, (2020), observing the Zimbabwean family, identify domestic violence as a manifestation of the discomfort caused by confinement endorsed primarily by the family unit. According to their analysis, domestic violence increased significantly during home confinement (90% overall increase from pre-confinement) due to both economic problems (income, food, rent, etc.) and prolonged time spent together under confinement. Studying the Bengali family, Derakhshani Hamadani, et al., (2020) found that COVID-19 lockdown exposed more women to intimate partner violence. All forms of violence (emotional, moderate physical, severe physical and sexual) increased.

The positive effects of confinement on family life and solidarity were no less significant. According to (Furedi, 2020), the COVID-19 lockdown has revealed the pre-existence of a real quarantine demand. For "many" people, staying at home is synonymous with assurance, comfort and security. A French study carried out by Kushtanina & Vinel, (2020) on a sample of 4,300 people showed that the crisis has reinforced the integrative role of the family. The COVID-19 lockdown was the occasion of a migration of single person households or roommates to a family household. There was a clear tendency to join the partner or family members. On the other hand, Carlson et al., (2020) reported a substantial increase among US couples in the sharing of child care and household chores during confinement. The same result was proven by Biroli et al., (2020) whose study covered Italy, the United Kingdom and the United States.

METHOD

In order to position oneself in relation to these "hypotheses", this article proposes to visualize, in relation to each other, the family cohesion and the implementation of COVID-19 home confinement. The variability of these two facts makes sense by relating them to "family models". The construction of these was based on the socio-economic, demographic and socio-spatial characteristics of the family. This makes it possible to refine the meaning of home confinement and to have an interpretation of the impact of proximity on family cohesion that takes into account the conditions in which family isolation takes place.

Data Collection and Preparation

The present research was conducted between April 30 and May 30, 2020, during the COVID-19 home confinement period that came into force in Morocco from March 20, 2020 (Official Bulletin of Morocco, Decree No. 2.20.293, March 24, 2020) and was extended twice before selective and progressive deconfinement began on June 10, 2020, see (Official Bulletin of Morocco, Decree No. 2.20.406 of June 9, 2020).

Failing to be able to perform a face-to-face investigation during COVID-19 home confinement, an electronic questionnaire was designed and disseminated in social networks using Google Forms. The online questionnaire, although self-administered, offered the opportunity to bypass health distancing and achieve the behavior questioned as it unfolds.

Observing Family Cohesion

A 7-item scale (Table 1) was designed to measure the variability of social cohesion compared to the normal pre-confinement situation. The individual is asked to give his or her response to each item on a 3-point Likert-type scale, "Less than before", "As much as before" and "More than before". A score was assigned to all family cohesion items (7 items). It was simply a matter of adding up the item scores and dividing the sum by the number of items.

Closer to Moos & Moos, (1981, 2013) than to Olson et al., (1979), the research considers that the higher the level of cohesion, the better. Olson's hypothesis of enmeshment is discarded. The increase in cohesion during COVID-19 house confinement is seen in absolute terms as a positive adaptation to the proximity imposed on family members. Therefore, the measurement criteria adopted were such that they should have an absolutely positive impact on the family in the event of an increase. The indicators/items, developed to be both simple and coherent with the quarantine context, were selectively inspired by the most famous family cohesion scales:

- The Family Adaptability and Cohesion Scale by Olson et al (FACE III) and its French validation (Tubiana-Rufi et al., 1991);
- The cohesion subscale of Bloom's Family Functioning Scale (1985) (Study III, Table III) based on the Family Environment Scale (FES) developed by Moos and Moos, the Family-Concept Q Sort (FCQS) developed by Van der Veen, the Family Adaptability and Cohesion Scale (FACES) and the Family Assessment Measure (FAM) both developed by Olson and his team;
- The cohesion subscale of the Brief Family Relationship Scale (BFRS) (Fok et al., 2014) based on the Family Environment Scale (FES) developed by Moos and Moos.

