

EUCLIDEAN DISTANCE IN THE REPERTORY GRID TECHNIQUE: A STUDY OF DISTANCES BETWEEN ELEMENTS IN A SAMPLE OF BATTERED WOMEN

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In this study, Euclidean distance was used to analyse the construct of male-female elements and those supportive or non-supportive in a sample of battered women (N=25). The main aim was to study the differences in subjective similarity (Euclidean distance) according to different structural indexes in the repertory grid. The sample was divided into two groups using the mean as the criterion for dichotomizing groups as high-low. Symptomatology was also used as a factor for distributing the sample. Between-group differences were calculated with the Student's-t. Women in the high-polarization group considered themselves different from their partner and also from other aggressive men. Women in the low-intensity group considered themselves and their partners as different from cooperative-helpful men.

Keywords: *Euclidian distances, repertory grid technique, intimate partner violence.*

INTRODUCTION

On gender violence

The World Health Organization calls gender violence a severe social and public health problem (WHO, 2005), and according to this organization, one third of the women who have had a partner have suffered some type of physical and/or sexual abuse from him. This figure would be higher if undeclared cases were to be included (Gracia, 2004). The United Nations Office on Drugs and Crime found that 47% of women murdered worldwide had been killed by intimate partners or family members. They also found that women from 15 to 44 were at higher risk of being abused or raped in their homes than from cancer, car accidents, war or malaria. This type of violence makes up 21-66% of primary care services, although other studies place this figure at 38% (Sprague et al., 2014).

On the other hand, the current trend is to individualize the interventions offered to battered women, adjusting them to the specific conditions that each victim presents. Further, on the other hand, different researchers have found different types of abused women based on their responses to victimization; in this way Karakurt, Smith &

Whiting (2014) found three different groups, prepared for change, focused on negative symptoms and focused on feelings of guilt and self-blaming, and Garcia-Martínez (2006) establishes a similar classification, those that maintain their ability to cope with the situation, those focused on anxious-depressive symptoms and those that need a reconstruction of their identity.

Gender violence from a Personal Construct viewpoint

In Personal Construct Theory (PCT), violence is considered a breakdown in the sense of continuity and fragmentation and invalidation of the construct system (Butt & Parton, 2005). Sewell (2005) thought that victims of traumatic situations undergo processes of narrative breakdown in which the continuity of the self is blocked or broken. The most common instrument for analyzing the construct systems in PCT is the repertory grid.

These studies have concentrated on dimensions such as polarization and differentiation. Polarization, understood as system rigidity, may be viewed as a coping strategy which enables victims to anticipate the reactions of the other

(Soldevilla et al, 2014). Differentiation would be the ability to distinguish the elements that comprise this construct system; usually is evaluated using the index Percentage of Variance Explained by the First Axis (PVEFA), a measure of the differentiation based in the number and relevance of the different dimension the person use, as higher the first dimension is, less differentiation the person show. In the area of gender violence, unidimensionality, or less system differentiation measured by the PVEFA, increases its predictive ability (Landfield, 1977), which is associated with abused women maintaining perception of a positive self-image (Soldevilla et al, 2014). Other structural indexes such as discriminative power, an indicator of connection among elements, component constructs or intensity have not been used in battered women research. In general, interconnected systems enable better response and anticipation, as more aspects of the system are available in a given situation, which would also constitute a protection factor (Winter, 1992), although no specific studies on violence have been found.

Self-perception is usually measured by comparing distances between elements on the grid, such as “current-self” and “ideal-self”. Different types of software used for evaluating the Repertory Grid Technique (RGT) enable the degree of association between elements and constructs to be found (Feixas & Cornejo, 2002). These associations are measures of perceived similarity and of the distance between two given components in the grid. Two objects are only identical if their distance from each other is null. Distance represents how far away they are in a physical space and also inequality on any variable or measurement condition. Imagining a plane of coordinates with the centre at the intersection of the Equator and the Greenwich Meridian, Paris would be farther from this centre than Malabo, and Sidney, even further, using the linear distance in meters as the measurement criterion.

