

**MAINTAINING CHANGES IN AN EVIDENCE-BASED  
FAMILY PREVENTION PROGRAM.  
A LONGITUDINAL STUDY OF FAMILIES**  
**EL MANTENIMIENTO DE LOS CAMBIOS EN UN PROGRAMA DE PREVENCIÓN  
FAMILIAR BASADO EN LA EVIDENCIA.  
UN ESTUDIO LONGITUDINAL DE FAMILIAS**  
**MANTER AS MUDANÇAS NOS PROGRAMAS DE PREVENÇÃO DA FAMÍLIA  
COM BASE EM EVIDÊNCIAS. UM ESTUDO LONGITUDINAL DAS FAMÍLIAS**

Carmen ORTE SOCÍAS, Lluís BALLESTER BRAGE, Rosario POZO GORDALIZA  
& Margarita VIVES BARCELÓ  
Universitat de les Illes Balears

Received date: 27.II.2015  
Reviewed date: 13.III.2015  
Accepted date: 27.VII.2015

**KEY WORDS:**  
family prevention  
evidence-based  
prevention  
programmes  
family education  
Cox regression  
longitudinal follow-up

**ABSTRACT:** The purpose of this research is to know if the changes obtained in the family competence, by participating in the Family Competence Program, remain the same after two years of the end of the program. Methods of survival analysis are an important instrument in the follow-up studies. In our 24-month follow-up research, the "family competence" aggregated effect is expected to last along the two years for an important amount of the participant families in the Family Competence Program (FCP, Spanish adaptation of SFP). We would like to know how different key components of the program influence on the factor "family competence". This variable is understood as an aggregation of protection factors that have been significant in family selective prevention research. Family competence is understood as a complex factor based on a positive family dynamic. Conjoint analyses. Sample: 155 families at risk. Evaluation of family results, using Spanish validated instruments (BASC and Kumpfer's family competence questionnaires). Design is quasi-experimental, with control group and rigorous control of potential biases. 155 families were followed up along 24 months, with a longitudinal analysis initiated in the beginning of the Family Competence program sessions. Cox regression is used since it allows seeing the influence of the predictors in the presence or absence of a positive event (in our case the presence of family competence). The aggregated analysis, based on Cox's regression, offers satisfactory results of family competence of 24-month duration (after finalisation of FCP).

CONTACT WITH THE AUTHORS: Carmen Orte Socías: Universitat de les Illes Balears. Ed. Guillem Cifre de Colonya. Crta. Valldemossa Km 7.5. CP: 07122. Palma, Illes Balears. Correo Electrónico / E-mail: [carmen.orte@uib.es](mailto:carmen.orte@uib.es).

<p><b>PALABRAS CLAVES:</b> Prevención familiar programas basados en la evidencia científica educación familiar regresión de Cox seguimiento longitudinal</p>	<p><b>RESUMEN:</b> El propósito de esta investigación es conocer si los cambios obtenidos en la competencia familiar, en las familias participantes en el Programa de Competencia Familiar, se mantienen después de dos años de haber finalizado el programa. Los métodos de análisis de supervivencia son una herramienta imprescindible en la investigación longitudinal. Cualquier estudio que implique seguimiento tiene una duración establecida –en nuestro caso: 24 meses–. Se espera que el efecto agregado, denominado “competencia familiar” se mantenga al final de los 24 meses para una parte apreciable de las familias que han participado en la adaptación española del SFP (7-12). Se desea saber cómo influyen una serie de factores clave del programa sobre la variable “competencia familiar”, entendida como un agregado de factores de protección que se han mostrado significativos en los estudios de prevención selectiva familiar. La muestra estaba compuesta por 155 familias en situaciones de riesgo. Se cuenta con las evaluaciones de resultados de las familias, establecidas a partir de instrumentos validados para la población española (BASC y cuestionarios de competencia familiar de Kumpfer). Los instrumentos utilizados tienen una modalidad para padres y otra para hijos. El diseño es cuasi-experimental, con grupo de control y rigurosos controles de las posibles fuentes de sesgo. Las 155 familias fueron seguidas a lo largo de 24 meses, a partir del análisis longitudinal realizado desde el inicio de la aplicación de las sesiones del PCF.</p> <p>Procedimiento. Se ha utilizado el método de la regresión de Cox el cual permite ver la influencia de predictores en la presencia o ausencia de un suceso positivo (en nuestro caso, la presencia de competencia familiar). El análisis agregado, basado en análisis de supervivencia (regresión de Cox), ofrece resultados satisfactorios de mantenimiento a 24 meses después de finalizar la participación en el SFP, de la competencia familiar, entendida como un factor complejo basado en la dinámica familiar positiva. Dicotomizando dicho factor, se pueden identificar las variables que lo explican, es decir la presencia de competencia familiar en función de un conjunto de factores relevantes. Con el factor sobre la competencia familiar se puede trabajar produciendo una variable dicotómica basada en todos los casos de pérdida de competencia familiar, entre 2009-2010 y 2012-2013 (primer nivel de la dicotomización), así como todos aquellos casos de familias en los que se ha producido mantenimiento de la competencia o mejora de la misma (segundo nivel de la dicotomización),</p>
<p><b>PALAVRAS-CHAVE:</b> Prevenção familiar programas baseados na evidência científica educação familiar Regressão de Cox acompanhamento longitudinal</p>	<p><b>RESUMO:</b> O objetivo desta pesquisa é saber se as mudanças obtidas na competência familiar, no seio das famílias que participam do Programa de Competência Familiar, permanecem após dois anos do final do Programa. Os métodos de análise de sobrevivência são uma ferramenta essencial na investigação longitudinal. Qualquer estudo que envolva o acompanhamento tem uma duração pré-determinada: no nosso caso é 24 meses. Espera-se que o efeito agregado, chamado de “competência familiar” permaneça a partir do final dos 24 meses numa proporção significativa de famílias que participaram da adaptação espanhola do SFP (7-12). Pretende-se saber como influem uma série de factores-chave do programa sobre a variável “competência familiar”, entendida como um conjunto de factores de protecção que mostraram-se significativos nos estudos de prevenção seletiva familiar. A amostra foi composta de 155 famílias em situação de risco. Se conta com as avaliações de resultados de famílias, estabelecidas a partir de instrumentos validados para a população espanhola (BASC e questionários de competência familiar de Kumpfer). Os instrumentos utilizados têm uma modalidade para os pais e uma outra para as crianças. O desenho é quase-experimental, com um grupo de controlo e controlos rigorosos das possíveis fontes de desvios. As 155 famílias foram observadas ao longo de 24 meses a partir da análise longitudinal realizada desde o início da aplicação das sessões do PCF. Utilizou-se o método de regressão de Cox, que permite ver a influência dos preditores na presença ou ausência de um evento positivo (no nosso caso, a presença de competência familiar). A análise agregada, com base na análise de sobrevivência (regressão de Cox), fornece resultados satisfatórios de manutenção 24 meses após da conclusão da participação no SFP, da competência familiar, entendida como um factor complexo baseado em dinâmicas familiares positivas. Dicotomizando este factor, é possível identificar as variáveis que o explicam, ou seja, a presença de competência familiar com base num conjunto de factores relevantes. Com o factor sobre a competência familiar pode-se trabalhar produzindo uma variável dicotómica com base em todos os casos de perda de competência familiar, entre 2009-2010 e 2012-2013 (primeiro nível de dicotomização) e todos os casos de famílias que vem mantendo a competência ou a melhora dela (segunda nível da dicotomização).</p>