	Less than before 1	As much as before 2	More than before 3
Agreement between family members (including yourself) during confinement			
Emotional relationship (reciprocal care, expression of love, ...) between members of your family (including yourself) during confinement			
Communication between family members (including yourself) during confinement			
Involvement of family members (including yourself) in household chores during confinement			
Playing together, doing activities together during confinement			
Peace between family members (including yourself) during confinement			
Strength of the family bond after confinement will be			
Family cohesion (CF)	Weakened (CF-) 1-1.84	Unaltered (CF0) 1.85-2.15	Strengthened (CF+) 2.16-3

Defining Home Confinement

The analysis was also based on the following socio-family variables:

- Household size (number of individuals in the dwelling during quarantine).
- Geographic affiliation (Urban Family/Rural Family).
- Approximate family income in Moroccan Dirham.
- Type of dwelling.
- Surface area of the dwelling in m².

The concept of home confinement has been complicated by anchoring it in the family context. To this end, three synthetic variables known as family confinement densities were constructed:

- A temporal family density reflected by the degree to which family members respect the home confinement. This was directly measured based on a question on the degree of compliance with confinement with response on a 3-point Likert-type scale, “Non-respect/weak respect of confinement”, ”Moderate respect of confinement” and ”Total respect of confinement”;
- A physical family density characterized by one spatial variable (dwelling area), a second geographical (rural/urban) and a third morphological (family size);
- A material family density would rather define the material conditions of confinement. It is characterized, in our research, by two variables: type of housing and family income. These constitute indices for the quality of life or comfort during confinement.

If the temporal family density, as time spent between family members, is conjunctural and closely linked to the very meaning of confinement, the differences in the other two densities constitute socio-family categories that can condition both the confinement itself and family cohesion during the latter. Also, if temporal and physical densities rather define the level of proximity, apprehended spatially and temporally, material density determines both comfort and assurance, which is also the comfort of devoting oneself exclusively to one’s family. This study analyses the variability of family cohesion in relation to these three densities of confinement. The core variables were quantified and converted into synthetic categorical variables to express the research problem in terms of associations and similarities between “family confinement densities” and levels of family cohesion. Table 2 show the scores assigned to each of the core variables for conversion to synthetic variables.

Synthesis of the Material Density

The material density was synthesized based on the values associated with the variables of family Income in Moroccan Dirham and Accommodation type, see Table 2. Note here that the higher the family income and the better the type of housing, the higher the value of the material density. Let M_d be the average value of the value of family income plus the value of housing type, i.e. M_d is defined by the relation,

$$M_d = \frac{Value_{family\ Income\ in\ Moroccan\ Dirham} + Value_{Accommodation\ type}}{2}$$

The variable M_d is a quantitative variable that is unusable for MCA analysis. It must therefore be converted into a categorical variable. The categorization used is as follows:

$$M_d = \begin{cases} M_1: if\ M_d \leq 2 \\ M_2: if\ 2 < M_d \leq 4 \\ M_3: if\ M_d \geq 4 \end{cases}$$

The scale of the categorization was chosen so that the number of possible cases of M_d in the intervals $[1, 2]$, $]2, 4[$, $[4, 5]$ is equal (equal to 3).

Synthesis of the Physical Density

The variables that make up physical density are family size, the size of the dwelling and the family’s rural or urban context. Note here that the larger the space occupied by each individual, the smaller the physical density, and vice versa. Define P_d for each family as the average value of the core variables, i.e. let,

$$P_d = \frac{Value_{family\ size} + Value_{housing\ area} + Value_{Rural/Urban}}{3}$$

The variable P_d is categorized using the relation,

$$P_d = \begin{cases} P_1: \text{if } P_d \leq 2 \\ P_2: \text{if } 2 < P_d \leq 4 \\ P_3: \text{if } P_d \geq 4 \end{cases}$$