Distance as a measure of differences in construction systems

Distance is the expression of the difference between two objects in any space which can be represented in terms of geometry. Therefore, distance is extremely sensitive to the curvature

of this space. Usually in personal constructs psychology the most frequently used statistic to calculate distances is the Euclidean distance, a direct value of inequality in a matrix of N rows and M columns. There is not a common expression of the Euclidean distance value in personal constructs studies. GRICOR, the software we are using, represented it from 0 to 100, the value for maximum dissimilarity, while other authors use different values (Borkenhagen et al, 2005) and there are studies of the consequences of its standardization (Schoeneich & Klapp, 1998).

In the many studies which include RGT, structural indices to study differences between abused women and control samples, or between different groups of abused women, none was found that made use of distances. However, based on the idea that all victimization processes assume some degree of traumatization, it may be hypothesized that short distances may differentiate victims from persons who have not been abused or between degrees of victimization. This can be seen in both the perceived distance to the “ideal-self” (Feixas & Cornejo, 2002), and in the distances they attribute to other elements in their grid, such as the aggressor.

Distances have also been used as a procedure for evaluating perceived self-esteem based on the inequality between the “current-self” and “ideal-self” (Feixas & Cornejo, 2002), subjective perception of self-esteem increasing as the distance diminishes. These authors understand distance between current-ideal self as an indicator of self-esteem, as does Endo (1992).

In general, persons with pathologies show bigger distances (Feixas et al, 2007; Garcia-Martinez et al, 2009), although not always in victims of violence (Soldevilla et al, 2014). Many studies have also found relationships between a diversity of psychopathological states and structural grid markers. Individuals who show anxiety or depressive symptomatology tend to be more polarized and have a simpler construct system (high intensity, low PVEFA), as shown by Kovarova & Filip (2012) or Paz, Pucurull & Feixas (2015). Similar results were found with samples of women who were victims of violence (Garcia-Martínez, Orellana-Ramírez & Guerrero-Gómez, 2012; Soldevilla et al, 2014). In studies of general symptomatology, instead of a concrete diagnosis, one of the most common indicators with the RGT is the SCL-90-

R Questionnaire's Global Severity Index (GSI) (Derogatis, 2002) which combines the number of symptoms with the intensity of perceived distress (see, e.g., García-Martínez et al, 2012). In general, none of these studies has considered discriminative power as an indicator. However, no studies were found which connected, in samples with pathologies, relationships between distances and structural grid indices, except for self-esteem. Distance may be used to test the differences in the perception the abused woman has between herself, her "ideal-self", and also with the aggressor and other elements directly related to the abuse she is experiencing, using the logic of distance analysis with more elements on the grid.

In this article, we tried to investigate whether, in a clinical sample of women victims of gender violence, it is possible to find differences in the Euclidean distances between the self and positive elements and between the self and negative elements. The same is postulated for differences between partner (aggressor) and positive or negative elements. The purpose would be to verify if Euclidean distances are a good indicator of the differences within the clinical sample and if from them it is possible to establish a set of different tendencies among battered women. Elements could be considered as "positive" when they are related with happiness or good relationships with self; elements could be considered as "negative" when they are related with sadness or aggressive figures.

Specifically, the objectives and hypotheses in this study were the following:

1. Based on Euclidian distances found in the grid technique, evaluate the perception they have of themselves and the aggressor. It is expected that they will construct an image of themselves with positive connotations and another with negative connotations of their aggressor.

The variations or difference in these two perceptions were also studied based on the following variables:

2. Self-esteem, measured as the Euclidean distance between current-self and ideal-self elements: It is expected that women with

good self-esteem will have a positive image of themselves and a negative one of their aggressor.

3. Structural indicators in the RGT construct systems, such as polarization: The hypothesis here is that women with high polarization and high PVEFA show higher Euclidean distances than women with low values in these two indeces, polarization and PVEFA.
4. The degree of intensity of symptomatology presented (DIS): Women with a higher intensity of symptomatology are expected to show a more negative construct of themselves, a lower Euclidean distance between their current-self and negative figures.