## 1. Introduction

The influence of the family on the behavior of children, including problem behaviors, is endorsed by decades of empirical research, as stated by Kumpfer, Olds, Alexander, Zucker & Gary (1999). In this sense, negative parenting practices can have very

important consequences for the development of risk factors (Burke, Brennan & Cann, 2012; Bowlby, 2005) and the development of problem behaviors such as drug use, early sexual activity antisocial behavior and criminality. From a positive perspective, families can lead the prosocial behavior of their children and protect them from various situations

and problems throughout their development through positive parenting.

The literature on this issue is broad and diverse in terms of the theoretical framework from which it is contextualized (Waller et al. 2014). Competent and positive parenting or education includes a wide range of tasks and functions tailored to the developmental stage of children which is, moreover, culturally appropriate. Parents carry out these activities in order to socialize their children, guide them and reduce problem behavior through different developmental stages. Effective relationships between parents and children are characterized by including high levels of protection, care and education, which some authors define as the fulfillment of basic needs, including emotional and economic security, adequate guidance, setting limits, monitoring, stimulation and stability, and the use of control strategies and support through the development of rules. This is indicated by Sandler, Schoenfelder, Wolchik & MacKinnon (2011), reviewing 46 random experimental longitudinal studies of prevention programs, and in relation to the promotion of effective parenting. However, there are differences among researchers on which aspects of parenting have a more positive influence on the development of young people; the emotional attachment, self-regulatory capacity, positive parent-child relationships and positive reinforcement are mentioned, among others.

Parental factors are grouped under the concept of positive parenting, a general term that brings together different parental behaviors including warmth and sensitivity, proactive environmental structuring, setting limits and the use of contingent support. Positive parenting is a strong factor that has demonstrated its influence on the behavior of young people through many investigations of research of rigorous designs. They have their origin in the work of the classical research of Baumrind (1966, 1967, 1975, 1991) on the concept of positive parenting, starting from research on educational styles of parents through which the parents' behavior and development of the instrumental skills in children are linked.

From the scientific point of view it is considered that, in order to promote positive parenting and adjustment, prevention would be the best way to do it. In this regard, the current theoretical models underlying the preventive proposals consider the analysis of risk and protection factors from a perspective in which both the weaknesses that put the individual at risk, as well as the strengths, which balance and protect against these factors, are analyzed. These are proposals in which the positive elements of the individual and its environment, with special emphasis on

the family, stand out and are reinforced (Fores & Crane, 2008; Grotberg, 2003; Orte, 2013; Werner, 2012). In situations of vulnerability, the development of resilience, or of the successful adaptation despite risk and adversity, it is a very important approach in the development of prevention programs aimed at different areas, problems and situations. These are resilience oriented models, whose origin is based on the results of longitudinal studies of several authors, such as Garmezy, 1974; Werner & Smith, 1982; Rutter, 1987; Brounstein & Zweig, 1999. These authors analyzed the protective factors present throughout the evolutionary development of children and youth, who had not developed deviant behaviors despite the high risk situations and dysfunction that had been present in their lives.

The results of these studies also provide guidance for the best conditions for carrying out preventive programs: they should be conducted as soon as possible with multicomponent strategies and with the most vulnerable groups, in the moments of evolutionary development in which the strengthening of positive adaptation results in the greatest possible benefit. This has been collected over decades of research on this issue (Center for Substance Abuse Prevention, 2000; Gomez & Kotliarenco, 2010; National Institute on Drug Abuse, 2004; Orte, 2000, 2008).

From the point of view of intervention and as discussed above (Orte, Ballester and March, 2013; Orte, Ballester, Amer & Vives, 2014), our proposal is articulated through socio-educational family intervention programs based on scientific evidence, as the best option to prevent the possible onset, progression and development of problem behaviors in children. This would be both for its ability to influence itself and for its presence and ability to adapt to different evolutionary moments of the children and their own family and durability over time. Working with the family as a whole, enables the development and strengthening of targets at the same time for several of the comprised subsystems: parents, children and family using multicomponent prevention programs, and with greater possibilities for positive changes in the interventions. These programs have a social and educational approach which produces a greater integration of changes based on both the skills that are taught, practiced and integrated into the daily life of the family, and on the cognitive and emotional reformulation. The Family Strengthening Programs are preferable to those oriented toward children, because strong families and efficient parents are essential for the prevention of child and youth problems (Kumpfery Alvarado, 2003;). Moreover, they are preferable because the evidence shows

that strengthening the entire family often has a longer lasting impact on the child and has been useful in reducing emotional and behavioral problems (Kumpfer & Johnson, 2007; Mercer, 2006; Oliva, Morago & Parra, 2009). Thus, we are talking about socio-educational intervention programs with families, based on scientific evidence that have certain characteristics: they affect the entire family, they are based on interactive processes of change of skills and behaviors which are initiated from meetings aimed at enhancing the positive feelings in the family, family values are enhanced, methods of communication and discipline techniques are used and the involvement of the family is encouraged by removing obstacles to their attendance (Kumpfer & Johnson, 2007).

