



Research paper

## Development of a screening measure of stress for parents of children hospitalised in a Paediatric Intensive Care Unit



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### ARTICLE INFORMATION

*Article history:*

Received 27 March 2015

Received in revised form 20 July 2015

Accepted 18 November 2015

*Keywords:*

Parental stress

Assessment of stress

Paediatric Intensive Care Unit

PICU

Psychometric properties

### ABSTRACT

**Background:** Having a child admitted to intensive care is a highly stressful experience for parents; however there is a lack of screening instruments of parental stress in that context, which would be useful for both, research and clinical purposes.

**Objectives:** (1) To validate a brief measure of parental stress based on the Parental Stressor Scale: Paediatric Intensive Care Unit (PSS:PICU), (2) to study which environmental factors of the PICU are more stressful in a sample of Spanish parents, and (3) to study which variables are related to higher levels of stress among this group.

**Method:** 196 Spanish parents completed the Abbreviated PSS: PICU (A-PSS:PICU) and a general stress scale (the *Perceived Stress Scale*) upon their child's discharge to test the convergent validity of the tool. Three months later, they were assessed anxiety and depression using the *Hospital Anxiety and Depression Scale*, and posttraumatic stress with the *Davidson Trauma Scale* in order to test the predictive validity of the A-PSS:PICU.

**Results:** Two factors emerged from Confirmatory Factor Analyses, (1) stress due to child's condition and (2) stress related to PICU's staff. The A-PSS:PICU showed adequate reliability and convergent and predictive validity. The most stressful aspects were the behaviours and emotional responses of their child and the loss of their parental role. Age, gender, child's condition, length of admission, spiritual beliefs, and mechanical ventilation were associated to parental stress scores.

**Conclusion:** The A-PSS:PICU is a reliable and valid measure. Parental stress should be screened during a child's PICU admission to identify parents at risk of post-discharge distress.

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### 1. Introduction

Having a child admitted to a Paediatric Intensive Care Unit (PICU) has long been recognised as a highly stressful experience for parents.<sup>1–3</sup> This is understandable if we take into account that children under intensive care are usually acutely ill or injured, and consequently they are at increased risk of death. Furthermore, the PICU's environment itself, with its rapid pace, noises, bright lights,

and crisis-focused interventions presents a great challenge for parents who are already stressed.

Some previous studies have explored what are the sources of parental stress during their child's hospitalisation in the PICU.<sup>4–6</sup> Commonly identified parental stressors included the loss of the parenting role, uncertainty over the child's outcome, being separated from their child, a feeling that the quality of care the child was receiving was poor, not being able to understand medical information<sup>4–6</sup> or having communication problems with the medical staff,<sup>7</sup> feelings of uncertainty and helplessness,<sup>8</sup> and seeing their child in pain and discomfort. Also, parents can become distressed as a result of their exposure to other paediatric patients' life threatening conditions, traumatic procedures, and death.<sup>9</sup>

Some studies have used interviews to detect parental sources of stress<sup>4,5</sup>; however most of them have used questionnaires. The best known measure to assess parents' responses to stress in the PICU is the Parental Stressor Scale: Paediatric ICU (PSS:PICU).<sup>10,11</sup> The

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original 79-item scale was developed by Carter, Miles, Buford, and Hassanein.<sup>10</sup> Following factor and item analysis, Carter and Miles<sup>11</sup> revised the scale, reducing it to 37 items measuring the following seven dimensions in the ICU environment: Child's appearance, Sights and sounds, Painful procedures conducted on the child, Alteration in parenting role, Behaviours and emotional responses, Staff's behaviour and Staff's communication.

