

# Family Witnessed Resuscitation: Staff Opinion

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## Research article

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# Abstract

## BACKGROUND

Since the 1980s, the controversial issue of family presence during cardiopulmonary resuscitation has been studied, as well as to identify the perceptions, opinions and beliefs of health professionals, patients and family members, as well as to identify benefits, barriers and design training and protocols for its implementation. In 2008, Twibell et al. designed a questionnaire that measured nurses' perceptions of Risks-Benefits and Self-Confidence in the face of Family Presence during Cardiopulmonary Resuscitation.

## Methods

The objective is to adapt and validate into Spanish the Family Presence Risk-Benefit scale and Family Presence Self-Confidence scale (FPRB-FPSC) instrument by Twibell et al.

For this purpose were used a questionnaire on paper and online self-administered, semi-structured, translated cross-culturally. Statistical tests were performed for the validity of the questionnaire. 541 health workers were invited to answer. The results were analysed by factor analysis with varimax rotation (maximum likelihood method), in addition to ANOVA, contingency tables and Student's t-test to observe associations between different variables. The study was approved by the institutional review board of the Consorci Sanitari del Garraf, and by the Ethic Committee clinical research of the Fundació Unió Catalana Hospitals.

## Results

237 health workers answered the survey (69% women), of whom 167 were nurses. Health care providers who have experienced CPR barely reach 13%, with the majority being men and the elderly. Regarding the invitation to the FPDR, it barely reaches 5% and regarding the willingness to include the FP in the advance directives, 66% of the health workers are in favour. Health personnel identify similar barriers and factors that favour Family Presence.

The correlation between the two measured scales, FPRB-FPSC, is significant and has a moderate intensity of the relationship ( $r = 0.65$  and  $\alpha < 0.001$ ).

## Conclusions

The Family Presence during Cardiopulmonary Resuscitation generates controversy in health personnel, observing a trend along with generational change, as younger professionals tend to accept the Family Presence more. The psychometric properties of the questionnaire indicate high validity and reliability. Risk-Benefit perception and trust are related to healthcare staff who consider the Family Presence beneficial.

## Background

The concept of health of the World Health Organization (WHO) allows a holistic view of the human being, with person-centered care, by including the family and communities in the centre of the health system, as the

individual develops within the family and the family becomes the first patient support system <sup>(1)</sup>.

The cardiopulmonary resuscitation observed by the family is defined as the presence of one or more family members in the space where cardiopulmonary resuscitation is being performed and that these can maintain visual or physical contact with the patient and the healthcare team. <sup>(B)</sup>. In 1982, at the Foote Hospital of Michigan in the United States, the protocols of the time were questioned by the request of two families to be present in cardiopulmonary resuscitation (CPR), generating a debate on the right to be with their families <sup>(3)</sup>

The Family Presence during Reanimation (FPDR) is controversial. As generalized arguments in favour, some authors point out that it offers the opportunity to give emotional support to the patient and to be at the side of the loved one, while reducing the anxiety of the relatives. It also always allows to follow the events, making it possible to make quick and consensual decisions in situ, humanizing the patient and enabling a better process of grief. The contrary arguments focus on several aspects, such as that the team feels evaluated and analysed, causing discomfort and pressure to the health team; the frequency with which lack of knowledge and misinterpretation of procedures by family members gives rise to traumas, complaints and fears of a possible interruption of proceedings; and also influence the limited physical space and legal vacuum, since there are no guidelines in this regard. <sup>(4-12)</sup>. Relatives who have witnessed CPR think that it is beneficial for the patient and families, and this opinion is not conditioned by age, education or income level or the latest wills planned <sup>(13)</sup>. Other determining factors for the acceptance of FPDR are cultural and religious factors, varying the percentages of acceptance of FPDR if the studies come from countries with different cultural and religious traditions. <sup>(14-19)</sup>

The European Resuscitation Council (ERC), a component of the International Liaison Committee on Resuscitation (ILCOR), in its 2015 ethical recommendations, states that the team should offer selected family members the opportunity to be present during the resuscitation of a loved one, the health team should be sensitive to FPDR, assigning a member of the team (if possible) to inform, give comfort and support to the family member present <sup>(20)</sup>. Additionally, the European Federation of Critical Care Nursing associations (EfCCNa) and the European Nursing Organizations support the FPDR <sup>(21, 22)</sup>.