Table 2
CATEGORIES OF THE CORE VARIABLES AND THERE QUANTIZATION INTO NUMBERS

Family Physical Density				Family Material Density				Family Temporal Density						
Family size		Housing area in m2		Rural/Urban Family		family Income in Moroccan Dirham		Accommodation type						
Fam2	2	+200 m ²	1	R.Family	1	Low Physical Density (P1)	Inc0-3K	1	Slum	1	Low Material Density (M1)	Non-respect/weak respect of confinement	1	Low Temporal Density (T1)
Fam3-4	3	151-200m ²	2	U.Family	2		Inc3-6K	2	Apt	2				
Fam5-6	4	101-150m ²	3			Moderate Physical Density (P2)	Inc6-9K	3	Ind.Hse	3	Moderate Material	Moderate	2	Moderate Temporal
Fam7+	5	51-100m ²	4			High Physical Density (P3)	Inc9-12K	4	Villa	4	Density (M2)	respect of confinement	3	Density (T2)
		0-50m ²	5				Inc12-15K	5			High Material Density (M3)	Total respect of confinement		High Temporal Density (T3)
							Inc+15K	6						

The scale of the categorization was chosen so that the number of possible cases of P_d in the intervals $[1.33, 2]$, $[2, 3]$, $[3, 4]$ is equal (equal to 3).

Statistical Analysis

The data, thus prepared, were analysed using a Multiple correspondence analysis. This is a multidimensional statistical method used to visualize associations between the levels of the categorical variables (Husson & Josse, 2014). The objective of employing this statistical technique is to have a global view of the data which allows useful interpretations to be carried out. It consists in synthesizing tables presenting, in line, individuals and, in column, categorized variables, i.e. information on these individuals that take only a limited number of values (the modalities), not more than ten in general (Renisio & Sinthon, 2014). It supplies a plot of a set of points that represent each category of analysed variables, where the geometric distances between these points are interpreted as associations. It should be noted that “while the ACM highlights a system of differences, it makes particularly visible the differences related to the rarest and most distinctive modalities” (Duval, 2017).

In sociology, the analysis of multiple correspondences has been seen since its appearance as an essential tool for simultaneous processing of large data sets from the social world that are both varied and opaque. Bourdieu, one of the sociologists who clearly favoured this method, speaks of a particularly powerful means capable of bringing to light social spaces as relational spaces beyond the immediate visibility of the elements, whether they are individuals, groups, or properties (Bourdieu & Saint Martin, 1978). Boltanski et al., (1984), for example, used the MCA to structure the very complex social space of denunciation around agents (denouncers, victims, persecutors), links between them (family, friends, activist, ...), denounced behaviours, ways of denouncing, judgements of normality or abnormality brought to the denunciations/denouncers ... The sociologists who have used this method since the 1980s until today did so with this same Bourdieusian logic (Lebaron, 2009). Each time, the MCA was used to better describe and visually represent, in fairly suggestive diagrams, complex social spaces. Basically, these were forms of

social mapping making it possible to construct “homologies between the space of social groups and the spaces of practices” (Desrosières, 2008).

Technically, the coding of the data and the realization of the MCA was done using the computer software R version 3.5.3. For the analysis and visualization of the results, the package factoshiny was used.

RESULTS

1804 replies were received. 1730 were retained after elimination of one person households. 93.23% of respondents are Moroccans residing in Morocco. The average age of the participants is 29.60 years, the median is 27 years. 46.03% of the participants are women. 34.78% of them are wives/mothers. For men, 31.48% are husbands/fathers. Conjugal families (with or without children) represent 90.40% of all families. The others are extended families, respondents living with a parent or cohabitations (individuals living together without a marital or blood relationship).

In terms of physical and material family densities of confinement, the sample revealed the prevalence of average densities with 64.91% and 43.12% respectively. Families of 3-4 members represented 41.96% of the sample, those of 5-6 members 35.02%. The average size of households (including one-person households) is 4.35 persons. In terms of area, dwellings of 51-100m² represented 58.90% of the sample, those of 101-150m² coming in second place with 22.02%. Urban families account for 85.95% of the families surveyed. Most families (62.66%) have an income of less than 6 thousand dirhams, and only 8.90% of them have an income of more than 15 thousand dirhams. Most of the participants live in an apartment (49.31%) or a single-family house (46.70%).

Villas and shantytowns constitute a minority with respectively 2,66% and 5.55%. The temporal family density, which reflects the degree of compliance with confinement by family members, was very high. 79.42% of families showed full compliance with confinement, 18.96% showed relatively acceptable compliance, and only 1.62% reported strong to total non-compliance with confinement. Table 3 summarizes the degree of compliance with confinement by families according to their level of physical and material density.