The PSS:PICU was based Selye's theory on stress,<sup>12</sup> Lazarus's cognitive-phenomenological theory on stress,<sup>13</sup> Roy's adaptation model of nursing<sup>14</sup> and Moos's theory on coping with illness.<sup>15</sup> These authors support the idea that the stress response is the result of a complex interaction between multiple variables such as environmental stimuli, characteristics of the situation, personal factors and the perception of the individual of the power of the stressors. So, while a child is hospitalised in a PICU, a multiplicity of environmental stimuli could be sources of parental stress. Some personal/family variables (such as age of the parent) and situational factors (such as child's illness) can also interact with these stimuli to affect their overall stress response.<sup>16,17</sup> Based on that idea, the PSS:PICU was developed to measure the environmental stressors of the PICU.

The PSS:PICU has shown reliability, validity, and stability in numerous research studies<sup>10,11,18</sup> and has proved its efficacy to measure the effect of interventions to reduce parental stress in the PICU.<sup>19,20</sup> It has shown adequate psychometric properties when used in a variety of populations, such as Indian,<sup>21</sup> Spanish,<sup>22</sup> Malay<sup>23</sup> and Chinese.<sup>24</sup>

In spite of the fact that the PSS:PICU is a reliable and valid measure, it is not free of limitations. First, although a total stress score can be calculated in addition to seven subscale scores, no confirmatory factor analysis has been conducted to test the adjustment of a model with a second order factor. Second, with regard to the Spanish validation, the small sample size ( $N=20$ ) is an important limitation, as it should have been five times larger as the power analysis revealed. Third, and most important, it takes around 30 minutes to complete the PSS:PICU, which makes it not practical to use on a daily basis<sup>25</sup> if we consider the difficulty of the situation that these parents are experiencing, and the high burden of work – and consequently the lack of time – of staff working in critical care. Instead, in the context of the PICU, professionals need to have effective and fast screening tools to measure parental stress, which are not available currently. If we had these shorter measures, parents with a high level of disturbance could be detected for an early intervention. A shorter measure would be useful for research purposes too, as a way of reducing the demand on participants' time.

In previous studies, stress assessed through the PSS:PICU has been found to be related to several psychological variables, such as general stress,<sup>26</sup> anxiety<sup>11,24,27,28</sup> depression<sup>28</sup> and posttraumatic stress.<sup>7,29</sup> Thus, these variables could be used as external criterion to test the validity of the new tool. PSS:PICU scores have also found to be related with some medical and sociodemographic variables, such as child's mechanical ventilation<sup>6,23,30,31</sup> unexpected admission,<sup>32</sup> higher severity of the child's condition,<sup>21,23</sup> lack of previous PICU's experience,<sup>23</sup> prior parental psychological problems<sup>32</sup> or parental socioeconomic difficulties<sup>33</sup> which are associated with higher stress.

Even when, as it has just been described, there is a wide body of using the PSS:PICU, this measure has some problems, mainly its length. Therefore, the purposes of this study were the following: (1) to develop a short questionnaire based on the PSS:PICU that could be used with parents of critically ill children as a screening measure of the degree and sources of stress produced by the PICU environment, (2) to study which are the most stressful aspects of the PICU in our sample of Spanish parents, and (3) to study which variables are related to higher levels of stress in our Spanish sample.

## 2. Method

### 2.1. Sample

Participants were parents whose child had been discharged in the previous 48 hours from a PICU in Madrid, Spain. The PICU is located in a tertiary level hospital and has 16 beds, 8 physicians and a total of 49 nursing staff. The nurse-to-patient ratio is 2:1. Regarding psychosocial services provided at the PICU, there is a Social Worker who attends families at request for the entire paediatric ward where the PICU is located. A psychologist from an NGO provides psychological support to the children with heart conditions and their families two times a week.

The parents were excluded from eligibility in the study if they did not speak sufficient Spanish to complete a questionnaire, if they were admitted for less than 12 hours in the PICU or if child abuse or neglect was suspected as a precipitant to the admission. A total of 196 parents of 130 children agreed to participate, 61.2% women and 38.8% men. Their average age was 37.80 years (SD: 6.58) for the parents and 56.58 months (SD: 61.92) for the children. The primary reasons for admission were planned surgery (65.3%), emergency medical treatment (16.8%), accidental injury and emergency surgery (11.1%) and relapse of a chronic disease (6.6%). The more prevalent diagnoses were heart conditions (26.2%), cancer (16.2%) and respiratory conditions (12.3%). The average length of admission was 6.12 days. Three months after the child's discharge 158 parents completed the following-up assessment.