METHOD

Participants

The sample was made up of 24 women who were victims of violence. The clinical sample was intentionally recruited in a study on therapeutic intervention (García-Martínez et al, 2012). All of them were living in rural localities, and their mean age was 43.81 ($SD = 10.8$), 23 were mothers with a mean of 2.6 children ($SD = 2.5$). All of them had filed for separation or requested help at one of the Women's Information Points, the Andalusian government's community victim care units.

Procedure

Four independent variables (or factors) were used: self-esteem, the SCL-90-R Questionnaire's Global Severity Index (GSI) scores (Derogatis, 2002) and two structural indicators as described by García-Martínez et al. (2009) as follow:

- a) *Polarization*. This indicator shows the degree to which the subject uses extreme scores (1 or 7) to answer. It is calculated by dividing the number of extreme scores by the total number of constructs. High scores are considered a form of cognitive rigidity. On the contrary, low scores give an idea of the subject's cognitive "laxity" (Feixas & Cornejo, 2002).

b) *Percentage of Variance Explained by First Axis (PVEFA)*. This is the score of the main dimension of meaning, and is the product of a previous simple correspondence analysis. The higher the score of such a dimension is, the fewer relevant components are used in the construct of the experience. As the axes represent dimensions of meaning, the percentage of variance explained by the first axis represents the magnitude of the main dimension of meaning, and is regarded as the best indicator of complexity. If the score is high, the subject explains much about his or her world on only one axis, showing how his or her "one-dimensional" world is constructed. If the score is low, the subject's cognitive complexity is greater. In the GRIDCOR program (Feixas & Cornejo, 2002), data are always grouped on five axes arranged from higher to lower by the percentage of variance explained.

Self-esteem is understood as the dissimilarity between "current-self" and "ideal-self". Persons with high self-esteem tend to identify their perception of themselves with the perception of the kind of person they would like to be, which makes for a more idealized perception. The SCL-90-R's Severity Global Index (SGI, Derogatis, 2002) measures the current level of severity of the distress. It combines the number of symptoms with the intensity of perceived distress. The direct scores are converted into T-scores and the presence of severe pathology corresponds to a T-score of 80 or higher.

The dependent variables or criteria are the Euclidian distances between elements (dissimilarities). They analyse two relationships with each independent variable, one for the distance of elements from the "current-self" (self-perception) and the other for the distance from their "partner" (aggressor perception). The original 15-element RGT is used for this, although in this study, only those elements directly related to the perception of gender violence, whether posi-

tive ("happy woman", "pleasant man") or negative ("partner", who was always the aggressive partner, "unhappy woman" and "aggressive man", different from partner), as well as "current-self" and "ideal-self" were used. The constructs were elicited by the dyadic procedure applying a seven-point Likert scale (1, a lot as left pole; 7, a lot as right pole). The GRIDCOR 5.0 program was used to calculate the distances (Feixas & Cornejo, 2015).

For the analysis of the relationships posed, the homoscedasticity (homogeneity of variance) was tested with the Levene's F and normality by q-q graphs, with acceptable results for both assumptions. All the independent variables were dichotomized using the mean as the criterion, creating two groups: Group 1 (n=12) for high scores on the variables and Group 0 (n=12) for low scores. The exception was the dichotomization of the GSI, which was done based on the severe pathology cut-off point at a T-score of 80. The comparison of means was done with the Student's *t*. The effect size was calculated a posteriori using the Social Science Statistics Web program (Stangroom, 2017), following the standards proposed by Cohen (1988). The rest of the analyses were done using the SSPS 24.0 program (IBM, 2016).

RESULTS

Objective 1

As shown in Table 1, the women in the sample showed low dissimilarity with respect to the positive elements, while the aggressor was viewed with low dissimilarity on the negative elements, i.e. the distance between the "current self" and "happy women" is smaller than to "unhappy women". That is, the women perceived themselves as similar to positively constructed characters, but their aggressor negatively.