All classes of families reported very high compliance and very low noncompliance. One could deduce that compliance with confinement is almost the same regardless of the conditions under which it takes place. This is particularly true for conditions related to physical density. For those related to material density, when we isolate each of the levels of confinement compliance, we find that the higher the density, the higher the confinement compliance and the lower the non-compliance. Material density has some impact, albeit limited, on confinement compliance.

Table 3
COMPARISON OF QUARANTINE RESPECT BETWEEN LEVELS OF THE FAMILY PHYSICAL AND MATERIAL DENSITIES

		Family Temporal Density (Respect of confinement)		
		Low (T1) (n=28; %= 1,63%)	Moderate (T2) (n=328; %= 18,96)	High (T3) (n=1374; %= 79,42)
Family	Low (P1) (n=49 ; %= 2,83)	2,04%	18,37%	79,59%
Physical	Moderate (P2) (n=1123 ; %= 64,91)	1,51%	19,68%	78,81%
Density	High (P3) (n=558 ; %= 32,25)	1,79%	17,56%	80,65%
Family	Low (M1) (n=782 ; %= 45,20)	1,92%	21,10%	76,98%
Material	Moderate (M2) (n=746 ; %= 43,12)	1,61%	17,43%	80,96%
Density	High (M3) (n=202 ; %= 11,68)	0,49%	16,34%	83,17%

Regarding family cohesion, 20.98% of families have registered a significant to great improvement compared to the pre-confinement period. 71.33% of them showed stagnation around the same level of cohesion as before confinement. Only 7.69% of families showed a clear

deterioration in family cohesion. Table 4 compares family cohesion according to different levels of density. It shows that it generally remained unchanged during confinement. Families of all classes maintained a level of cohesion almost equal to the usual level. The relatively small impact on cohesion is clearly pronounced as positive. It is more apparent in families that have fully respected the confinement, and in families with high material density. The negative effect appears to be more related to high physical density, low material density and non-respect of the confinement.

The relations between these four synthetic variables, detailed above, were visualized using the MCA. The plan (graph 1) made up of factor axes 1 and 3 which account for 16.52% and 13.51% respectively of the total inertia (variance of the main data) was used for the interpretation of the modality cloud. We excluded the 2nd axis which seemed to us, despite its inertia of 14.15%, less explanatory.

Table 4			
COMPARISON OF FAMILY COHESION BETWEEN LEVELS OF EACH OF THE FAMILY CONFINEMENT DENSITIES			
	Family cohesion seriously deteriorated (CF-) (n= 133 ; %= 7,69)	Family cohesion rather unaltered (CF+) (n= 1234 ; %= 71,33)	Family cohesion significantly strengthened (n= 363 ; %= 20,98)
Family Temporal Density (Respect of confinement)			
Low (T1) 28	17,85%	75,00%	7,14%
Moderate (T2) 328	11,59%	78,66%	9,76%
High (T3) 1374	6,55%	69,51%	23,94%
Family Physical Density			
Low (P1) 49	4,08%	75,51%	20,41%
Moderate (P2) 1123	5,88%	72,31%	21,82%
High (P3) 558	11,65%	69,00%	19,35%
Family Material Density			
Low (M1) 782	9,34%	74,30%	16,37%
Moderate (M2) 746	7,10%	69,17%	23,73%
High (M3) 202	3,47%	67,82%	28,71%

The first axis highlights a first principle of division based on the proportionality between densities and family cohesion. This fairly apparent proportionality manifests itself in the form of a relatively distinct distribution along the axis of three groups of typical densities, each with a cohesion structure characterized by a level of cohesion. The second axis expresses an opposition between stability and change in terms of family cohesion. The change, although very limited, is explained by extreme family densities (very poor or exemplary). Generally, we understand from the graph that quarantine has produced three relatively different groups of families in terms of their level of cohesion:

1. A group of good or ideal densities (families from wealthy social classes). Families in this group have recorded the lowest decreases and the best performances in terms of family cohesion (preservation and improvement).
2. A group of bad or critical densities (working-class families). This group was characterized by the largest decrease and the smallest increase in the level of family cohesion.
3. The group of moderate or average densities (middle-class families). Families in this group had CF-rates lower than those in the low-density group and higher than those in the high-density group. On the other hand, the rates of stabilization and increase in family cohesion (CF0 and CF+) were lower than those recorded for the good density group and higher than those recorded for the bad density group.