### 2.2. Materials

**Abbreviated Parental Stressor Scale for Paediatric Intensive Care Unit (A-PSS:PICU).** In order to develop this scale, two psychologists summarised the content of each of the seven subscales of the Spanish version of the Spanish PSS:PICU<sup>22</sup> in one item for each subscale. To do so, for example, instead of asking how stressful were 6 different medical procedures, with an item for each procedure, we asked in one item how stressful were medical procedures conducted on the child in general, and we gave them some examples of such procedures, so six items were reduced to one. Thus, the brief scale designed contains 7 items (one for each of the seven subscales of the PSS:PICU). The response format is a 5 point Likert scale ranging from 1 "Not stressful" till 5 "Extremely stressful", or 0 "Not experienced". It was developed in Spanish language and it is included in Appendix A along with its English translation. To translate it to English, two native Spanish-speaking bilingual psychologists translated it independently and agreed on a final common translation. The Spanish version was first administered to 4 parents (2 mothers and 2 fathers) in order to test whether understanding difficulties emerged. With this purpose, we asked these 4 parents to complete the measure and also to indicate whether they had had any difficulty in understanding each of the items. As none of them reported any difficulty, we administered the scale to the 196-parents sample above described with the aim of assessing its psychometric properties.

**Perceived Stress Scale (PSS).**<sup>34</sup> The PSS is a global measure of stress that was developed with the aim of measuring the degree to which situations in one's life are appraised as stressful. We used the European Spanish version.<sup>35</sup> This is a 14-item questionnaire that demonstrated adequate reliability (internal consistency,  $\alpha = .81$ , and test-retest,  $r = .73$ ), concurrent validity, and sensitivity.

**Davidson Trauma Scale (DTS).**<sup>36</sup> It is a 17-item measure that assesses the 17 DSM-IV symptoms of PTSD. It was adapted to Spanish language<sup>37</sup> showing high internal consistency ( $\alpha = .90$ ) and test-retest reliability ( $ICC = .87$ ).

**Hospital Anxiety and Depression Scale (HADS).**<sup>38</sup> It is a 14-item scale that contains two 7-item Likert scales, one for anxiety and

one for depression. We used the Spanish version<sup>39</sup> that showed test-retest reliability (presented correlation coefficients above .85), high internal consistency ( $\alpha = .86$ ), and high concurrent validity.

**Medical variables.** The physician responsible for every child responded the *Paediatric Index of Mortality II (PIM 2)*<sup>40</sup> a rating index developed to predict mortality risk in the PICU during the first 24 h of admission which discriminated between death and survival well [area under the receiver operating characteristic (ROC) plot .90 (.89–.91)]. We also registered the length of the admission, mechanical ventilation on the child, being the admission elective or urgent, previous admissions on PICU and previous health status of the child.

Subjective perception of the severity of the child's condition. We asked every parent the following two questions: (1) How severe do you think that your child's condition has been during his/her hospitalisation in the PICU? (0–7) and (2) Did you think that your child could die at any point of his/her PICU's admission? (Yes/No).

**Socio-demographic and cultural variables:** We assessed age and sex of the parents and the child, marital status, number of children, work status, financial trouble, education level, nationality, and spiritual or religious beliefs.

### 2.3. Procedures

The study was approved by the Institutional Review Board of the hospital. The parents of every child that had been admitted to the PICU for more than 12 h and survived the admission were asked to participate in the first 48 h after the child's discharge from the PICU. Data collection was made by a trained researcher in psychology. Parents were given an informed consent form that described the study and its purposes, potential risk and benefits, and confidentiality. Then, those who agreed to participate and signed the written consent completed the A-PSS:PICU, the PSS and a socio-demographic and medical questionnaire. We also asked them to provide us with a preferred way to be contacted in the follow-up (telephone, email or post). Three months later we contacted them again via their preferred method of contact and we asked them to complete the HADS and the DTS, which they could complete by email, telephone or post.

