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**Cultural Influences in the Processing of Emotion
Schemas Related to Death and Violence: A Pilot Study ***

Cultural Influences in the Processing of Emotion Schemas Related to Death and Violence: A Pilot Study*

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ABSTRACT | Culture is a key element in determining emotions that people experience when facing death.
Recent studies revealed a specific emotion schema for the affective response to death (in comparison with
unpleasant/violence-related stimulus), influenced by differences in the personalities and learning processes
of the individuals, on the one hand, and differences in the cultural and social contexts of the two groups,
on the other. The objective of the research was to compare the English participants' affective response to
pictures of death to those of the Spanish participants, who viewed other types of affective pictures (pleasant,
unpleasant/violence-related and neutral). A total of 38 young adults took part in an emotional assessment
using a set of pictures from the International Affective Picture System (IAPS) database. They indicated the
values of valence, arousal and dominance for each affective image. The results show that the images related
to death were less unpleasant and caused a lower activation in the English population, while there were no
differences in the two group's responses to unpleasant/violent images.

KEYWORDS | *Thesaurus*: culture; death; violence. *Author*: emotion schema; IAPS; suffering

Influencias culturales en el procesamiento de los esquemas emocionales asociados a la muerte y a la violencia: un estudio piloto

RESUMEN | La cultura es un elemento clave para determinar las emociones que experimentan las personas
cuando enfrentan la muerte. Estudios recientes han mostrado la existencia de un esquema emocional específico
ante la muerte (en comparación con estímulos emocionales desagradables o relacionados con la violencia) influ-
enciado por las diferencias individuales, el aprendizaje, así como los contextos sociales y culturales. El objetivo
de la investigación fue comparar la respuesta afectiva de dos grupos de participantes (ingleses y españoles)
ante diferentes tipos de imágenes afectivas (agradables, desagradables/relacionadas con la violencia, relacio-

nadas con la muerte y neutras). Un total de 38 adultos jóvenes participaron en una evaluación emocional usando un conjunto de imágenes procedentes del *International Affective Picture System* (IAPS). Indicaron los valores de valencia, activación y dominancia para cada imagen. Los resultados muestran que las imágenes relacionadas con la muerte fueron menos desagradables y provocaron menos activación para la población inglesa, mientras que no hubo diferencias en las imágenes desagradables/violentas entre los grupos.

PALABRAS CLAVE | *Thesaurus*: cultura; muerte; violencia. *Autor*: esquema emocional; IAPS; sufrimiento

Influências culturais no processamento de esquemas de emoção relacionados à morte e à violência: um estudo-piloto

RESUMO | A cultura é um elemento-chave para determinar as emoções que as pessoas experimentam quando enfrentam a morte. Estudos recentes mostram a existência de um esquema emocional específico ante a morte (em comparação com estímulos emocionais desagradáveis ou relacionados com a violência) influenciado pelas diferenças individuais, pela aprendizagem, bem como pelos contextos sociais e culturais. O objetivo desta pesquisa foi comparar a resposta afetiva de dois grupos de participantes (ingleses e espanhóis) quanto a diferentes tipos de imagens afetivas (agradáveis, desagradáveis/relacionadas com a violência, relacionadas com a morte e neutras). Um total de 38 adultos jovens participaram de uma avaliação emocional que usou um conjunto de imagens procedentes do *International Affective Picture System* (IAPS). Indicaram os valores de validade, ativação e dominância para cada imagem. Os resultados mostram que as imagens relacionadas com a morte foram menos desagradáveis e provocaram menos ativação para a população inglesa, enquanto não houve diferenças nas imagens desagradáveis/violentas entre os grupos.