Although the three groups generally managed to maintain the usual level of family cohesion, there was a clear opposition between the ideal density group and the critical density

group with regard to the distribution of the 28.67% related to the deviation from the normal state of cohesion represented by CF0. It is also clear that there is a proportional relationship between the density class and the level of family cohesion. This indicates that there is an impact of the physical and material conditions of confinement on the level of family cohesion. The results also show an impact on family cohesion that differs from one density class to another. As for the decrease in family cohesion, the graph shows a greater effect of physical density. On the contrary, its increase is associated with a greater influence of material density. Thus, apart from the dominant situation, represented by the high respect for quarantine and the maintenance of the same level of family cohesion, characterizing the three classes of families, the characteristics of families which deviate from the average profile positively or negatively are clarified.

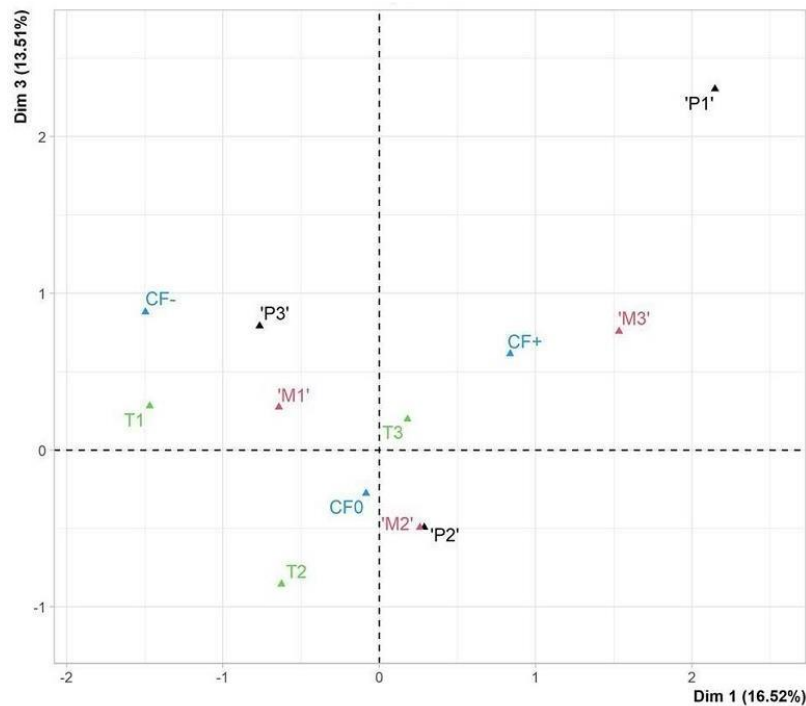


FIGURE 1
MCA

DISCUSSION

The results of this research revealed a marginal change in the level of family cohesion during COVID-19 home confinement (high temporal density). This change is rather positive at good densities of confinement and negative at bad densities. However, this symmetry contrasts relatively asymmetrical effects of each of the densities (physical and material) on family cohesion.

First of all, why has the high physical density led more to a weakening of family cohesion than the low physical density to its increase? The answer may be related to the need among members of the same family to have a distance between them that is acceptable and not necessarily great. Authors such as Baldassare (1981), Gormley & Aiello, (1982), Gover & Hughes, (1983), Fuller et al., (1993), Fuller et al., (1996) and Wells & Harris, (2007) have highlighted the psychological discomfort caused by high density inside the home. Hall (1966) and Hall et al., (1968) argued that overcrowding exacerbates spatial conflicts. Baum & Koman, (1976) found that spatial density would lead to aggressive behavior. During confinement, the problem was likely to be doubly problematic because of the increased use of domestic space,