### 2.4. Data analysis

First, two models were tested through confirmatory factor analyses (CFA) to study the A-PSS:PICU factor structure. An inter-category correlation matrix was used in computation of the factor matrix to help compensate for "Not experienced" responses. Estimates were obtained using the maximum likelihood method after examining whether data were adequate for the analysis. In order to assess model fit, absolute fit indexes ( $\chi^2$ ,  $\chi^2/df$ , SRMR), relative fit indexes (IFI) and non-centrality fit indexes (CFI, RMSEA) were used, as well as criteria for acceptance or rejection described by Hair et al.<sup>41</sup>

Second, the reliability – internal consistency – of the subscales and the general scale was calculated.

Third, to get information on the concurrent validity, Pearson correlation coefficients were computed between the A-PSS:PICU scores and general stress assessed through the Perceived Stress

Scale (PSS). To explore the predictive validity, we calculated its correlation with PTSD, anxiety and depression.

Fourth, to examine the level of stress produced by each stressor and the scores in the total scale and each subscale, the means, ranges and standard deviations were calculated.

Fifth, with the aim of testing which socio-demographic and medical variables were associated with parental stress in the PICU, we calculated Pearson correlations with the continuous variables assessed, and the point-biserial correlation coefficient (rb) with the dichotomised variables assessed.

## 3. Results

### 3.1. Confirmatory factor analyses

The fit indexes of the two models tested through CFA are shown in Table 1. Within the first model tested we attempted to prove whether the A-PSS:PICU has a mono-factorial structure. As we can see in Table 1, this model is not well adjusted. Initial confirmatory standardised solution this model showed that the items that assessed how stressful were the "inadequate PICU's staff behaviour" and the "communication problems" have a lower relation to the general total score than the rest of items, so they could be assessing a different factor. Thus, in the second model we attempted to prove whether the questionnaire has a bi-factorial structure, in which one factor contains items related to stressors produced by the child's situation in the PICU (child's appearance, procedures, etc.) and the other items related to difficulties in the relation with PICU's staff. This model also contains a second order factor to explain all covariance between the two first order factors. This model is presented in Fig. 1. As we can see in Table 1 all the fit indexes are acceptable, so the A-PSS:PICU has a 2-factor structure. The first factor has five items to assess how stressful are for parents the following stimuli: child's appearance, sight and sounds, procedures, parental roles, and behaviours and emotional responses of the child. The second factor has two items, to assess how stressful are aspects related to PICU's staff. This model also allows calculating a total score in the questionnaire.