PALAVRAS-CHAVE | *Thesaurus*: cultura; morte; violência. *Autor*: esquema emocional; IAPS; sofrimento

Introduction

Throughout history, death has been a cause of distress for humans. Although efforts have been made to understand how it feels to face death and everything that surrounds it, they have not yet gone beyond the study of the anxiety that this idea of finiteness causes (Becker 2003; Maxfield et al. 2007; Neimeyer 1994). However, recent studies (Martí-García et al. 2016a; 2016b) revealed a specific schema for the affective response to death. The term "emotion schema" was coined by Izard (2007; 2009); it refers to the fact that emotions are in constant interaction with perceptual and cognitive processes that can influence the mind and behavior. Izard establishes a clear distinction between basic emotions (for example, anger, sadness, surprise, happiness, disgust and fear), which have evolutionary and biological roots, and the affective-cognitive structures or emotion schemas, which are influenced by differences between the individuals and differences between the two groups' cultural context (Izard 2007; 2009; Panksepp 2007). The use of emotion schemas allows humans to identify and communicate complex feelings, facilitating emotional and behavioral self-regulation (Izard *et al*. 2008). The symbolization and effective communication of emotional feelings play a key role in the use of emotion, particularly in real life or simulated social interactions. In summary, Izard (2009) highlights the use of the intrinsically adaptive emotional motivation component of an emotion in the construction of affective-cognitive processes and actions.

Therefore, emotion schemas can be influenced by individual differences, learning, and cultural and social contexts. Specifically, pictures of death occupy a space in the two-dimensional model proposed by Lang *et al*. (1997) that differs from that of the unpleasant pictures in terms of valence, arousal and dominance (Martí-García *et al*. 2016a; 2016b).

In general, pictures of death are less unpleasant, elicit less arousal, and have greater dominance than unpleasant pictures. These results also depend on the degree of suffering represented in the picture. As the degree of suffering increases, the picture becomes more unpleasant (Martí-García *et al.* 2016b). The types of unpleasant images previously used include pictures of negative valence and high activation, most of them representing stimuli directly related to violence: amputated hands, aggressive expression, or faces disfigured by a bullet (Martí-García *et al.* 2016a). In this sense, the emotional schema of death seems to differ significantly from images related to violence.

Some relevant works have argued how emotions are culturally constructed (Lutz 1988; Lutz and White 1986; Wierzbicka 1999). In addition, current research is oriented towards an interactionist perspective based on the fact that emotions are the complex product of cultural and biological determinants (Khan, Schmidt and Chen 2017; Kim and Sasaki 2014; Matsumoto and Hwang 2012). However, even though there are numerous

studies which compare cultural groups, countries or religions (Kim and Cohen 2017) in terms of specific emotions (Alonso-Albiol *et al*. 2011), affective or emotional dimensions (Varnum and Hampton 2017), or global emotional responses (Huang *et al.* 2015; Riegel *et al.* 2017), the results are still heterogeneous and show an important lack of consistency.

Likewise, even though there have been many studies exploring the emotional response to death in relation to different cultures (Metcalf and Huntington 1991; Rosenblatt 1993; 1997), most of them have been conducted from an anthropological perspective. To the best of our knowledge, there is a scarcity of studies addressing the existence of cultural differences in the way the emotional schema of death is perceived. Some studies, like the one conducted by Koopmann-Holm and Tsai (2014), analyzed the positive and negative affect of Americans and Germans through the feeling of concern for the suffering of others. In that study a specific death-related scenario (sympathy cards) was used, but they did not directly address the emotional processing of death-related stimuli. Therefore, the main objective of the present pilot research was to compare emotion schemas (emotional responses and emotional processing) in young people from two countries: Spain and the U.K.

Although these two countries are in the European Union, Spain and the UK have a series of divergent characteristics in the way death and dying are perceived. A recent study demonstrated how different European Union countries provide different palliative care in terms of the meaning, priorities and skillsets of this type of care, (Gysels *et al.* 2012). Key cultural factors, such as the development of individualistic societies, religion, and border regulations, can vary the way in which death is handled between countries (Walter 2012). In fact, according to the 2015 Quality of Death Index (The Economist 2015), in the UK the quality of death, the quality of care and the community's engagement are higher than in Spain. This seems to be related to education and the medical culture, making the UK one of the best countries to provide end-of-life care.