In our study, we want to know what professionals (both medical and nursing staff) who work in different health services of the Consorci Sanitari del Garraf (CSG) of Barcelona, Spain, such as the Intensive Care Unit (ICU), Emergencies (ER), Dialysis, Social health care (SH), Hospitalization facilities, etc., and thus objectify the opinions and preferences of the doctors and nurses that make up the pre- and intrahospital services. To this end, the two instruments from the study of Twibell et al. (2008) are replicated: Family Presence Risk-Benefit and Family Presence Self-Confidence (FPRB-FPSC) <sup>(23)</sup>. These indices measure the perceptions of doctors and nurses about the risks-benefits and self-confidence that the presence of the family entails in CPR. The transcultural translation of the instrument was performed, including the physicians in the instrument, and the results obtained in the original study were compared with those obtained in the Garraf region (Barcelona). There are few studies in Spain on this practice, and therefore, this study is performed using the same instrument in order to perform the comparison.

## Methods

The study was approved by the institutional review board of the Consorci Sanitari del Garraf, and by the Ethic Comitee clinical research of the Fundació Unió Catalana Hospitals with code CEIC 15/31.

The questionnaires elaborated by Twibell et al. (2008) on FPRB-FPSC were selected, changing some items of the sociodemographic variables (Table 1), to fit the ethnic, professional and educational profile of our country, including doctors, to obtain a more generalized view of the subject.

Twibell et al (2008). Original tool.		CSG (2018) Modificaciones.	
<b>47.</b>	<b>On what unit were you working the last time that you invited a family member to be present during a resuscitation attempt?</b>	<b>47.</b>	<b>On what unit were you working the last time that you invited a family member to be present during a resuscitation attempt?</b>
	<input type="checkbox"/> Emergency Department		1) Emergencies 2) ICU 3) Social Healthcare
	<input type="checkbox"/> Critical Care Unit		4) Acute hospital unit 5) Residency
	<input type="checkbox"/> Non-Critical Care Inpatient Unit		6) External Consultations
	<input type="checkbox"/> Other		7) Hospital/day centre
	<input type="checkbox"/> Not applicable.		8) Rehabilitation 9) Others_____
<b>51.</b>	<b>What type of unit do you work on most often?</b>	<b>51.</b>	<b>In which unit do you work most often?</b>
	<input type="checkbox"/> Emergency Department		1) Emergencies 2) ICU 3) Social Healthcare
	<input type="checkbox"/> Critical Care Unit		4) Acute hospital unit 5) Residency
	<input type="checkbox"/> Non-Critical Care Inpatient Unit		6) External Consultations
	<input type="checkbox"/> Outpatient Unit		7) Hospital/day centre
	<input type="checkbox"/> Other		8) Rehabilitation 9) Others_____
<b>52.</b>	<b>Current nursing role</b>	<b>52.</b>	<b>Profession:</b>
	<input type="checkbox"/> RN		1.- Nurse _____
	<input type="checkbox"/> LPN		2.- Physician _____ 3.- Others_____
<b>54.</b>	<b>Highest nursing degree completed</b>	<b>54.</b>	<b>Highest level of education completed:</b>
	<input type="checkbox"/> Licensed Practical Nurse Program		1.) Graduated/Army Professional
	<input type="checkbox"/> Associate Degree in Nursing		2.) Masters
	<input type="checkbox"/> Baccalaureate Degree in Nursing		3.) Doctorate
	<input type="checkbox"/> Master's Degree in Nursing		
	<input type="checkbox"/> Doctoral Degree in Nursing		
<b>56.</b>	<b>Age</b>	<b>56.</b>	<b>Age</b>
	<input type="checkbox"/> 18–24 years		1) 20–25 years 2) 26–35 years
	<input type="checkbox"/> 25–39 years		3) 36–45 years 4) 46–55 years
	<input type="checkbox"/> 40–55 years		5) Over 55 years
	<input type="checkbox"/> Over 56 years		