### 3.2. Internal consistency

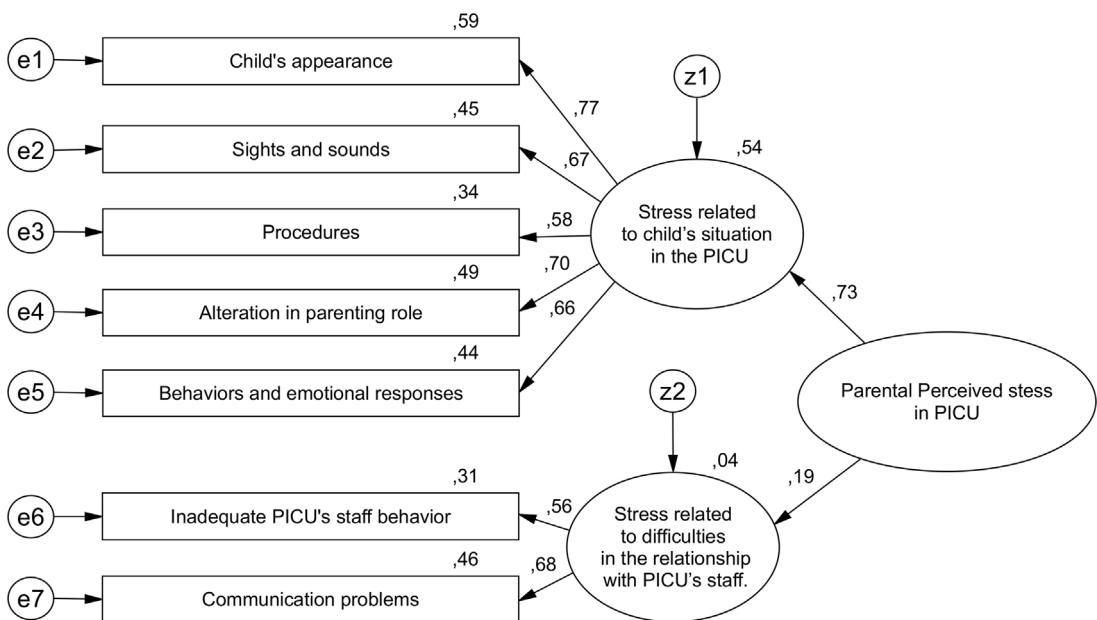
Internal consistency of the A-PSS:PICU was .76. Internal consistency of the factor "Stress related to child's situation in the PICU" was .81, and that of the factor "Stress related to difficulties in the relationship with PICU's staff" was .77. Internal consistencies of the remaining questionnaires used for validation purposes (the PSS, the DTS and the HADS) were all over .80.

### 3.3. Concurrent and predictive validity

As it is shown in Table 2, correlations of the total scale and the factor "Stress related to child's situation in the PICU" with perceived stress, anxiety, depression and PTSD are in the direction that we had expected. This fact provides evidence of the concurrent and predictive validity of this tool. However all correlations of the factor "Stress related to difficulties in the relationship with PICU's staff" with the criterion are not significant.

**Table 1**  
Fit indexes of the two models tested through Confirmatory Factor Analysis.

	$\chi^2$	df	Sig	$\chi^2/df$	IFI	CFI	RMSEA	SRMR
Model 1	51.294	14	.000	4.235	.863	.860	.129	.083
Model 2	29.907	19	.005	2.301	.949	.948	.082	.045



**Fig. 1.** Initial confirmatory standardised solution for the two-factor model of the Abbreviated Parental Stressor Scale Paediatric Intensive Care Unit (A-PSS:PICU).

### 3.4. Stressors for parents of children admitted to intensive care

To determine the greatest sources of stress among our sample, first we calculated the percentage of parents who experienced each of the seven potentially stressful situations which are included in the A-PSS:PICU. Around 95% of parents experienced situations assessed by Item 1 [Physical appearance of the child (wounds, changes in skin colour, appearance to be cold, etc.)], Item 2 (Sounds of monitors, seeing the heart rate on monitors or hearing sudden alarm sounds.) and Item 3 [Medical procedures conducted on my child (needles, tubes, incisions, etc.)], while around 50% of parents experienced situations assessed by Item 4 (Not being able to see my child, being with my child and taking care of him and hold him whenever I wish.), Item 5 (Seeing my child crying confused, in pain, unable to speak, sad or angry.), Item 6 [Seeing the staff from PICU behaving in a way that I consider inadequate (e.g. Laughing, speaking too loud, not telling me their names, etc.)] and Item 7 [Communication problems with the doctors (explaining me the things in a way that I do not understand, expressing contradictory opinions, talking too little to me, etc.)]. Secondly, group means were calculated for the items, the subscales and the total scale. The mean score was computed by dividing the sum of the total scores on every item by the number of items rated "1" or above. Thus, we do not consider difficulties that have not been experienced by parents

**Table 2**  
Correlations between the A-PSS:PICU scores and the criterion variables selected.

	Total score A-PSS:PICU	"Stress related to child's situation on PICU"	"Stress related to difficulties in the relationship with PICU's staff"
Perceived Stress (PSS) (N = 196)	.25**	.29**	.02
Anxiety (HADS) at 3 months (N = 158)	.17*	.24**	-.03
Depression (HADS) at 3 months (N = 158)	.15	.19*	.00
PTSD at 3 months (DTS) (N = 158)	.22**	.27**	.02

\* Sig at  $p \leq .05$ .