Table 1: Means of distances for variables in “Self-perception” and “Aggressor perception”

Dependent Variables	Euclidean Distances	Mean	sd
Self-perception	Current Self-Happy Women	.3776	.1149
	Current Self – Unhappy Women	.4000	.1336
	Current Self -Agreeable Men	.4136	.1341
	Current Self – Aggressive Men	.5348	.0957
Aggressor perception	Partner- Happy Women	.6120	.1450
	Partner - Unhappy Women	.5764	.1227
	Partner - Agreeable Men	.5960	.1582
	Partner - Aggressive Men	.4108	.1229

Objective 2

Self-esteem in the study sample was an influential variable in their perception of themselves. The women with high self-esteem identified themselves with elements with positive connotations (low dissimilarity), whether men or women

(see Table 2), i.e. the distance between the "current self" and "happy women" or “agreeable men” is smaller than to "unhappy women" or “aggressive men”. The rest of the results were not significant. There are no differences in the case of the aggressor perception.

Table 2: Student’s t: Self-esteem

Euclidean Distances	t student	Mean (high self-esteem)	Mean (low self-esteem)	sd (high)	Sd (low)	p	d Cohen
<i>Self-Perception</i>							
Current Self-Happy Women	-2,959	.45	.33	.08	.11	.007	1,25
Current Self – Unhappy Women	-.913	.43	.38	.12	.14	.371	0.38
Current Self - Agreeable Men	-3,980	.52	.35	.12	.097	.001	1,56
Current Self – Aggressive Men	1,016	.51	.55	.09	.096	.320	0.43
<i>Aggressor Perception</i>							
Partner- Happy Women	-.782	.64	.59	.12	.16	.442	0.35
Partner - Unhappy Women	-.020	.58	.58	.11	.13	.985	0.00
Partner - Agreeable Men	-.126	.60	.59	.18	.15	.901	0.06
Partner - Aggressive Men	-.398	.42	.40	.11	.13	.694	0.17

Objective 3

Polarization

Significant differences were found between their perception of themselves and the aggressor, always in favour of the high-polarization group. The highly polarized women construed themselves more clearly and differentiated, viewing them very differently from aggressive men and from their partner, as the dissimilarity was high,

i.e. the distance between the "current self" and "agreeable men" is smaller than to "aggressive men" and the partner. Similarly, highly polarized women viewed their partner as very different from pleasant figures, regardless of sex, i.e. the distance between "partner" and "happy women" or "agreeable man" is bigger than "unhappy women" or "aggressive man" (See Table 3). The rest of the results were not significant.

Table 3: *Student's t: Polarization*

Euclidean Distances	t student	Mean (high self-esteem)	Mean (low self-esteem)	sad (high)	Sad (low)	P	d Cohen
<i>Self-Perception</i>							
Current Self-Happy Women	-.038	.38	.38	.12	.12	.970	0.00
Current Self – Unhappy Women	-1,574	.44	.36	.13	.13	.129	0.62
Current Self -Agreeable Men	-.994	.44	.39	.13	.13	.330	0.38
Current Self – Aggressive Men	-2,976	.58	.48	.10	.06	.007	1.21
<i>Aggressor Perception</i>							
Partner- Happy Women	-4,104	.70	.52	.09	.13	.000	1.61
Partner - Unhappy Women	-.733	.59	.56	.14	.10	.471	0.25
Partner - Agreeable Men	-2,490	.66	.52	.13	.16	.020	0.96
Partner - Aggressive Men	-.318	.41	.40	.15	.09	.753	0.08
Current Self-Partner	-3,454	.71	.54	.12	.12	.002	1.42
Current Self-Ideal	-1,394	.42	.34	.14	.04	.177	0.78

PVEFA

In the study of self-perception, the less differentiated women (with a higher PVEFA) perceived themselves differently than did unhappy women (high dissimilarity), whilst women with strong differentiation discriminated between their partners and women with a negative connotation (see Table 4). This indicates that non-differentiated

women have a clear vision of themselves as women who are not unhappy, they have a more positive view of themselves and see their partners as different to unhappy women, the partners are not unhappy people. . These results show that their capacity for discrimination of negative aspects is more subtle, attributing a higher negative loading to their partners than to unhappy women.