One notable feature of the prevention is that it works, it is useful to prevent the onset and development of problem behaviors, only if preventive actions for specific target groups are carried out, within the framework of the types of programs that have demonstrated efficacy. From this perspective, the GIFES-UIB Group has undertaken the implementation of the Family Competence Program (Kumpfer, 1998) for Spanish population, who we refer to in this paper. The Family Competence Program (FCP) is an adaptation of the Strengthening Families Program (SFP) (Kumpfer & DeMarsh, 1985; Kumpfer, DeMarsh & Child, 1989) adapted in Spain by GIFES. It is a program of prevention of risk factors, multicomponent, of selective type, whose original design was developed to reduce the influence of family risk factors in children of drug addicts, while protective factors are reinforced, in order to increase their resilience to consumption and other possible problems (Kumpfer, Fenollar & Jubani, 2013).

The SFP is a family prevention program recognized as effective in preventing problem behaviors, including alcohol and drugs by various prestigious institutions. Thus, the Substance Abuse and Mental Health Services Administration (SAMHSA), which include quality criteria such as fidelity to the intervention, evaluation of the process, measurement of the outcomes of change of behavior and the validity of the measurement procedures, recognized it as a model program. Other relevant scientific institutions in the field of evaluation of evidence-based programs place it among the best in the category of prevention programs that work (Orte, 2013).

The applications of the program made by GIFES, have focused on the prevention of drug use and other problem behaviors in various contexts, especially in *Proyecto Hombre* in Spain, as well as social services of primary care and child protection services. The data of the maintenance of family competence we are referring to here are

based on a longitudinal study of 24 months. At the same time, they are part of a larger research work based on monitored applications in social services, between 2009 and 2011, as follows:

The design and research of FCP has three stages in Spain:

- Initial experimentation: 2005. Transversal design based on applications of 14 sessions and pre- and post measures.
- Generalized applications at drug prevention services, social services, primary care and child protection services, with corrections after the initial experimentation: 2006-2011. Transversal design based on applications of 14 sessions and pre- and post measures.
- Longitudinal design: 2011-2013. The analysis conducted are completed with a two-year follow-up of the participating families. In 2011, data from families that ended the program in 2009 were taken; in 2012, data were taken from families that ended in 2010; and in 2013, data were taken from families that ended in 2011, which were the last applications.

The adaptation of the SFP carried out by GIFES (Orte & GIFES, 2005a, 2005b; Orte, Touza & Ballester, 2007) has sought to achieve quality standards, so that, in the FCP or the Spanish adaptation, a pretest-post-test evaluation design was used for the control groups, complemented by general process measures based on a process-results evaluation. These evaluations have focused on the results and the developed processes. The data presented here relate to the maintenance of results in medium to long term (2 years) of the FCP. The importance of the results from longitudinal studies are part of the quality criteria of prevention programs based on evidence. It is therefore valuable in themselves and in the current reference context of family prevention results. Both in Spain and in Europe, these studies are almost nonexistent in this area of accreditation of long-term changes from the application of family intervention programs based on scientific evidence along with renowned authors and with experience in the field, such as Haggerty, Skinner, MacKenzie & Catalano (2007).

## 2. Objectives

The first objective is to consider whether the aggregate effect of family competence has remained after two years of the involvement in the program of family competence (Orte et al., 2015). The aggregate effect is obtained from the scales on family organization, parent-child relationships and positive parenting.

The second objective is to analyze the influence of family competence factors, such as vulnerability, age of the parents and children and participation in the program.

### 3. Methodology and procedure

Longitudinal designs are used to study the process of a change related to the passing of time. A longitudinal design of 24 months was chosen to obtain repeated measures of family competence, assessed in three main areas related to the characteristics of multicomponent FCP:

- family dynamics;
- positive parenting;
- behavior of children.

The study combines pre-test and post-test evaluation, linked to the experimental participation in the FCP (or in the checks) as well as in the subsequent evaluations. Originally, a quasi-experimental multigroup design was carried out with pre-test and post-test measures, as well as a non equated control group. The longitudinal treatment consisted of a third data collection, two years after the end of each of the applications of the FCP. That is, a long-term post-test is included. The rigorous control of the experimental conditions (elimination, constance of the conditions), in all applications and in the longitudinal monitoring, permits the treatment of the various experimental groups as a single group with various applications,

even though *Proyecto Hombre* (PH) and Social Services (SS SS) have always considered them separate groups. The checks carried out during the experiences are different. Different disturbing variables were removed (transport difficulties, child care for minor children, etc.). The experimental conditions have been maintained through direct control by members of the research team: the fidelity of the program for each application is evaluated, the length of the sessions is controlled, environmental conditions of rooms remain constant, etc. The same instruments are used in two data collections conducted according to the same protocol, including all participating subjects. As it regards the controls used in the monitoring, a whole range of difficulties have been taken into account. They have always made contacts from the involved professional reference services (PH and SS SS), neutralizing the strangeness of the participants facing the new contact. Data collection and protocols were carried out with the same instruments, scaled by age in the cases where diagnoses are made.

With respect to the sample, first we indicate the criteria for inclusion and exclusion of families and the description of the families that took part in the program of family competence and of which we have carried out a follow-up assessment with repeated measures. The inclusion and exclusion criteria maintained over three takes of data are given in Table 1:

	Parents	Children
Inclusion	<ul style="list-style-type: none"> <li>• Open expedient in PH or SS SS.</li> <li>• With dependent children between 8 and 12 years.</li> <li>• Motivated to participate in the experience.</li> <li>• With a reasonable level of attention and cooperation.</li> <li>• Being able to participate in group work sessions of 2 hrs, once a week for 14 sessions.</li> </ul>	<ul style="list-style-type: none"> <li>• Whose parents participate in the group experience.</li> <li>• Who are between 8 and 12 years old.</li> </ul>
Exclusion	<ul style="list-style-type: none"> <li>• Active drug addiction that affects their judgment.</li> <li>• Presence of unstabilized mind symptoms.</li> <li>• Evidence of intellectual disability.</li> <li>• Severe attention deficit.</li> </ul>	<ul style="list-style-type: none"> <li>• Non-acceptance of the program (FCP).</li> <li>• Severe drug addiction that affects their judgment.</li> <li>• Presence of unstabilized mind symptoms.</li> <li>• Evidence of intellectual disability.</li> <li>• Severe attention deficit.</li> <li>• Severe behavior problems.</li> </ul>

The experimental group of PH consisted of 73 families that had completed the FCP during 2009-2011, of which 63 families could be followed effectively, i.e. 86.30%. Follow-ups have been considered in the last quarter of 2012 and the first of

2013 for those families who completed the program in 2011. The experimental group of PH comprised 11 applications of the Family Competence Program, conducted in 11 cities in Spain between 2009 and 2011.