\*\* Sig at  $p \leq .01$ .

to calculate the means. The most stressful aspects when considering only those parents who have experienced each situation were the Child's behaviour and emotions, the loss of their parental role and the Child's appearance. These data are presented in Table 3.

### 3.5. Correlations between the A-PSS:PICU and socio-demographic and cultural variables

As it's shown in Table 4, higher stress scores are negatively related to age of the parent and the child. Women and those who have spiritual or religious beliefs are more prone to have higher level of stress. The number of children is negatively correlated with the subscale "Stress related to PICU's staff". No correlation has been found between parental stress and the following variables: economic and education level, child's gender, nationality and marital and work status.

### 3.6. Correlations between the A-PSS:PICU and medical variables

Higher stress scores are associated to higher objective severity of the child's medical condition assessed through the PIM2, with the subjective child's severity as perceived by the parents, with the belief that the child could die during the admission to PICU, with length of the admission, and with mechanical ventilation of the child. Previous health status of the child, previous admission and being the admission unexpected were not related to stress. These correlations are also shown in Table 4.

## 4. Discussion

First, we can conclude that the A-PSS:PICU is an adequate screening measure to assess parental sources of stress while their child is admitted to the PICU. Starting with its psychometric properties, two factors emerged through factor analysis, "Stress related to child's situation in the PICU", and "Stress related to difficulties in the relationship with PICU's staff". As they are significantly correlated, a score for the whole scale can also be obtained. The scale and its two factors showed good internal consistency. The total scale and the first factor showed good concurrent and predictive validity. However, the second factor

**Table 3**

Average scores, ranges, and standard deviations of the subscales and the total instrument.

	N	% of parents who experienced that stressor	Range	Mean	SD
Item 1 – Child's appearance in the PICU	185	94.38	1–5	3.19	1.14
Item 2 – PICU's sights and sounds	187	95.41	1–5	2.74	1.17
Item 3 – Procedures conducted on the child	188	95.92	1–5	2.59	1.21
Item 4 – Loss of parental role in the PICU	106	54.08	1–5	3.45	1.28
Item 5 – Behaviours & emotional responses of the child	107	54.59	1–5	3.98	1.10
Item 6 – Inadequate behaviour of PICU's staff	106	54.08	1–5	2.82	.95
Item 7 – Communication with physicians in the PICU	96	48.97	1–5	2.73	.86
Factor 1 – Stress related to child's situation on PICU subscale (items 1–5)	196	–	1–5	3.14	.96
Factor 2 – Stress related to difficulties in the relationship with PICU's staff subscale (items 6 and 7)	120	–	1–5	2.58	1.17
A-PSS:PICU total	196	–	1–5	3.05	.87

didn't show significant correlations with any of the criteria that we assessed. We hypothesise that this may be because, even when the difficulties in the relationship with PICU's staff can be a source of stress, it is a temporary one, as disappears once the child has been discharged from intensive care. However, the factor related to a child's situation in the PICU comprises stimuli (such as medical procedures) that may have a longer-term impact on the child's health and, consequently, in parental mental health. In any case, a note of caution is needed on the fact that the second factor has only two items. This fact limits the variability of scores, what might affect the manifestation of its relation with others variables.