Several studies have shown that cultural background has a significant influence on expression and emotional processing (Grossmann, Ellsworth and Hong 2012; Huang *et al.* 2015). They suggest that individuals of interdependent cultures can benefit more from the use of reappraisal, perhaps because the adjustment of emotions to the social environment is important in the cultural context (Ford and Mauss 2015). However, despite the relevance of these data, our literature review yielded no studies examining the differences in the emotional processing of pictures of death in different cultures. This emotional schema could be a key concept to help us understand how people face important end-of-life decisions, such as withholding or withdrawing therapy, euthanasia or the truthful revelation of information,

especially when the information disclosed is likely to be psychologically painful ("bad news").

The aim of this study was to determine the differences in the affective response to pictures of death and violence in young Spanish and English adults. To that end, we used standardized instruments based on pictures related to death and dying. In line with previous findings, we hypothesized that the emotional experience of viewing death-related pictures would be different between English and Spanish participants.

Method

Participants

A total of 38 University students (19 Spanish and 19 English participants)[1] voluntarily participated in this study, without receiving any compensation (see Table 1). The sample size of the study was defined based on previous investigations on the death-emotional schema (Martí-García *et al.* 2016a; 2016b; 2017). The inclusion criteria were: i) age between 18-35 years and ii) pursuing studies unrelated to palliative care (for example, the knowledge and treatment of patients and dying people). The sample did not differ in gender or age ($p > .05$).

Instruments

1. The Symptom Checklist-90-R (SCL-90-R, Derogatis 2002) is a brief, multifaceted, self-administered questionnaire designed to explore a wide range of psychopathological symptoms. The SCL-90-R is validated in Spanish and English and has normative values. Participants whose scores showed anxiety disorders or depression (T Score>70) prior to the experiment were eliminated.

2. Set of affective pictures. Following the procedure of previous studies, the subjects were exposed to a set of 36 affective pictures for this study (Fernández-Alcántara *et al.* 2016; Martí-García *et al.* 2016a; 2016b). A total of 15 of these pictures were selected from the International Affective Picture System (IAPS) developed by the National Institute of Mental Health Center for Emotion and Attention (Lang *et al.* 1997) and validated in the Spanish population (Moltó *et al.* 1999; Vila *et al.* 2001). The 15 IAPS pictures used in our study for the pleasant, neutral

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1   Spain and England are two countries that represent two different ways of dealing with end-of-life process, both socially and regarding the health-care system. In Spain, death is a social taboo, something that should not be discussed in the context of people who are dying (example of this is the higher level of conspiracy of silence in Spanish institutions). Nevertheless, in in England the end-of-life process is standardized and is specifically included in the health system through specific facilities such as hospices.

and unpleasant categories correspond to the following numbers: 3000, 3053, 3062, 3400, 9181 (unpleasant/violence, activating images), 4670, 4672, 4676, 5621, 8496 (activating pleasant images; adventure sports, images with sexual content or people having fun), and 7009, 7175, 7185, 7224, 7233 (neutral; inanimate objects such as lamps or plates). Additionally, a test picture was used to explain the test (1400). A fourth category was added with 21 pictures of death (Martí-García *et al.* 2016a; 2016b). These pictures included dead people, life-threatening situations or people suffering the loss of a loved one.

Ten Palliative Care experts categorized the pictures of death according to the degree of suffering: high, medium or low suffering (Martí-García *et al.* 2016a).

3. Self-Assessment Manikin (SAM). The SAM stands out among self-reports on affective experience as a useful instrument to determine the subjective experience of emotions associated with the processing of most stimuli. This instrument uses pictorial scales to assess three emotional dimensions: valence (pleasantness), arousal (excitement or nervousness) and dominance (emotional control). Each SAM scale consists of a set of five humanoid figures with nine possible intensity levels. This evaluation method has been validated and widely used in research on reactivity to emotional stimuli (Bradley *et al.* 2001; Hodes, Cook and Lang 1985). The paper/pencil version was used in this study.

Procedure

First, the participants completed the SCL-90-R. Subsequently, they viewed and evaluated the pictures using the SAM. The 36 pictures were preceded by a white screen for two seconds, indicating the picture number that appeared. The exposure time for each picture was six seconds, and the participants had 20 seconds to score the picture in the SAM.