The experimental group of SS SS consisted of 217 families, which had completed the FCP during 2009-2011, and of which 92 families (42.40%) collaborated. This group comprised 29 applications of the Family Competence Program, carried out in 17 municipalities or zones of Mallorca, between 2009 and 2011. In 2009, 11 applications were made and 68 finalized the entire program. During 2010

and 2011, 9 different applications were made each year, so that 80 and 69 families completed the program, respectively.

Table 2 summarizes the most important data of the analyzed sample. Altogether there are 155 families (53.45%), a significant volume of original experimental groups.

**Table 2. Monitoring of the participating families**

	Start FCP	End FCP	%	Monitoring	% (end FCP)
<b>Families of PH</b>	87	73	83.91%	63	86.30%
<b>Families of SS SS</b>	292	217	74.32%	92	42.40%
<b>TOTAL</b>	379	290	76.52%	155	53.45%

In both types of services, there were control groups of families with the same features of the participants of the FCP experiences. The characteristics of the experimental group and the control group were significantly similar. Over the entire study, 181 families have been evaluated, without making a bias selection at any moment of the monitoring. The loss of the families who participated in the experimental processes has been caused by several factors:

- changes of residence and sometimes cities or countries without informing the reference services;
- abandonment of work processes, wanting to keep distance with the reference services;
- loss of motivation in relation to the evaluation process, considering that they have already made contributions of sufficient data.

This set of factors explain the reduction of the potential sample but, nevertheless, there has

been a very important collaboration of the families that participated in one way or another (experimental or control) in the FCP.

The average age of the parents of PH who completed the follow-up was 40.28 years (DE = 3.985), while that of the children was 12.38 years (DS = 2.472). The average age of the parents of the control group was 41.11 years (DE = 5.645), and of the children it was 12.00 years (SD = 2.197). The differences are not significant either for the parents or for the children. The average age of the parents of SS SS who completed the follow-up was 41.46 years (DE = 7.952), while that of the children was 11.25 years (DS = 1.942). The average age of the parents in the control group was 38.82 years (DS = 13.220) while of the children it was 9.65 years (DE = 1.539). The differences are not significant either for the parents or for the children (see Table 3).

**Table 3. Average ages of the participating families**

PH	Children	Est. Dev.	Parents	Est. Dev.
Experimental	12.38	2.472	40.28	3.985
Control	12.00	2.179	41.11	5.645
<b>TOTAL</b>	<b>12.33</b>	<b>2.435</b>	<b>40.38</b>	<b>4.193</b>
<b>SS SS</b>	<b>Children</b>	<b>Est. Dev.</b>	<b>Parents</b>	<b>Est. Dev.</b>
Experimental	11.25	1.942	41.46	7.952
Control	9.65	1.539	38.82	13.220
<b>TOTAL</b>	<b>11,17</b>	<b>1,923</b>	<b>41,46</b>	<b>8,676</b>

Regarding gender, 53.97% of the children who formed the experimental group of PH are female, while in the control group the percentage is 88.89%. The criteria for the inclusion of families and voluntariness have limited the capacity to broaden the representation of male children in the control group. With regard to the experimental group of SS SS, 33.70% of the children are female, while in the control group the percentage is 52.94%.

Regarding the instruments used for the analysis of changes in the families, two questionnaires from Kumpfer's family competence were used (Orte, Ballester & March, 2009), for parents and children, validated by GIFES for the Spanish population. System questionnaires assessing the behavior of children and adolescents (BASC) (Reynolds & Kamphaus, 2004), validated for Spanish people, were also used. Moreover, a questionnaire of FCP assessment, as well as of the evaluation of various factors (trainers, materials and sessions, achieved change) was applied too. This questionnaire includes open-ended questions that are asked in a face to face interview with the interviewer (Orte & GIFES, 2013).

The procedure followed for the observation of results, both for parents and children, is structured according to the comparisons between the starting position (pretest) and the final one (posttest at the end of the FCP and at present) of the experimental group. This was carried out only after having compared it with the control group, through variance analysis, using all considered factors. To establish the significance of the results, differences between the situation at the end of the FCP and the current situation of the parents and children group who have completed the program and could be contacted during the year 2012 were considered more prominently. Nevertheless, the referred analysis is not the objective of this paper and can be found in other publications (Orte et al., 2015).

In the presentation of the results we distinguish the two types of services, starting with PH and then presenting the results of SS SS. We have also considered first the differences between the situation at the end of the FCP and the current situation, followed by the differences between the experimental group and the control group in the current situation. The analysis are based on comparisons between data collections, as well as on contrasting models of change-maintenance of the effects. For the objectives of this article we

will refer to the survival analysis based on the COX regression, to ensure that the families have maintained the positive effects or have improved them, 24 months after the end of their participation in the program.

#### 4. Results

The survival analysis methods are an essential tool in longitudinal research. Any study that implies a follow-up, has an established duration, in our case: 24 months. According to the objectives, it is expected that the aggregate effect, called "family competence", is kept at the end of 24 months, for a significant part of families that participated in the FCP. For those who do not keep that effect of the FCP, we do not actually know when this effect disappeared, but we know which has been the loss of effects that has occurred over the 24 months under review.

When a survival analysis is done, what we want to know, in the present research, is how a number of factors influence the "family competence" variable. The most commonly used method to solve this problem is the COX regression, since it has the great advantage that it is not based on modeling a predetermined survival curve. In fact, this model has no predefined survival curve, but it allows to see the influence of the response predictors (Taucher 1999).