Table 4: Student's t: PVEFA

Euclidean Distances	t student	Mean (high self-esteem)	Mean (low self-esteem)	sd (high)	Sd (low)	P	d Cohen
<i>Self-Perception</i>							
Current Self-Happy Women	1,478	.40	.34	.10	.13	.153	0.52
Current Self – Unhappy Women	2,581	.45	.32	.12	.11	.017	1,13
Current Self -Agreeable Men	1,838	.45	.36	.13	.13	.079	0.69
Current Self – Aggressive Men	-1,496	.51	.57	.06	.13	.148	0.59
<i>Aggressor Perception</i>							
Partner- Happy Women	-.221	.61	.62	.14	.17	.827	0.06
Partner - Unhappy Women	-2,165	.54	.64	.08	.15	.041	0.83
Partner - Agreeable Men	-1,309	.56	.65	.16	.14	.203	0.60
Partner - Aggressive Men	1,491	.44	.37	.13	.10	.260	0.60
<i>Current Self-Partner</i>	.098	.63	.63	.15	.14	.757	0.00
<i>Current Self-Ideal</i>	1,610	.41	.34	.11	.18	.982	0.47

Objective 4

Perception of the aggressor varied with the level of symptomatology. Significant differences were found in the distance “partner-pleasant man” in favour of the group with the highest symptom

loading (clinical scores on the GSI), since their own partner was viewed as different from other aggressive men. These women were more focused on their own case (see Table 5), and construe their partner as different to other aggressive men. The rest of the results were not significant.

Table 5: Student's t: GSI

Euclidean Distances	t student	Mean (high GSI)	Mean (low GSI)	sd (high)	Sd (low)	p	d Cohen
<i>Self-Perception</i>							
Current Self-Happy Women	-.862	.40	.36	.14	.09	.397	0.3
Current Self – Unhappy Women	-.205	.41	.39	.15	.12	.839	0.14
Current Self -Agreeable Men	-1,557	.46	.37	.16	.099	.133	0.67
Current Self – Aggressive Men	.277	.53	.54	.10	.09	.784	0.11
<i>Aggressor Perception</i>							
Partner- Happy Women	-.533	.63	.60	.18	.11	.599	0.2
Partner - Unhappy Women	-1,444	.61	.54	.098	.14	.162	0.58
Partner - Agreeable Men	-.094	.60	.59	.19	.13	.926	0.06
Partner - Aggressive Men	-2,570	.47	.36	.13	.09	.017	0.98
Current Self-Partner	-1,055	.66	.60	.17	.11	.302	0.42
Current Self-Ideal	-1,035	.42	.35	.15	.13	.225	.04987

DISCUSSION

Women's self-perception and distances

The results show that in the sample studied, battered women identified themselves with other women and men with a positive connotation, and considered their aggressor as having negative elements. The results are therefore in the direction of the first hypothesis posed. Some studies have found that outside witnesses judge the aggressive male behaviour more inappropriately and severely than the women in cases of intimate partner violence (Russell & Kraus, 2016). Negative evaluation of male violence was also found in our study, judged by the victim herself. Narrative therapy suggests that the complaint or protest about a problematic situation is a way of separating oneself from the problem, and is always present one way or another in victims (Allen, 2012), as shown in the dissimilarities found here between self and partner.