Twibell et al (2008). Original tool.		CSG (2018) Modificaciones.
58.	Do you hold membership in a professional nursing organization?	cancelled
	___Yes	
	___No	
59.	Ethnicity	cancelled
	___African-American ___ Asian	
	___Caucasian ___ Hispanic	
	___Native American ___ Eskimo	
	___Pacific-Islander ___ Other_____	
Table 1.- Table of amendment questions Questionnaire in Spanish.		

The 541 CSG health workers, of whom there are 197 doctors and 344 nurses, were invited to respond anonymously to this survey, by corporate mail and reporting personally, from 1 September 2018 to 31 October 2018 and from 01 May 2019 to 30 June 2019, giving them the option to respond to the survey through paper or online, through Google forms. To calculate the margin of error, a 95% confidence level was chosen, with simple random sampling. For the sample obtained,  $n = 237$  and a 95% confidence level, the sample margin of error was 4.78%.

### 1.- Transcultural translation and validation of the instrument.

The survey by Twibell et al. (2008) was selected for translation. Two native English translators translate it into Spanish and two Spanish native translators translate it back into English so that the questions would have to be similar and have the same meaning as the original survey. In an initial pretest, 25 surveys were completed to determine if the health workers understood the questions and comprehension problems arose with 3 of them. A Delphi group was convened with experts in research, resuscitation and ethics, and the 3 questions were resolved so that the final questionnaire could be developed.

To validate that the items measure the same underlying dimension, factorial analysis was applied with the maximum likelihood method, as in Twibell et al. (2008), using all of the variables and not excluding them from the analysis due to the existence of low item-total correlations.

Next, the validity of the indices of the instrument caused by transcultural translation was questioned, calculating its reliability measures (item-total correlation) and internal consistency (Cronbach's alpha). Correlations were performed using Pearson's  $r$  between the risk-benefit indices and self-confidence. Analysis of variance (ANOVA) was also used to relate the indices of the scales with attitudes, actions and characteristics of the sample, and Student's  $t$ -test was used to compare means between different groups (according to independent variables).

## 2.- Comparison with the original survey.

After obtaining the statistical results, it was compared with the results of the original survey.

## Results

The survey was answered by 237 health professionals. There is a higher presence of women (69%) than men (31%). In the sample, 48% of health personnel are between 36 and 55 years of age, and 17% are older than 55 years. Fifty-one percent of the sample is composed of health professionals with more than 16 years of experience, with 24% of healthcare professionals having less than 5 years of experience and 51% of the sample having some specialty in their profession.

It is relevant that the sample is made up mostly of health personnel who work in a hospital, emergency and social health care setting, so that it can be deduced that the information provided is based on their own experiences, since the interviewees work in areas where resuscitation is occasional or frequent. In the survey, questions are asked that take the FP to the personal terrain of the participants, and most of their responses were in the direction that they would not like their family members to be present if they were resuscitated, especially the health care workers who work in the emergency room.. Those who prefer that their family members be present are those who perceive more benefits in the FPDR. Health care providers who have experienced CPR barely reach 13%, with the majority being men and the elderly. For the invitation to the FPDR, it barely reaches 5% and is recurrently 4%.

Regarding who should make the decision on the FPDR, 67% reported that the doctor and 46% the patient; 42% believe that it should be the nurse and 33% the family, but if they are made to choose which one is the most appropriate to make this decision, the majority (46%) appoint the doctor, and only 26% believe that it should be the patient.

It is the doctors themselves who believe that they should make the decision, as well as the health professionals with more experience and age, and those who believe that there are more risks in the presence of family members and those who trust less in themselves in the presence of family members in a resuscitation.