A key element to understand and interpret these methods is the concept of rate ratios in a particular time span. This research takes 24 months, counting from the end of the FCP. These rates are called hazard rates. The quotient or ratio between 2 temporary rates is called hazard rate ratio (RR). This ratio is obtained through the exponential coefficient of the ordinary COX regression  $RR = \text{Exp}(B)$ .

Normally, it is used for the temporary analysis of the occurrence of certain negative events to predict its occurrence, but it can worked with the presence or absence of a positive event (in our case, the presence of family competence). The aggregate analysis based on survival analysis (COX regression), provides satisfactory maintenance results, 24 months after completing the participation in the FCP, of the family competence, understood as a complex factor based on positive family dynamics. Dichotomizing this factor, one can identify the variables that explain it, i.e. the presence of family competence based on a set of relevant factors (Table 4).

<b>Table 4. Factors considered in the family competence index</b>	
Factors related to parents	Factors related to children
Factor 1 Family resistance	Factor 1 Family implication
Factor 2 Relation between parents and children	Factor 2 Family cohesion
Factor 4 Family organization	Factor 3 Control of school problems
Factor 5 Positive parenting	Factor 4 Social skills
Factor 6 Parenting skills	Factor 5 Capability of setting limits
Source: KK-Parents questionnaire	Source: KK-Children questionnaire

Before turning to the regression analysis, the aggregate index of family competence (2012-13) must be analyzed. We are referring to the result of ten indicators from which we have the information of all families. The factor 3 of the parents (“Family Cohesion”) has not been considered, since it is redundant with the factor in children.

We are referring to an index ranging from 0 to 500 points, calculated considering the scores of the ten indicators, treated with the following relative weights: factors related to parents, 50%; factors

related to the children, 50%. Positive capabilities are accumulated, and the higher the punctuation, the higher is the family competence; the index has a positive interpretation.

In the following Table, the descriptive index data, both for the families of Proyecto Hombre and the families of Social Services, for 2012-2013, are presented. Table 5 shows a higher level of competence between families of PH (average = 362.48) compared to the families of SS SS (average = 334.00). The differences are not statistically significant (Table 5).

<b>Table 5. Aggregate family competence (2012-2013)</b>		
Experimental groups at the end of PCF	PH (N=63)	SS SS (N=92)
Average	362.48	339.08
Median	358.00	334.00
Est. Dev.	34.27	38.74
Coefficient of variation	9.45	11.42

With the index on family competence, one can work producing a dichotomous variable based on all cases of loss of family competence, between 2009-2010 and 2012-2013, as well as all the cases of families that, although there has been no loss, a lower level with respect to the first quartile in the aggregate family competence variable is observed. We are referring to an exercise that allows a first approach to the analysis of the factors that can predict the maintenance or not of family competence (Table 6).

To verify the feasibility of the COX analysis, the absence of multicollineality between the factors of the study was checked, on the base of the correlations. This requirement obliged to reduce other secondary factors, leaving as particularly

relevant five factors: the age of the children, age of parents, Family Vulnerability Index, the level of participation in the program and the evaluation of the program itself. The results for the five factors considered as predictors and a series of columns from right to left can be observed:

- the estimated parameter (B);
- its standard error (E.T.);
- the Wald test, which is a statistic that follows a Chi square law with 1 degree of freedom;
- the significance of the Wald statistic (Sig.);
- the hazard ratio estimation (Exp B). It is equivalent to the relative risk and talks about how much more (or less) risk the predictor involves. In our case, the predictive capacity of the maintenance of the family competence is analyzed,

so that the reading is inverse to the way it is usually done, since it seeks to know the predictive capacity in relation to the maintenance of a positive effect. If it is less than 1, it becomes a factor that reduces the maintenance of long-term family competence. If it is higher than 1, it is a positive predictor of the maintenance.

It can be verified that the key factors are the level of participation in and the evaluation of the program. As regards the families of *Proyecto Hombre* (Table 6), the level of participation and appreciation of the FCP have a hazard ratio higher than 1. The hazard ratio of the level of participation is 1.123, while from the valuation it is 1.597. This means that globally, in *Proyecto Hombre*, the family competence rate is 1.597 times higher than in families with higher levels of program evaluation (defined as greater credibility attributed to the program), for example. Continuing with the predictive factor which represents the positive assessment, we can see that the hazard

ratio was obtained exponentiating the number "e" to the regression coefficient, as  $\text{Exp}(0.516)$  is equal to 1.597. The standard error of the coefficient  $b$  is 0.287, in this case. The Wald test has been obtained by dividing  $b$  through its standard error and squaring the result, the final result being 3.228. This statistic follows a chi-square with one degree of freedom and is not statistically significant ( $p = 0.072$ ), as can be seen in Table 6. The same happens with other results in the case of the other factor: the level of participation. In any case, it seems that in *Proyecto Hombre*, the greater involvement (the fulfillment of the 14 participation sessions and doing a good level of homework), and the positive perception of the whole FCP, partly explain the long-term maintenance of family competence.

The other factors should be interpreted in the opposite way, i.e., the older the children and parents are, as well as the higher family vulnerability (FVI), the worst results are provided in the long-term family competence.

**Table 6. COX analysis. Factors associated with the long-term maintenance of family competence**

PROYECTO HOMBRE (N=63)	B	ET	Wald	gl	Sig.	Exp(B)
Age of the children	-0.075	0.058	1.664	1	0.197	0.928
Age of the parents	-0.055	0.043	1.692	1	0.193	0.946
IVF Family Vulnerability (2012-13)	-0.170	0.117	2.115	1	0.146	0.844
Level of participation in FCP	0.080	0.091	0.770	1	0.280	1.123
Valuation of the FCP	0.516	0.287	3.228	1	0.072	1.597

Regarding the families of Social Services (Table 7), the level of participation and the age of the parents have a hazard ratio superior to 1, but the significance of the Wald statistic (in both cases  $p > 0.05$ ) shows that they are not significant predictors. For Social Services, the greater involvement (having finished 14 sessions of participation and doing a good level of homework) also partly explains the

maintenance of long-term family competence. The age of the parents, basically, has no explanatory power, not in one way nor in the other.