which has undergone a domestication of activities that took place outside such as study and work. For families with high physical density, density reduction strategies based on the alternate use of domestic space (temporal division of domestic space) are no longer valid. Other strategies such as distance enhancing activities (Barton & Alexander, 1981) like reading, television and smartphones would be more likely to be adopted by members of affluent families with relatively high cultural and economic capital. For the Moroccan family, whether poor or wealthy, there is one particularity that stands out. Individuals are generally socialized to have no real space of their own within the very shared family sphere (Petonnet, 1972). This Moroccan "archetype" probably helped to mitigate the harmful effect of overcrowding during confinement.

The relatively asymmetrical effect was also found in the increase in cohesion in families with high material density more than in its decline in families with low material density. The explanatory elements are evident in the socioeconomic factors linked to job security, financial security and the degree of activation of solidarity mechanisms during the period of health emergency.

For families belonging to privileged social groups, adult work and the education of young people are maintained and guarantee the pursuit of family goals. A study on executives of Moroccan companies (Rekrute, 2020) showed that, compared to 56% of executives in telework, 24% who still work from their desks and 8% on paid leave, only 6% of executives were on leave without pay. Given their significant cultural capital and their ability to easily access the digital media in place, wealthy families are better prepared to adapt to the demands of distance education. At this level, private schools which welcome children from well-off families recorded regular attendance rates for distance learning courses in primary and college cycles, which reached 81% and 84% respectively, against 42% and 48% respectively in the public sector which usually welcomes children from the lower classes (See: HCP, April 2020 (b)). Teleworking and teleschooling have probably given members of wealthy families the opportunity to spend more time together and exchange care and attention. Sufficient savings and quickly built up food supplies would have given these families a sense of security. Admittedly, they cannot be completely spared from the general tension linked to the risk of a catastrophic development of the economic situation due to the pandemic. But it is this same general and probabilistic nature of the problem that could neutralize the impact of the health crisis on the "psyche" of families still far from the direct threat.

For families belonging to the lower classes, the economic recession linked to the implementation of the health emergency was more keenly felt. According to a study by the Office of the High Commissioner for Planning (Morocco) carried out at the beginning of April 2020, nearly 142,000 companies, *i.e.* 57% of all companies, declared that they had permanently or temporarily stopped their activities (HCP, April 2020 (a)). According to the same study, the impact on employment was negative: 27% of companies should have temporarily or permanently reduced their workforce. Nearly 726,000 jobs, excluding the financial and agricultural sectors, would have been reduced, *i.e.* 20% of the workforce of organized businesses. In another HCP study conducted from 14 to 23 April, 44.3% of households belonging to the poor class versus 10.2% of households belonging to the well-off class claimed to have no source of income due to the cessation of their activities during the period of confinement (HCP, April 2020 (b)). In relation to their financial situation, the same research shows that for 38% of households, income just covers expenses, 22% draw on their savings, 14% resort to debt and 8% rely on state aid to cover their daily expenses. The support that families have received is not exclusively state aid. 44.5% of households received at least one transfer from the State, other households, NGOs, public or private institutions, etc. (HCP, 2020 (b)). Although this aid is not sufficient to compensate for the loss of income according to 72% of households (HCP, 2020 (b)), it has certainly enabled the most disadvantaged families to withstand more than three months of confinement. The interruption of economic activity could have had a negative impact on relations within poor families if social and institutional mechanisms of solidarity had not been generated by the crisis.

CONCLUSION

In this paper, we have studied the impact of home quarantine on family cohesion. The results, which contradicted our theoretical claims, revealed a confined family that is very capable of coping with greater closeness among its members. The MCA allowed us to discover the locations and limits of both the positive and negative impacts of confinement on family cohesion. The places of positive and negative influence correspond to densities reflecting rather a belonging to families of the privileged and vulnerable classes, respectively. The limits of the impact reflect the marginal effect on the family bond of a confinement that lasted about three months. For a longer duration, we can, contrary to our results, keep the hypothesis that too much proximity can be generally detrimental to family cohesion. But this hypothesis, although theoretically acceptable, will always need empirical verification.

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