Health care professionals who work in the social health field, the youngest and least experienced respondents, and those who have higher self-confidence in the presence of family members believe that the patient should decide.

Regarding the willingness to include FP in advance directives, 66% of healthcare professionals are in favour.

Emergency medical and nursing staff see more risks and fewer benefits to FPDR and rely less on themselves to face this possibility. On the other hand, hospital and social health workers see more benefits than risks, with those in the social health field more self-confident.

A total of 76% of participants in the survey answered the open question about the main reasons for not inviting FPDR, and there were three reasons: emotional impact (42%), fear of a disruptive reaction by

families (25%) and distrust of the resuscitation team not feeling comfortable and being able to work under pressure (22%), conditioning the results of the procedures. The three main reasons to invite are the request of the family members themselves (21%) (by the patient or family), the fact that families can verify that everything possible was done for their loved one (20%) and could better understand the work of resuscitation and accompaniment between family and patient during CPR (17%)

The majority opinion is that the physician should make the decision on the FPDR and prefer that the patient should record it in their advance directives.

The correlation between the two scales (RB/SC) is significant and with a moderate intensity of the relationship ( $r = 0.65$  and  $\alpha < 0.001$ ).

#### VALIDITY OF THE INSTRUMENT.

To validate the instrument, its reliability indices were calculated: Cronbach's alpha and item-total correlations. In the Risk-Benefit index, five items (5, 8, 12, 13 and 14) were identified, which did not correlate enough ( $r < 0.3$ ) with the total, so it was decided to exclude them. Once these exclusions were carried out, the calculations yielded a Cronbach's alpha of 0.95 in both constructs, since, in the self-confidence index, the items had a correlation with the total greater than 0.5, so no exclusion was carried out. (Table 2).

Applying factor analysis, the KMO measure is greater than 0.9, which indicates the suitability of the variables. The risk, benefit and self-confidence indices maintain a moderate correlation of  $r = 0.65$  in a positive sense.



Table 2

Perceptions of Self-Confidence in FPDR.		Loads	Loads	Loads	Risk-Benefit Perception FPDR		Loads	Loads	Loads
Item number (original order)		F1	F2	F3	Núm Item (original order)		F1	F2	F3
		34%	20%	11%			24%	21%	14%
1	I could inform the relatives present during the development of resuscitation.	0.666			1	Family members should be given the option of being present while their loved one is undergoing an invasive procedure.	0.761		
2	I could administer medication during a resuscitation witnessed by relatives		0.882		2	Family members would be terrified to witness the technique of an invasive procedure.	-0.477		
3	I could administer electrical therapies (defibrillation, cardioversion, etc.) during family-witnessed resuscitation.		0.904		3	Family members will have long-term difficulties in coping with the emotional impact of having seen resuscitation.	-0.54		
4	I could perform thoracic compressions during resuscitation with relatives present		0.866		4	The resuscitation team could develop a close relationship with family members who witness resuscitation efforts compared to family members who do not witness them.	0.551		

Perceptions of Self-Confidence in FPDR.		Loads	Loads	Loads	Risk-Benefit Perception FPDR		Loads	Loads	Loads
5	I could communicate effectively with the rest of the healthcare team during resuscitation witnessed by family members	0.52	0.57		6	I would like to be present if a loved one were revived.	0.54		
6	I could maintain the dignity of the patient during a family-witnessed resuscitation	0.591			7	Patients DO NOT want their relatives to be present during resuscitation attempts.	-0.522		
7	I could identify the relatives that have adequate behaviours during resuscitation.	0.611			9	Family members who witness a failed resuscitation will have a better and healthier grieving process	0.546		
8	I could prepare the family to access the area of resuscitation of their loved one	0.76			10	If my loved one is being resuscitated. they should allow me to be present. since I am a nurse. doctor.	0.365		
Perceptions of Self-Confidence in FPDR.		Loads	Loads	Loads	Risk-Benefit Perception FPDR		Loads	Loads	Loads
Item number (original order)		F1	F2	F3	Núm Item (original order)		F1	F2	F3
		34%	20%	11%			24%	21%	14%