Second, regarding more prevalent stressors for parents at PICU, Child's appearance in the PICU, PICU's sight and sounds and Procedures conducted on the child were the most frequently experienced aspects by parents, as around of 95% of them reported having experienced these situations. Regarding most stressful aspects, when only parents who had experienced each situation were considered, child's behaviour and emotions and the loss of their parental role were found to be the most stressful aspects, even when only

around 50% of parents experienced these situations. This means that, when experienced, these situations can be extremely stressful for parents, so efforts should be made by PICU's staff in order to decrease the degree in which the parents perceive that their child is suffering, and in order to maintain their parental role by involving them in the child's care. The fact that the more stressful aspects when experienced were the child's behaviour and emotions and the loss of their parental role is consistent with data from English-speaking North American parents,<sup>10,18</sup> but not with results from Hispanic North American parents<sup>22</sup> and Indian parents<sup>31</sup> for whom the Sights and Sounds and Procedures subscales were the most stressful aspects. This suggests that there are cultural differences in what parents consider to be the most stressful factors of the PICU environment. Like North American English-speaking parents, Spanish parents found physical aspects of the PICU less stressful than Hispanic North American parents and Indian parents possibly because of their previous exposure to components of the ICU through the media, or the hospitalisation of a relative.<sup>17</sup>

Third, with regard to variables associated with stress in our study, the fact that the parental stress was positively and significantly correlated with anxiety, depression and PTSD assessed three months post-discharge is relevant, as it shows that the A-PSS:PICU, which takes a few minutes to be completed, could potentially contribute to predict psychopathology months after the child's admission has ended. Regarding socio-economic and medical variables, younger parents, women, those with spiritual beliefs, and those whose child is intubated, admitted for longer and whose medical condition was more severe reported higher stress. Thus, special attention should be paid to this group, as they have a high-risk profile to experience high stress related to PICU environment. The fact that higher severity, mechanical ventilation, younger age and feminine gender was related to stress was an expected result to us, as these data are consistent with literature.<sup>21–23</sup> However, even when previous studies found that parents feel that prayer is helpful in reducing their stress<sup>21,42</sup> our results showed that parents with spiritual or religious beliefs have higher rates of stress. Also, even when previous studies found that having previous PICU's experiences was associated to lower stress<sup>23</sup> we found that the occurrence of previous admissions to PICU was unrelated to the parental stress score. Finally, even when previous studies found that parental socioeconomic difficulties were related to higher stress,<sup>33</sup> we found that economic difficulties and work status were unrelated to stress. These unexpected results should be further explored.

Regarding limitations of this work, we are aware that reducing the number of items of the PSS:PICU may cause a loss of detail in the information collected. However, both scales are not incompatible: the A-PSS:PICU could work as an screening tool that might be complemented by the PSS:PICU when more precise information is required. In any case, further research is needed using the new

**Table 4**

Pearson and point-biserial correlations between the A-PSS:PICU punctuations and socio-demographic, cultural and medical variables chosen.

	Total score A-PSS:PICU	"Stress related to child's situation on PICU" subscale	"Stress related to difficulties in the relationship with PICU's staff" subscale
Age	-.31**	-.30**	-.19*
Child's age	-.20**	-.22**	-.11
Gender	.24**	.24**	.02
Child's gender	.09	.10	.02
Number of children	-.10	-.13	.06
Economic difficulties	.12	.11	.09
Education level	.03	.07	-.12
Spiritual beliefs	.24*	.26**	-.03
Marital status	.06	.07	.04
Work status	-.05	-.06	.01
Living in the city where the PICU is located	-.13	-.15*	-.00
PIM2	.14*	.16*	-.01
Subjective child's severity	.42**	.45**	.09
Belief child could die	.26**	.28**	-.03
Length of admission	.23**	.23**	.13
Previous health status	.08	.11	-.17
Previous admissions	-.04	-.07	.10
Elective vs urgent	-.09	-.11	.08
Intubated or not	.23**	.21**	.16

\* Sig at  $p \leq .05$ .\*\* Sig at  $p \leq .01$ .

abbreviated scale. First, it would be interesting to administer our scale along with the PSS:PICU, in order to explore to what extent the abbreviated version is assessing the same groups of stressors as the longer one. Second, it would be convenient to test the psychometric properties of the English version of this scale.