All pictures were projected in full color and on a 150 cm x 200 cm size screen on a Pentium D computer using Microsoft PowerPoint 2007. The participants sat four meters away from the screen, and the pictures were displayed at 50 degrees in their horizontal and vertical viewing angle.

In each session, the pictures were displayed in the same order, as established by the protocol. The estimated completion time of the test was approximately 45 minutes. The participants provided informed consent prior to the experiment.

Table 1. Sociodemographic statistics, means and standard deviations of the emotional categories by country

Demographics	Total (n=38) Mean (SD) or N (%)	Spain (n=19) Mean (SD) or N (%)	U.K. (n=19) Mean (SD) or N (%)	*p*-Value
Males	25 (65,8%)	10 (52,6%)	15 (78%)	.087
Age (years)	26(4.3)	25.3 (4.8)	26.8 (3.7)	.286
SAM scores				
Valence				
Neutral	5.07 (.32)	5.04 (.36)	5.11 (.29)	
Pleasant	7.19 (.94)	7.58 (1.09)	6.80 (.55)	
Unpleasant	1.60 (.59)	1.53 (.69)	1.68 (.48)	
Death	2.49 (.69)	2.20 (.79)	2.78 (.41)	
Arousal				
Neutral	2.12 (1.19)	1.77 (1.08)	2.47 (1.21)	
Pleasant	5.22 (1.59)	5.26 (1.58)	5.18 (1.64)	
Unpleasant	7.01 (1.94)	7.35 (1.95)	6.68 (1.92)	
Death	5.25 (1.75)	5.97 (1.90)	4.53 (1.25)	
Dominance				
Neutral	6.74 (2.14)	7.78 (1.65)	5.70 (2.10)	
Pleasant	6.37 (1.94)	6.82 (1.76)	5.92 (2.06)	
Unpleasant	4.07 (1.79)	3.62 (2.11)	4.53 (1.30)	
Death	5.09 (1.82)	4.84 (2.11)	5.34 (1.48)	

Note: SD, Standard Deviation; SAM, Self Assessment Manikin.

Source: Elaborated by the authors.

Data Analysis

Because no participant had pathological levels of anxiety or depression, all the participants were included in the statistical analysis. First, descriptive statistics were analyzed for all pictures and semantic categories, according to each of the three emotional dimensions (valence, arousal and dominance). Bi-factorial MANOVAS (multivariate analysis of variance) with the group (Spain vs English population) as the independent variable, and the scores on each emotional dimension (valence, arousal and dominance) as dependent variables, were carried out. Post-hoc ANOVAS (analysis of variance) were performed when the differences were statistically significant. Finally, additional MANOVAS were performed to determine the influence of the death-related pictures on the degree of suffering, with the group (Spain vs English population) as the independent variable, and the scores on each emotional dimension (valence, arousal and dominance) as the dependent variables. The alpha level was set at p < .05 for all analyses. A partial eta square was chosen as a measure of effect size. SPSS version 19 was used for the data analysis.

Results

Differences in emotion schemas related to death between Spanish and English populations

There were statistically significant differences for the valence dimension, $F_{(4,33)}$ = 3.56, p = .016, η^2_p = .302, Wilks' Lambda = .698. Post-hoc comparisons indicated that the groups differed in the pleasant (F $_{(1,36)}$ = 7.77, p = .008, η^2_p = .177) and the death-related pictures (F $_{(1,36)}$ = 7.87, p = .008, η^2_p = .179). The Spanish participants perceived pleasant pictures as more positive and the death-related pictures as more unpleasant, in comparison with the English participants.

Regarding the arousal dimension, statistically significant differences were found between groups, $F_{(4,33)}$ = 5.91, p = .001, η^2_p = . 418, Wilks' Lambda = .582. Post-hoc comparisons showed statistically significant difference for the death–related pictures $F_{(1,36)}$ = 7.61, p = .009, η^2_p = .175, indicating higher levels of arousal for the Spanish participants when viewing this type of images.

Finally, in the dominance dimension, statistically significant differences were found between groups, $F_{(4,33)}$ = 5.17, p = .002, η^2_p = .385, Wilks' Lambda = .615. Post-hoc analysis identified differences between the groups for

the neutral pictures, $F_{(1,36)}$ = 11.49, p = .002, η^2_p = .242. No differences between the groups were found in any emotional dimension for the emotional processing of unpleasant or violence-related pictures.