Perceptions of Self-Confidence in FPDR.		Loads	Loads	Loads	Risk-Benefit Perception FPDR	Loads	Loads	Loads
9	I could ensure that the doctors who assist the patient support the family presence during the resuscitation of their loved one.	0.572			11	The presence of family members will interfere with the resuscitation process	-0.632	
10	I could accompany the relatives who are in the area of resuscitation during the resuscitation of their loved one.	0.777			15	Family members in the unit where I work prefer to be present during resuscitation.		
11	I could inform the healthcare team that resuscitation is being witnessed by relatives	0.542			16	The FPDR is beneficial for patients	0.418	
12	I could provide comfort measures to the family members present during the resuscitation of their loved one	0.818			17	The FPDR is beneficial for families	0.504	

Perceptions of Self-Confidence in FPDR.		Loads	Loads	Loads	Risk-Benefit Perception FPDR		Loads	Loads	Loads
13	I could identify the spiritual and emotional needs of the family members present during the resuscitation of their loved one.	0.777			18	The FPDR is beneficial for nurses			0,796
14	I could encourage family members to talk with their loved one during resuscitation.	0.688			19	The FPDR is beneficial for physicians			0,877
15	I could delegate functions to other nurses to support the family members present during resuscitation of their loved one	0.621			20	The FPDR should be part of family-centered care	0.564		
16	I could inform the family after resuscitation.			0.952	21	The FPDR will have a positive effect on the patient satisfaction survey of hospital care.			0,802
17	I could coordinate the follow-up of the mourning of the relatives after a resuscitation if necessary	0.517			22	The FPDR will have a positive effect on the survey of hospital satisfaction by the family			0,811

Perceptions of Self-Confidence in FPDR.	Loads	Loads	Loads	Risk-Benefit Perception FPDR	Loads	Loads	Loads
Perceptions of Self-Confidence in FPDR.	Loads	Loads	Loads	Risk-Benefit Perception FPDR	Loads	Loads	Loads
Item number (original order)	F1	F2	F3	Núm Item (original order)	F1	F2	F3
	34%	20%	11%		24%	21%	14%
Table 2				23	The FPDR will have a positive effect on the nursing care satisfaction survey of the nurse.		0,896
Results CSG health personnel FPRB-FPSC.				24	The FPDR will have a positive effect on the physician hospital care satisfaction survey		0,892
Varimax rotation with 5 exclusions in FPDR in Risk-Benefit				25	The presence of family members during resuscitation is a right that all patients should have	0,652	
Maximum Likelihood method				26	The presence of family members during resuscitation is a right that all family members should have	0,618	

## Discussion

Compared with the study by Twibell et al. (2008) and in reference to the validity of the indices, a more dispersed distribution has been obtained, with higher indices of asymmetry and kurtosis, to the point that the self-confidence index does not comply with the principle of normality. In both questionnaires, the Cronbach's  $\alpha$  is very similar, with our FPRB being  $\alpha = 0.95$  in RB and  $\alpha = 0.96$  that of Twibell et al. (2008) and FPSC obtaining an  $\alpha = 0,94$  while Twibell et al. (2008) obtained  $\alpha = 0.95$ , so we can affirm that we were able to

replicate the reliability of both indices. For the correlation between the two scales (FPRB-FPSC), it is significant and with a moderate intensity of the relationship ( $r = 0.65$  and  $\alpha < 0.001$ ), with the one by Twibell et al (2008), an  $r = 0.56$  and an  $\alpha < 0.001$ , slightly below the obtained in this study

In the factor analysis, six variables have been identified that do not completely work in the risk and benefit index, with three of them excluded from both studies and the remaining variables either excluded or have obtained low factorial loads in one or another study. (Table 2, at the end of the article)

The fundamental difference from Twibell et al. (2008) is that in our study, there are additional variables that have generated different correlations in certain factors. Thus, it is worth asking what underlying dimensions they wanted to measure, risks, benefits or self-confidence, since different meanings of these concepts emerge from the results, either due to polysemy or because they are items that do not define these dimensions well. For example, polysemy was found in the index of self-confidence, since the health professionals' self-confidence behaves differently if spoken from the social perspective (treatment of families, communication), in which those who agree in the FP have more confidence and those who do not agree have less confidence, or if there is talk of technical procedures that are assumed to be conducted, they agree or disagree with the FP.