In spite of its limitations, the A-PSS:PICU is a new instrument to effectively assess parental sources and degree of stress during a child's critical hospitalisation. Its main strength is that it takes a few minutes to complete it, which makes this scale practical to be used in a routine way by nursing staff. It can also be used to detect parents with a high level of stress for an early preventive intervention, because, as we mentioned, the scores on this scale are related to parental psychopathology months post-discharge. Also, this instrument could be used to detect which improvements would be necessary to make in a particular PICU, and to test the effectiveness of interventions to reduce parental stress in that context. Consequently, the A-PSS:PICU could become an addition to the inventory of questionnaires useful in paediatric critical care nursing.

### Funding and financial disclosure

This work was supported by Universidad Autónoma de Madrid under a FPI-UAM fellowship.

### Acknowledgments

The authors would like to acknowledge Lidia Casanueva, Victoria Ramos, Alba Palacios, Ana Llorente, Silvia Belda, Olga Ordóñez

0 No he experimentado esta situación <i>Not experienced</i>	1 No estresante <i>Not stressful</i>	2 Mínimamente estresante <i>Minimally stressful</i>	3 Moderadamente estresante <i>Moderately stressful</i>	4 Muy estresante <i>Very stressful</i>	5 Extremadamente estresante <i>Extremely stressful</i>
1. Aspecto físico del niño (heridas, cambios en el colour de su piel, apariencia de estar frío, etc.) <i>Physical appearance of the child (wounds, changes in skin colour, appearance to be cold, etc.)</i>					
2. Sonido de los monitores, ver los latidos del corazón en los monitores o escuchar pitidos de alarma repentinos. <i>Sounds of monitors, seeing the heart rate on monitors or hearing sudden alarm sounds.</i>					
3. Procedimientos médicos que le han hecho a mi hijo (inyecciones, tubos, incisiones, etc.) <i>Medical procedures conducted on my child (needles, tubes, incisions, etc.)</i>					
4. No poder ver a mi hijo y estar con él y cuidarle y cogerle cuando yo quiera. <i>Not being able to see my child, being with my child and taking care of him and hold him whenever I wish.</i>					
5. Ver a mi hijo llorando, confundido, teniendo dolor, incapaz de hablar o llorar, triste o enfadado. <i>Seeing my child crying confused, in pain, unable to speak, sad or angry.</i>					
6. Ver al personal de la UCIP comportándose de un modo que considero inadecuado (riendo, hablando muy alto, no diciéndome sus nombres, etc.) <i>Seeing the staff from PICU behaving in a way that I consider inadequate (e.g. Laughing, speaking too loud, not telling me their names, etc.)</i>					
7. Problemas de comunicación con los médicos (explicarme las cosas de un modo que no las entiendo, diciéndome opiniones contradictorias, hablando poco conmigo, etc.) <i>Communication problems with the doctors (explaining me the things in a way that I do not understand, expressing contradictory opinions, talking too little to me, etc.).</i>					

and Marta Olmedilla as well as to all the nursing staff of the PICU of Hospital 12 de Octubre, and especially Eva Val and Raquel Vina-gre, for their help with the data collection. We also would like to acknowledge Helena Hernansaiz-Garrido for reviewing the writing style of this article.

Both authors have made equally significant contributions to the article in all of the following aspects: (1) the conception and design of the study, acquisition of data, and analysis and interpretation of data, (2) drafting the article or revising it critically for important intellectual content, (3) final approval of the version to be submitted.

### Appendix A. The A-PSS:PICU (Spanish) and its English translation

**INSTRUCCIONES:** Las siguientes preguntas se refieren aspectos de la UCIP que pueden resultar estresantes para los padres durante el ingreso de su hijo. Con estresante, nos referimos a que la experiencia te ha hecho sentir ansioso, preocupado o tenso. Te pedimos que rodees el número que mejor exprese cuánto ha sido de estresante la experiencia para ti, de acuerdo con la siguiente escala:

**INSTRUCTIONS:** The following items describe aspects of the PICU environment that might be stressful for parents during their child's hospitalisation. "Stressful" means that the experience has made you feel anxious, worried or tense. We ask you to circle the number which better express how stressful each experience has been for you according to the following scale:

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