Figure 1. Differences in emotion schemas related to death between the Spanish and English populations
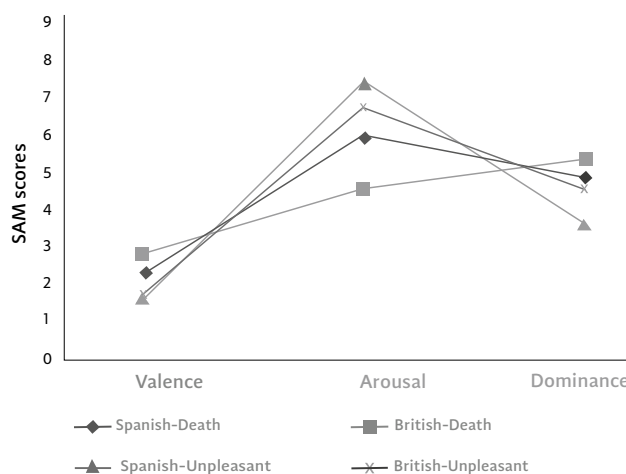
Source: Elaborated by the authors.

Differences in emotion schemas related to death among the Spanish and English participants by degree of suffering

The values of the death-related pictures were analyzed according to the degree of suffering and the group. The results of the MANOVAS showed statistically significant differences for the valence and arousal dimensions. No differences were found with respect to the values of dominance (see Table 2).

For the valence dimension ($F_{(3,34)}$ = 4.24, p = .012, η^2_p = .271, Wilks' Lambda = .728), the English participants showed higher scores of valence for the High ($F_{(1,36)}$ = 4.39, p = .043, η^2_p = .109), and the Medium ($F_{(1,36)}$ = 12.23, p = .001, η^2_p = .254) suffering pictures.

For the arousal dimension ($F_{(3,34)}$ = 3.27, p = .033, η^2_p = . 224, Wilks' Lambda = .776), the Spanish participants perceived the three categories of death-related pictures as more arousing: High $F_{(1,36)}$ = 7.50, p = .010, η^2_p = .172; Medium $F_{(1,36)}$ = 6.22, p = .017, η^2_p = .147; and Low $F_{(1,36)}$ = 9.35, p = .004, η^2_p = .206.

Table 2. Means and standard deviations of the emotional categories according to the degree of suffering

SAM	Total (n=38) Mean (SD)	Spain Mean (SD)	U.K. Mean (SD)
Valence			
Low	2.70 (.86)	2.56 (.93)	2.84 (.79)
Medium	2.60 (.80)	2.20 (.90)	3.00 (.43)
High	2.34 (.75)	2.10 (.85)	2.58 (.54)
Arousal			
Low	4.72 (1.80)	5.53 (1.84)	3.91 (1.39)
Medium	5.17 (1.78)	5.84 (1.99)	4.49 (1.27)
High	5.48 (1.78)	6.21 (1.93)	4.75 (1.28)
Dominance			
	5.23 (1.84)	5.30 (2.10)	5.16 (1.58)
Medium	5.15 (1.92)	4.92 (2.22)	5.39 (1.58)
High	4.99 (1.84)	4.64 (2.09)	5.35 (1.51)

Note: SD, Standard Deviation; SAM, Self Assessment Manikin; Low, Low Suffering; Medium, Medium Suffering; High, High Suffering.

Source: Elaborated by the authors.

Discussion

The aim of this study was to explore the differences in the affective response to pictures between the English and the Spanish sample. The results suggest a different affective response to pictures of death between the English and Spanish participants in general, which also depended on the degree of suffering in the pictures. At the same time, the response to unpleasant pictures directly related to violence did not show any significant difference between the groups. Previous studies have shown differences in the response to death images, modulated by such factors as a previous experience with patients in end-of-life processes (Martí-García *et al.* 2017).