The perceptions of the effect of FP on satisfaction surveys measure a risk or a benefit, since in all combinations of factor analyses, these are variables that do not correlate with the rest of the index items.

It does not seem that transcultural translation has produced any disturbance, but rather that the health personnel in this study have different opinions from health professionals in the United States sample.

For the comparison of the sample, the inclusion of medical personnel in the study has made it possible to increase the presence of men and older professionals with more extensive experience, although the differences between medical personnel and nurses have not been significant in most of the variables. The sample in this study, although smaller ( $n = 237$ ), is more representative in terms of hospital units. (Table 3).

RESULTS TWIBELL et al (2008)			RESULTS CSG HEALTH PERSONNEL.		
GENDER	Woman	95.7	GENDER	Woman	69.2
	Man	2.1		Man	31.8
AGE (years)	Less than 24 years	4.5	AGE (years)	From 20 to 35	35.0
	From 25 to 39	38.1		From 36 to 55	47.7
	From 40 to 55	46.1		More than 55	17.3
	More than 55	8.5	Years of experience	Less than 1	5.5
Years	Less than 1	3.7		From 1 to 5	18.1
of	From 1 to 5	18.4		From 6 to 10	14.3
experience	From 6 to 10	21.9		From 11 to 20	27.8
	From 11 to 20	30.7		More than 20 years	34.2
	More than 20 years	23.5	Highest level of education completed	Graduated	48.1
Highest level of education completed	Graduated	78		Bachelor	
	Bachelor			Army professional/Diploma	
	Army professional/Diploma			Master/Doctorate	51.9
	Master/Doctorate	3.7			
Assistant nurse			Table 3. Comparative sociodemographic data.		

We observed that compared to the sample by Twibell et al. (2008), in this study, a much lower presence of professionals who have occasionally invited a relative to a resuscitation was obtained, which prevents evaluating this item, since there was only a total of 20 cases.

A lower predisposition to FPDR is observed due to a greater perception of risks and lower self-confidence than in Twibell et al. (2008), and this is the main result obtained in this study. This can be explained by taking into account the different characteristics of the sample, especially by the presence of medical personnel, who is the one who values FP the worst, but we believe that the key lies in cultural differences, as in this study, there are many fewer professionals who have ever invited relatives to attend a resuscitation process, and this constitutes a pattern that can condition everything else. A difference was identified between emergency assessments that would be very interesting to investigate.

We have obtained a correlation of indices very similar to Twibell et al. (2008): the medical and nursing staff who perceive the most benefits are those who are more confident on being able to manage the presence of families.

Another key difference has been that in this study, a single explanatory factor of the perception of inviting relatives or not to resuscitation has not been obtained, and qualitative questions have confirmed that the main barriers to inviting family members coincide with the theoretical framework presented by Twibell et al. (2008): avoid causing an unpleasant impact on families, fear of a disruptive reaction from families and fear that the resuscitation team will not work comfortably. However, the main reasons for inviting relatives present in their study by Twibell et al. (2008) are not the most mentioned by the participants of our study. The fact that families understand that everything was done for their loved one is one of the reasons mentioned by one in every 5 participants; positive management of grief is mentioned by one in ten, not highlighting the understanding of the severity of the patient .

In general, the assessment of the FPDR is more positive than negative. In relative terms to the averages of the indices, we have 48% of "detractors", but truly in absolute terms, only 12% of the participants are pure critics, because of the scores of both indices being below 2.5.