Two of the factors should be interpreted unfavorably, i.e. the older the children are, as well as the higher family vulnerability (FVI), the worst results are provided in the long-term family competence.

**Table 7. COX analysis. Factors associated with the long-term maintenance of family competence**

SOCIAL SERVICES (N=92)	B	ET	Wald	gl	Sig.	Exp(B)
Age of the children	-0.037	0.079	0.224	1	0.636	0.963
Age of the parents	0.002	0.018	0.014	1	0.907	1.002
IVF Family Vulnerability (2012-13)	-0.092	0.114	0.647	1	0.421	0.912
Level of participation in FCP	0.016	0.055	0.081	1	0.476	1.066
Valuation of the FCP	-1.048	0.285	13.518	1	0.000	0.351

## 5. Discussion

Among the limitations of our study, first, it could be referred to the potential influence of social desirability in the answers given by parents, as well as by children. The triangulation of the assessments of different informants provides some control of the changes. However, all the questionnaires based on self-declarations from the individuals who have participated in the training programs, have this risk.

The second limitation is observed in the selection of the sample of families who have agreed to collaborate in the longitudinal study. There was an incapability to access all the families who had participated, due to the loss of contact with a significant proportion of families of social services, either for moving to other cities or for breaking voluntarily the relations with Social Services.

The Family Competence Program shows good results- consistent and of good quality-, with families in a variety of difficult situations, with appreciable maintenance of the results. Most of the changes identified from the considered factors are still relevant for most families, obtaining fairly good results in a wide range of factors related to the ones relevant to the functioning of the family:

- Family factors related to parents. The maintenance of the results at the end of the FCP, as well as a certain difference in the results of the families of the control groups are confirmed. The evolution proceeded by the families of SS SS seems more positive than that of the families of PH.
- Family factors related to the children. It is also confirmed that the good results observed at the end of the FCP are maintained. In any case, it should be considered that there has been a significant evolutionary change in the minors, since two years may represent, in some cases, a significant psychosocial maturation.

- In regard to the factors related to the children reported by the BASC questionnaires, the results at the end of the FCP are maintained, thus, confirming the hypothesis of results maintenance. Only some scales showed significant differences. In any case, the expected differences of the control groups are not conclusive, either for the limited size of groups or the progressive equalization of the families. Regarding the families of PH participating as controls, work in the various programs of the project could have helped to obtain comparable results in almost all factors with families who have participated in the FCP. The families of Social Services that have participated as controls provide worse results, but they are not particularly significant. The social conditions of families (family educational patterns, educational level), and the wider family dynamics (extended family; couples not attending the sessions, cases of divorce, etc.) can limit or enhance some of the changes related to family relationships and parenting skills. Controlling family issues allows to check to what extent the activity of trainers is relevant to the results. Although this influence is important, family problems can facilitate or neutralize the positive results obtained at the end of the FCP.

The study includes a family vulnerability index (FVI) based on three key indicators of social conditions of families: employment status, educational level and structure of family relationship. Even though it turned out to be an important mediating factor in relation to the performance of the trainers and the results of the families (Orte, Ballester & March, 2013), it did not in relation to maintenance of the good results of the factors.

Basing on the identified results, a number of issues can be considered:

1. The assessment of the maintenance of long-term results (2 years) is especially challenging with families in vulnerable situations. Within

the framework of FCP, which can be considered within the scope of family competence, a variety of factors that are relevant to the maintenance are included (changes in family structures, evolutionary processes of children, participation in other social programs, etc.).

2. Even with these difficulties, the FCP has proved its effectiveness in maintaining positive results in most of the considered factors.
3. The FCP has shown its efficacy in maintaining the commitment of the participants over time, obtaining a fairly large level of samples. The family members understand what they do, they find the process in which they are participating meaningful and they observe improvements of the aspects considered by the program.
4. The results show that the processes generated in the family, thanks to the key factors prepared basing on the dynamics from the FCP, allow the maintenance and long-term improvement of family competence.
5. However, our longitudinal study can be improved in future studies. In particular, extending the time between the observations and measurements made with the families, directing the study toward considering complete phases of family life (e.g. the entire adolescence).

## 6. Implications and conclusion

The following implications and proposals for action for the socio-educational intervention with families was obtained from the results and conclusions of this study:

1. The implementation of the Family Competence Program in a caring context, such as that offered by the concerned services, i.e. in the context of families with certain social and educational difficulties, has shown quite appreciable results in the medium and long term. Therefore, we think that it is a good choice of socio-educational intervention

program, aimed at families in situations of social vulnerability and for most of the proposed objectives. The FCP is a prevention program based on the evidence that can be applied in different contexts and the care services where it would be feasible to work with whole families with 7-12 year-old children.

2. Socio-educational work with families should be considered as one of the best options for intervention, in order to obtain consistent positive changes in family dynamics. The results of this study suggest that parents and children involved in family competence programs gain a deeper understanding of their role and a more positive child raising.
3. Promoting an increase in the time spent on daily positive interactions between parents and children is essential to improve family dynamics. Increasingly, demanding work schedules tend to minimize the number of hours spent on family relationships. This seriously harms the relations of communication and the ability to develop consistent positive parenting, as well as other key factors.
4. The applications of family competence programs must meet the criteria of choice for families, as well as the written guides of the sessions according to the program criteria. This helps to strengthen the various types of socio-educational intervention, as well as a better connection between the participants and the internal principles of the program.
5. A general commitment of the family (parents and children) must be promoted, in programs of family competence, for the maximum number of sessions (including the preparatory session and the subsequent follow-up sessions at the end of the program). Similarly, it is also important to promote the participation of parents and children in the very organization of complementary activities of the program (shared meals, group outings); participants should not just be passive recipients of programs.