The current results seem to highlight the importance of the role of culture in the emotional schema of death, however, the response to unpleasant/violent images does not appear to be similar. According to studies carried out in other contexts, such as Xu *et al.* (2017), who used unpleasant images, the unpleasantness is associated with fear, it being difficult to differentiate between both emotions. Fear is, therefore, a basic emotion which is less conditioned by contextual and cultural elements, which may explain why there are no differences in this category of images between the two groups. However, other studies that analyze the relationship between emotion and violence in defined social contexts of violence have pointed out that the response to violence may be mediated by other emotions which are conditioned by cultural issues (Asakura 2016). Specifically,

shame has been identified as a possible modulator of the expression of violence, both positively and negatively (Schefft 2010; Scheff and Retzinger 2001). Taking into account that both sample populations are Western, the response to violence may be culturally similar. Western countries tend to have an individualistic culture that seems to responds differently to aggression, in comparison with collectivist cultures, which are characterized by lower levels of aggression (Bergeron and Schneider 2005). In addition, the content of violence in television images and videogames may vary between Western countries and Eastern countries (Anderson *et al.* 2010). To determine the existence of differences in response to these kinds of unpleasant images, it would be necessary to carry out new studies with sample populations where violence and other associated emotions can be understood more clearly.

The results concerning the characterization of the affective response to pictures of death in the English sample are consistent with previous studies of the Spanish sample (Martí-García *et al.* 2016a; 2016b). Pictures of death were less unpleasant, with a greater arousal and domination than unpleasant pictures, possibly depicting a specific emotion schema of death.

The cultural differences found within the same type of affective response to pictures of death can be explained by factors modulating the pattern of emotion itself. The mental processes involved in feelings of emotion, perception and cognition continuously and dynamically

interact in the generation and monitoring of thought and action (Izard 2009). These dynamic interactions can generate experiences of specific emotions that have the same nuclear emotional state, but different perceptual tendencies, thoughts, and action plans. These schemas are influenced by individual differences and learning, cultural and social contexts.

In this sense, the variations between the affective response of the English and Spanish students, specifically in terms of arousal, may be explained by the way death and dying are interpreted in the Anglo-Saxon and Hispanic cultures (Olarte 2014), and the stimulus for stress or calm may be linked to this response. Previous studies that have focused on patient care and on preferences or priorities show differences between the two populations which have been attributed to cultural differences in the prevailing societal values related to, for example, education and training (Olarte 2014; Watson *et al.* 2003). These preferences, related to the way in which people die, depend on the resources available, as a result of historical contingencies and cultural values (Cohen *et al.* 2015). In that sense, it should be noted that the Hospice Movement had its beginning in the U.K. when Dame Cicely Saunders creates St. Christopher's Hospice in 1967 (Mortimer 2015). However, in Spain usually there are no specific centers for the care of dying people, despite the fact that hospice care has been widely recognized as providing a positive experience for these patients and their families (Frankova 2018).

Pictures of death appear to be more acceptable when they do not cause pain for the living and do not evoke our own death or that of loved ones (Evans Walters and Hatch-Woodruff 1999; O'Neill 2011). Previous studies' evaluations of pictures of death according to the degree of suffering (Martí-García *et al.* 2016a; 2016b) show that as the degree of suffering reflected in the picture increases, the values related to the unpleasant pictures become more similar (lower valence and greater arousal).The results of the English participants reveal a different emotional processing from that of the Spanish participants, characterized by a lower arousal at different degrees of suffering and lower displeasure despite greater suffering.

The limitations of this study include the use of a small sample size and age range. Future studies should extend the study to other age groups, because in this study only young participants' responses were controlled. This study may serve as a basis for future studies, which should take into account other factors specifically related to culture, such as religious feelings (in the perceptual field), or specific training in end-of-life processes (in the cognitive field).

In conclusion, although the affective response to pictures of death seems to be the same in the two sample populations, emotional processing shows major cultural differences. The Spanish participants found death-related pictures to be more unpleasant and experienced greater arousal. In addition, the emotional responses to the unpleasant/violent pictures were similar in both groups, probably indicating that their processing depends less on cultural influence. Both results are consistent with the hypothesis of a specific emotion schema related to death.

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