In our results, the women with high self-esteem identified themselves more with people with positive characteristics. Nothing was found in the literature on this objective, but it is coherent with studies on egosyntonic bias schemes (Rogers, Rogers & Kuiper, 1979). In general, people tend to consider themselves in positive terms and accept the information that is consistent with their point of view about them. Although this may change in the case of some pathologies such as depression, it does not seem to be the case with women victims, since they can easily externalize the symptom and attribute their situation to the aggressor and not to their personal characteristics. Even though they were attacked, these women were able to maintain a good self-concept, which was a way of protecting their self (Camps, Calle & Feixas, 2000). These results contrast with the usual findings on self-esteem in victims of gender violence, according to which this population is characterized by low self-esteem, it not being known whether this is the cause or the consequence of the violence (Papadakaki et al., 2009). It seems that low self-esteem characterizes women recently abused and who are in the process of separating from their aggressor more than other abused women (Matud, 2004). However, although the entire sample in this study had been recently abused and in the process of separation, only half of

them (n=12) showed considerable dissimilarities between "current-self" and "ideal-self", that is, low self-esteem. It is possible that the way in which self-esteem was evaluated influenced these results. When self-esteem is measured in terms of general descriptions, for example, using a questionnaire, the women may identify themselves with negative statements about themselves (not achieving their goals, not having confidence in themselves). However, the measure of self-esteem by dissimilarity does not imply acceptance or rejection of general descriptions about themselves, but evaluating whether they are closer or not to an ideal vision. Very likely, important aspects of the ideal are still kept in the vision of the self which is dominated by the problem and constitutes the current-self. The woman's values, or anything she considers appropriate, are going to determine her viewing herself similar to those aspects she herself values, in the line of "absent but implicit" processes (Denborough, 2008). Studies with other types of victims (e.g. school bullying) have also found results that suggest their high self-esteem (Plata, Riveros & Moreno, 2010). It is true that self-esteem is not assessed in this study with an independent instrument, but there is evidence that differences between self and ideal-self could be an adequate measure of self-esteem (Endo, 1992) and, theoretically, discrepancies represented a lack in self-acceptance.. Anyway, high self-esteem understood as a low distance between self and ideal could be understood as a protective factor in case of violence against women, and women with higher values would have more probability of belonging to less problematic typologies or positions, for example, a subgroup ready to make a change (Karakurt, Smith & Wething, 2014).

Perception of the aggressor

With regard to perception of the aggressor, self-esteem turned out not to be a relevant variable, contrary to the hypothesis proposed. Garcia-Martínez (2008) suggested that neither victims nor aggressors can be defined in terms of general profiles and that self-esteem does not always point in the same direction in such cases. Jacobson & Gottman (1998) distinguished two types of aggressors, some more dependent, whose violence was generalized and not directed exclu-

sively at the partner, and others whose violence was concentrated almost exclusively on their partner. It is not possible to know the type of aggressors in this study, but the data suggest that the image the battered women construct of their aggressor depends more on the type of characteristics and violence undergone by them than the characteristics of the women themselves, among these, their self-esteem. All the women viewed their aggressor in a similar manner, which implies that they judge the violence against them as a problematic situation and the aggressor as someone inadequate.

Relationships between distances and cognitive structural indexes

The structural grid indicators show that the women's perceptions of themselves and of the aggressor covaried with polarization and the PVEFA in the sample studied. The women with high polarization with a more tendentious way of ascribing constructs are able to differentiate themselves better from their aggressor, of whom they have a negative image. In this case, as mentioned by Fransella et al. (2004), the high polarization may be an indicator of certainty and differentiation in their construing of reality, more than an indicator of cognitive rigidity. For this type of woman, clearly discriminating between danger and safety is a basic need of self-protection and may be a more appropriate, more differentiated perception, even though it includes some false positives, this conclusion was suggested to us by Soldevilla et al. (2014). In this sense, low polarization could be an indicator of a worse scenario.

The PVEFA results show that the women higher in this dimension differentiated better when comparing elements with a negative connotation. In other words, they are more specific in discriminating between what is negative ("my aggressor is not just bad, he is the worst"), marking their case as the most negative situation possible. No studies have been found in this respect, but in general, constructivist therapies promote better differentiation of the client's system (Bottella & Feixas, 1998) and attempt to focus on positive aspects that could promote better changes and resistance to the problem, as they perceive more details in it (White, 2007). However, women with a low PVEFA value maintain

a one-dimensional thinking and that focuses them on a more negative view of their situation, which could be a risk factor for change. García-Martínez, Orellana-Rodríguez & Guerrero-Gómez (2012) found that battered women with more symptoms showed less polarization and less differentiation. Soldevilla et al (2014) also find that low differentiation is a characteristic that differentiates battered women from a control group.