## References

- Baumrind D. (1966). Effects of authoritative parental control on child behavior. *Child Development*, 37(4), 887-907.
- Baumrind, D. (1967). Child care practices anteceding three patterns of preschool behavior. *Genetic Psychology Monographs*, 75(1), 43-88.
- Baumrind, D. (1975). Early socialization and adolescent competence. Adolescence in the life cycle. In S. E. Dragastin, y G. H. Elder (eds.), *Adolescence in the life cycle: Psychological change and social context* (pp. 117-143). Washington, DC: Hemisphere.
- Baumrind, D. (1991). The influence of parenting style on adolescent competence and substance use. *Journal of Early Adolescence*, 11(1), 56-95.
- Bowlby, J. (2005). *A secure base: Clinical applications of attachment theory* (Vol. 393). Nueva York: Taylor & Francis.
- Brounstein, P. & Zweig, J. (1999). *Understanding Substance Abuse Prevention: Toward the 21st Century: A Primer on Effective Programs*. DHHS Publication Number (SMA) 99-3301. Rockville, MD: Department of Health and Human Services.
- Burke, K., Brennan, L. & Cann, W. (2012). Promoting protective factors for young adolescents: ABCD Parenting Young Adolescents Program randomized controlled trial. *Journal of adolescence*, 35(5), 1315-1328.
- Center for Substance Abuse Prevention (2000). *Prevention works through community partnerships: findings from SAMHSA/CSAP's national evaluation*. Rockville, MD: CSAP.
- Forés, A. & Grané, J. (2008). *La resiliencia. Crecer desde la adversidad*. Barcelona: Plataforma actual.
- Garmezy, N. (1974). The study of competence in children at risk for severe psychopathology. En E. J. Anthony y C. Koupnik (eds.). *The child in his family: Vol. 3. Children at psychiatric risk* (pp. 77-97). New York: Wiley.
- Gómez, E. & Kotliarenco, M. A. (2010). Resiliencia Familiar: un enfoque de investigación e intervención con familias multiproblemáticas. *Revista de psicología*, 19(2), 103-132.
- Grotberg, E. (2003). ¿Qué entendemos por resiliencia? ¿Cómo promoverla? ¿Cómo utilizarla? A: E., Grotberg. *La resiliencia en el mundo de hoy. Cómo superar las adversidades* (pp. 17-58). Barcelona: Gedisa.
- Haggerty, K., Skinner, M., MacKenzie, E. & Catalano, R. (2007). A Randomized Trial of Parents Who Care: Effects on Key Outcomes at 24-month Follow-up. *Prevention Science*, 8, 249-260.
- Kumpfer, K.L. & Demarsh, J. (1985). Genetic and family environmental influences on children of drug abusers. *Journal of Children in Contemporary Society*, 3/4 (Fa11).
- Kumpfer, K. L., Demarsh, J. P. & Child, W. (1989). *Strengthening Families Program: Children's Skills Training Curriculum Manual (Prevention Services to Children of Substance-abusing Parents)*. Utah: Social Research Institute, Graduate School of Social Work, University of Utah.
- Kumpfer, K.L. (1998). Selective prevention interventions: the Strengthening Families Program. En, R.S. Ashery, E. Robertson, y K.L. Kumpfer (eds.). *Drug Abuse Prevention Through Family Interventions*, NIDA Research Monograph #177, Rockville, MD., NIH Pub. No. 99-4135. pp. 160-208.
- Kumpfer, K.L. & Alvarado, R. (2003). Family strengthening approaches for the prevention of youth problem behaviors. En, R. Weissberg y K.L. Kumpfer (eds.) Special Issue on Prevention, *American Psychologist*, 58 (6/7), 457-465.
- Kumpfer, K., Fenollar, J. & Juvani, C. (2013). Una intervención eficaz basada en las habilidades familiares para la prevención de problemas de salud en hijos de padres con adicción al alcohol y las drogas. *Pedagogía Social. Revista Interuniversitaria*, 21, 85-108.
- Kumpfer, K.L. & Johnson, J.L. (2007). Intervenciones de fortalecimiento familiar para la prevención del consumo de sustancias en hijos de padres adictos. *Adicciones*, 19(1), 13-25.
- Kumpfer, K.L., Olds, D., Alexander, J., Zucker, R. & Gary, L. (1999). Family etiology of youth problems. En R. Ashery, E. Robertson, y K. Kumpfer (eds.) *Drug Abuse Prevention Through Family Interventions*, NIDA, NIH Pub. No. 99-4135. pp. 42-77.
- Mercer, J (2006). *Understanding attachment: Parenting, child care, and emotional development*. Westport, CT: Praeger Publishers.
- National Institute on Drug Abuse (2004). *¿Cómo prevenir el abuso de drogas en los niños y adolescentes?* (2a. ed.). Bethesda, Maryland: Departamento de Salud y Servicios Humanos de los Estados Unidos.
- Oliva, A. Morago, J.M. & Parra, A. (2009). Protective effects of supportive family relationships and the influence of stressful life events on adolescent adjustment. *Anxiety, Stress & Coping*, 22, 137-152.
- Orte, C. (2000). La intervención socioeducativa en el ámbito de la drogadicción. En P. Amorós & P. Ayerbe (Eds.). *Intervención educativa en inadaptación social*. Madrid: Síntesis.
- Orte, C. & GIFES. (2005a). Los programas de prevención de drogas centrados en la familia: una visión desde la investigación y la práctica. *Revista Proyecto* (53), 14-17.
- Orte, C. & GIFES. (2005b). Una investigación educativa sobre un programa de competencia familiar. En M. March, *Anuari de l'Educació de les Illes Balears* (pp. 284-295). Palma: Fundació Guillem Cifre de Colonya.