Physicians are more resistant to FPDR than nurses, especially in the emergency department, and professionals with specialty, but this variable is highly influenced by the profession, since it is the physicians who thus have a specialty. and the majority of nurses do not have it, in part due to the recent incorporation of specialties in the Spanish State. It is interesting to note that it is the area of emergency care where there is most reluctance to FPDR, since it is the area where there is greater contact with this procedure and also that it is in the social health field, in which these procedures are barely carried out, where there is more self-confidence, a result that could open doors to future research.

When asking who should make the decision, those who choose to give more responsibility to medical staff are those who see more risk in FP and who have less self-confidence (especially doctors with more experience and age). In contrast, those who see greater benefits and have more self-confidence (nurses and young professionals with less than five years of experience) choose to give decision-making responsibility to the patient.

It is observed that behind attitudes, there is a background of generational change that advances to allow FP. In this sense, the same trend is observed when we ask whether FP should be part of the patient's anticipated wills.

## Limitations

While in Twibell et al. (2008), the original study obtained data that did not include a "do not know/do not answer" option in each question, this study had data that did take into account this response option. It is a decision that has its advantages, since it allows not forcing the professional to adopt a response to doubts, but on the other hand, it can sometimes function as an evasive category before having to make a decision in a given situation.

Medical staff and nurses, who at some point have witnessed CPR of a loved one, are mostly male, and there may be a gender bias in the FPDR.



We must take into account the difference of 12 years between one study and another, since the opinion of society and the training of health care professionals change, taking into account the principles of bioethics, especially autonomy, which gives more empowerment to the patient and the family, leaving behind clinical decisions of medical paternalism.

## Conclusions

- FP creates controversy in health personnel, differing the opinions of doctors and nurses, the latter being more favourable to FP.
- A greater perception of risk and lower self-confidence is observed, especially among emergency staff, than in the sample by Twibell et al. (2008). Health professionals with greater self-confidence consider FP to be more beneficial.
- There is a trend towards generational change, as younger and less experienced health care professionals tend to have a greater acceptance of FP.
- The proposed indices are valid with the variables with which they are constructed since they offer high reliability indices. However, there are some variables that have been excluded due to low correlation, as in the study by Twibell et al. (2008).
- Some of the variables have generated unexpected additional factors. Of the 26 variables of the risk index, 14 variables measuring the same have been ensured. Of the 17 variables, 13 are part of the same factor. It is worth reflecting on whether it is preferable to discard some of the variables that are now part of the indices or whether the fact that the index has different dimensions constitutes a wealth to be preserved.
- A possible explanation for the different dispositions to FPDR among health workers in the two countries could be due to existing cultural differences and their own health models.

## List Of Abbreviations

- - Consorci Sanitari de l'Alt Penedés i Garraf.
- - Consorci Sanitari del Garraf.
- - Family Presence.
- - Family Presence during Resuscitation.
- - Family Presence Risk Benefit scale.
- - Family Presence Self Confident scale.
- - World Health Organization.

## Declarations

### Ethics approval and consent to participate

The study was approved by the institutional review board of the Consorci Sanitari del Garraf, and by the Ethic Comittee clinical research of the Fundació Unió Catalana Hospitals with code CEIC 15/31.

The autor of the survey, Twibell R, provided written permission to use, translate and modify as we need the tool.

The consent of the participation in the study is implicit to answer the survey anonymously.

### **Consent for Publication**

Not applicable

### **Availability of data and materials.**

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request

### **Competing Interests**

The authors declare that they have no competing interests

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There has been no funding from any organization to carry out this work.

### **Authors' Contributions**

All the autors have read and approved the manuscript.

EdM-F- Pre-doctoral Student and main author of the article.

Á B-E.- He has collaborated in the review of the methodological part, more specifically, in the Review of the Analysis.

M J-H. She has collaborated in the review of the all the article. She is the tutor of the Eva de Mingo's doctoral thesis

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