Distances and symptomatology

The study sample is a clinical sample, so all the women were suffering from some type of problem related to abuse. The analyses with the Global Severity Index showed that the women who had higher scores on this indicator focused attention on their own case, so they saw their aggressive partner as different from other men who are also aggressive, but saw no differences or other positive or negative elements, which is in the direction of our hypothesis. The women in our sample perceived only their aggressor as negative. That is, they understand that they are in a situation of risk that is related specifically to their aggressor. This could be related to the findings of some studies on sexual violence. Repeated emotionally invalidating experiences generate feelings of shame, guilt and sorrow in the victims, who end up attributing their aggressors with the greatest of malice (Harter, Herbes & Hart, 2004). These results are also consistent with the tendency to interpret violence against the partner as a traumatic experience, in which dual symptomatology of anxiety and depression are manifested (Lipsky et al., 2005) and where the victim, in spite of being aware of her problems, is not necessarily able to manage them.

The use of distances in RGT research

This study finds preliminary evidence about the usefulness of Euclidean distances as an operational measure of the differences in the construction of subgroups of battered women in studies carried out with the RGT. The distances show sensitivity for differentiation, polarization and self-esteem. This suggests that separating abused women into different subgroups based on certain structural characteristics of their construct sys-

tem (e.g., high-low polarization) could serve to inform the type of treatment. High self-esteem, high polarization and high differentiation maybe the characteristics of women more ready to change (Karakurt et al, 2014) or that maintain a good sense of their personal agency (García-Martínez, 2006). In terms of Euclidian distances between elements, they perceived themselves more closely to their ideal and other positive elements, more different from their aggressor and other aggressive men and more similar to other unhappy women.

The use of distances as a dependent variable in RGT studies is not recent (Hartmann, 1992), but involves a simpler and more workable procedure than correlations, since it avoids the problem of negative scores. It also enables multidimensional spaces to be generated and expressed with a single value. They may be useful for creating conceptual maps of the relationships between constructs and elements which enable the formulation of clinical hypotheses to be improved. In any case, its validity and usefulness must first be shown with studies such as this one. The difference between statistics based on Euclidian distances used here and the Mahalanobis distance should be tested (Escobedo & Salas, 2008) to find out whether the correlations between elements determine differences in the violence construct, or in any other topic of research. We understand that Mahalanobis distance could be a better measure of interpersonal construction and we propose its use to future research.

Limitations and future research

This study had a series of limitations with regard to its internal and external validity. Concerning internal validity, variables such as education of the women studied, presence or absence of a report of abuse or marital status were not considered, and may have influenced the results found if they were relevant to the image they had of their aggressor as a man with a negative or positive connotation. With respect to external validity, it should be mentioned that the sample, which was from the same rural extraction, could have psychological characteristics unlike those of women in urban areas. The lack of statistical power due to the small sample size may also have led to invalid results. Therefore, future

research should use samples with different characteristics to find out whether these findings can be generalized to other populations, or at least, to a more representative clinical population. Another limitation, perhaps, is the absence of a control group of women not affected by violence. It would improve the design as it would allow finding differences between both groups, but this study looked more at whether it is possible to find differences within the battered women group based on a series of characteristics of their construct systems.

Knowing the construing processes of abused women would offer the possibility of adopting therapeutic intervention measures which enable the reconstruction of self-concept in this population and reduce the consequences of violence on mental health. Preventive measures could also be taken by directing campaigns both toward egalitarian gender constructs and preservation of individual differences.

DISCLOSURE OF COMMERCIAL INTERESTS

This research has not had any kind of financial involvement that might present a conflict of interests.

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Received: 30 November 2018 – Accepted: 20 May 2019 – Published: 10 November 2019