- Orte, C. (2008). Desenvolupament de les competències familiars. La família com a context d'aprenentatge pares-fills. *Revista d'Afers Socials*, 1, 26-39.
- Orte, C. (2013). Los programas de prevención basados en la evidencia científica: el ejemplo de la adaptación de un programa americano al contexto español. Strengthening Family Strategy Online Conference. Diciembre 2013.
- Orte, C., Ballester, L. & March, M. (2015). The Strengthening Families Program in Spain. A long-term evaluation. *Journal of Children's Services*. 10 (2), 101-119.
- Orte, C., Ballester, L. & March, M. (2013). The family competence approach, an experience of socio-educational work with families. *Pedagogía Social. Revista interuniversitaria*, 21, 3-27.
- Orte, C., Ballester, L. & March, M. (2009). Validación de la adaptación española de los cuestionarios para evaluar la competencia parental en el contexto del Programa de Competencia Familiar (PCF) (2008-2009). XIV Congreso Nacional de Modelos de Intervención Educativa AIDIPE. Huelva.
- Orte, C., Ballester, L., Amer, J. & Vives, M. (2014). Assessing the role of facilitators in evidence-based family prevention programs via Delphi technique. *Families in Society, The Journal of Contemporary Social Services*, 95 (4), 236-244.
- Orte, C. & GIFES (2013). *Análisis de la eficacia a largo plazo en un programa de prevención de problemas de conducta y consumo de drogas*. El Programa de Competencia Familiar (PCF). (EDU 2010-20336). Madrid: Ministerio de Economía y Competitividad. Mimeo.
- Orte, C., Touza, C. & Ballester, L. (2007). Análisis del grado de fidelidad en la ejecución de un programa de competencia familiar. *Pedagogía Social. Revista Interuniversitaria*, 4, 95-103.
- Rutter, M. (1987) Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry*, 57(3), 316-331.
- Sandler, I.N., Schoenfelder, E.N., Wolchik, S.A. & MacKinnon, D.P. (2011). Long-term impact of prevention programs to promote effective parenting: lasting effects but uncertain processes. *Annual Review of Psychology*, 62, 299-329.
- Taucher, E. (1999). Análisis de supervivencia. En: *Bioestadística*. (pp. 257-266). Santiago: Editorial Universitaria.
- Waller, R., Gardner, F., Dishion, T. & Sitn, S.L. (2014). Early parental positive behavior support and childhood adjustment: addressing enduring questions with new methods. *Social Development*. doi:10.1111/sode.12103.
- Werner, E. (2012). Risk, Resilience, and Recovery. *Reclaiming Children and Youth*, 21(1), 18-23.
- Werner, E. E. & Smith, R. S. (1982). *Vulnerable but invincible: A study of resilient children*. New York: McGraw-Hill.

## HOW TO CITE THE ARTICLE

Orte, C., Ballester, L., Pozo, R. & Vives, M. (2017). El mantenimiento de los cambios en un programa de prevención familiar basado en la evidencia. Un estudio longitudinal de familias. *Pedagogía Social. Revista Interuniversitaria*, 29, 109-122. DOI: 10.7179/PSRI\_2017.29.08.

## AUTHOR'S ADDRESS

**Carmen Orte Socías:** Universitat de les Illes Balears. Ed. Guillem Cifre de Colonya. Crta. Vallde-mossa Km 7.5 CP: 07122 Palma, Illes Balears. España. E-mail: carmen.orte@uib.es.

**Lluís Ballester Brage:** Ídem. E-Mail: lluis.ballester@uib.es.

**Rosario Pozo Gordaliza:** Ídem. E-Mail: rosario.pozo@uib.es.

**Margarita Vives Barceló:** Ídem. E-Mail: marga.vives@uib.cat.

## ACADEMIC PROFILE

**Carmen Orte Socías:** Licenciada en Psicología y Doctora en Ciencias de la Educación. Catedrática de Universidad de la UIB en Pedagogía de la Inadaptación Social. Es Investigadora Principal del Grupo de Investigación y Formación Educativa y Social (GIFES) de la UIB. 50 Proyectos de I+D+I financiados en Convocatorias Públicas. En los últimos 16 años ha dedicado la mayor parte de su trabajo a dos líneas principales de investigación aplicada: la prevención de drogas y otras conductas problema mediante programas basados en la evidencia científica, y la educación de personas mayores a nivel de la UIB, nacional e internacional. Es Directora de la Cátedra de Atención a la Dependencia y Promoción de la Autonomía Personal de la UIB, del Anuari de l'Envel·liment Illes Balears desde que lo creó en 2008 y hasta la actualidad. Es autora intelectual y directora de la International Summer Senior University. Es autora intelectual de la Universitat Oberta per a Majors de la UIB creada en 1998. Desde 2003 es la Investigadora Principal del Programa de Competencia Familiar. Un programa de educación familiar basado en la evidencia científica que se ha transferido a varias CC.AA y que forma parte de varias redes de investigación internacionales.

**Lluís Ballester Brage:** Doctor en Filosofía (UIB) y en Sociología (UAB). Profesor Titular de Universidad. Miembro del Grupo de Investigación y Formación Educativa y Social (GIFES), de la UIB. Desde 1996 es profesor de Métodos de Investigación Educativa en la UIB. Su experiencia profesional como coordinador de un centro comarcal de servicios sociales (1986-1990) y como responsable de la Unidad de Planificación y Estudios del área de Bienestar Social del Consejo de Mallorca (1990-96), así como las investigaciones realizadas desde 1984, se han centrado en el análisis de las necesidades sociales y educativas (jóvenes, personas mayores y otros sectores) y también en los métodos de investigación: paneles Delphi, historias de vida, análisis de datos cualitativos (con NVivo-QSR). El curso 2002-2003 compatibilizó su labor como docente e investigador en la UIB con la dirección de la Agencia de Calidad Universitaria de las Islas Baleares (AQUIB). Entre marzo de 2007 y julio de 2011 fue director del Instituto de Ciencias de la Educación de la UIB.

**Rosario Pozo Gordaliza:** Doctora Europea en Sociología (UGR), Diplomada en Educación social (UVA) y Licenciada en Psicopedagogía (ULE) con varias especializaciones de máster en problemas sociales, etnicidad y género entre otros. Ha sido Becaria FPU en el Departamento de sociología de la UGR y actualmente es profesora Ayudante Doctora en la Universidad de las Islas Baleares en el departamento de Pedagogía y Didácticas Específicas. Su actividad investigadora está vinculada a programas de prevención familiar basados en la evidencia científica con el Grupo de Investigación y Formación Educativa y Social (GIFES), de la UIB.

**Margarita Vives Barceló:** Licenciada en Psicopedagogía y Diplomada en Magisterio. Doctora Europea en Ciencias de la Educación por la UIB. Profesora contratada doctor del Departamento de Pedagogía y Didácticas Específicas. Entre sus líneas de investigación principales destacan los programas de competencia familiar, la calidad de vida, el aprendizaje a lo largo de toda la vida y el apoyo social en personas mayores, la inadaptación infantil y juvenil, la gestión de conflictos, la mediación y las relaciones intergeneracionales. Miembro del Grupo de Investigación y Formación Educativa y Social (GIFES) de la UIB.