

Gender differences in affect, emotional maladjustment and adaptive resources in infertile couples: a positive approach

María Del Castillo Aparicio¹, Carmen Moreno-Rosset², M^a Dolores Martín Díaz³,
Isabel Ramírez –Uclés²

¹ Psychology graduate. Assisted Reproduction Unit. Clínica Quirón. Zaragoza, Spain.

² PhD in Psychology. Department of Psychology of the Personality, Assessment and Psychological Treatment. School of Psychology. UNED. Spain

³ PhD in Psychology. Department of Basic Psychology II. School of Psychology. UNED. Spain.

ABSTRACT

This research study seeks to assess positive affect, negative affect, emotional maladjustment, adaptive resources in infertile and gender-related differences in infertile couples. The sample consisted of 101 people with infertility problems, 51 men and 50 women. The assessment instruments were the *Positive Affect Negative Affect Schedule* (PANAS; Watson, Clark & Tellegen, 1988) and the *Cuestionario de Desajuste Emocional y Recursos Adaptativos en Infertilidad* (DERA; Moreno-Rosset, Antequera & Jenaro, 2008), a scale measuring emotional maladjustment and adaptive resources in infertility. The findings show gender related differences with higher negative affect and emotional maladjustment in women and higher positive affect in men. It has also been found that positive affect correlates negatively both with negative affect and emotional maladjustment, and positively with interpersonal resources and adaptive resources in infertile women. Such correlations have not been found in men. The regression analysis indicates that the variables can help predict positive affect in women and account for 42.2% of variance. This study has sought to widen infertility assessment by including positive variables such as adaptive resources and positive affect in the analysis, which can offer a better approach to the psychological treatment of infertile couples.

Key words: Infertility, Gender, Positive affect, Emotional maladjustment, Adaptive resources

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INTRODUCTION

The diagnosis of infertility brings about an emotional impact classified as a life event with chronic loading, since it becomes a constant preoccupation from the very moment it is diagnosed (Witkin, 1995). Infertility may provoke a series of experiences that each couple lives in a different way. There is not one way to cope with the situation. Furthermore, even though infertility is a problem in the couple, the responses to such experiences may be different for each of its members. It is difficult to predict a person's reaction to the diagnosis of infertility and its associated recommendations. However, some reactions are typical in all couples—surprise, negation, anger, isolation, and so on. Once the couple has decided 'to have a child' and their attempts have failed for months, many dreams and

hopes increasingly turn into frustration, anxiety and hopelessness, which also negatively affect significant social relations and leads to a feeling of isolation (Olshansky, 1996).

Recent studies have shown that an increase of anxiety and depression are common in women who undergo assisted reproduction treatment (Pook & Krause, 2005a; Schmidt, Thomsen, Boivin & Andersen, 2005; Verhaak, 2005, among others). Depression reaches its highest levels between the second and third years of infertility (Peterson, Newton, Rosen & Skaggs, 2006). The important relationship between infertility and depression is highlighted by some studies which suggest that high depression levels in women may result in lower percentages of pregnancy and lower commitment to future in vitro fertilization cycles.

Some studies compare anxiety or depression levels of infertile couples with those of couples with children and conclude that there are higher rates of depressive mood in couples with infertility problems (Oddens, Den Tonkelaar & Nieuwenhuysse, 1999). Similar results have been found by Ozkan and Baysal (2006) when comparing anxiety levels in an infertile-woman sample with

¹ Facultad de Psicología. Departamento de Psicología de la Personalidad, Evaluación y Tratamiento Psicológicos. Universidad Nacional de Educación a Distancia (UNED). C/. Juan del Rosal nº 10. 28040-Madrid. Spain. E-mail: cmorenor@psi.uned.es, psicologiadelareproduccion@psi.uned.es

those in a group of women with children. Infertile people show significantly higher anxiety scores. The same result has been found in the Spanish population by Moreno-Rosset and Martín (2008).

However, not all the studies obtain results in the same direction. As a matter of fact, there is no clear agreement to affirm that infertile couples suffer from higher anxiety and depression than the general population (Verhaak, Smeenk, Evers, Kremer, Kraaimaat & Braat, 2007). This might be due to the fact that, in some cases, such depressive and anxiety symptomatology does not meet the conditions or criteria necessary to be regarded as a psychopathological disorder. The anxiety and depression signs detected in these couples could better be placed within the concept of emotional maladjustment as proposed by Jenaro, Moreno-Rosset, Antequera and Flores (2008).

These issues have promoted, in the field of infertility, studies focusing on assessing affective variables. They have sought to widen the field of the variables analyzed and the areas of interaction, and have found significant correlations of affective state with other psychological factors such as high expectations for pregnancy and adjustment to infertility, as well as with biological factors such as the number of oocytes fertilized and embryos transferred. Furthermore, the risk of not giving birth to a live baby has been found to be 93% lower in women with higher positive affect (Klonoff-Cohen, Chu, Natarajan & Sieber, 2001).

A similar study found that 51% of the variance of adjustment to infertility could be significantly predicted by age and negative affect, even though unrealistically high expectations and adjustment to infertility were not significantly correlated to each other and only negative affect was predictable. This highlights the importance of negative emotions, which influence expectations and the ability to process and get adjusted to difficult circumstances (Durning & Williams, 2004).

In addition to assessing emotional maladjustment, positive affect and negative affect, it is necessary to know the adaptive resources that infertile couples can have and what can help them to cope with the difficult situation they experience. Not only is infertility a problem in itself, treatment for assisted reproduction may become stressful too. If we follow the definition of 'adaptive resource' in the DERA questionnaire's manual (Moreno-Rosset, Antequera & Jenaro, 2008), the term is to be understood as the set of both internal, stable dispositions, such as some personality traits, and external modifiable dispositions, such as social support, which help individuals to cope with difficult situations and to try and maintain or recover the normal behaviour they had in different life areas before the onset of the stressful event. As these authors add, adaptation in the field of chronic disease has been understood as the patients' experiences of personal growth in such a way that the crisis that represents the onset of a life event may at the same time be an opportunity for personal growth and for emotional maladjustment (Brennan, 2001).

An illustrative study relating infertility with adaptive resources is the one by Ardenti,

Campari, Agazzi and Battista (1999), which assesses emotional repercussions together with aspects of personality and well-being, and in which the positive aspects of the women undergoing in vitro fertilization is defined as their being deeply rooted in reality, orientated to the present and with a positive attitude to life. These women do not show hypochondriac or anxiety signs about their physical well-being, alterations in autonomy or self-integration, and they don't have problems in social adaptation or communication. They have hopeful thoughts not depressive ones, with a balance between optimism and pessimism, they show an adequate ability to control their emotions and show no feelings of ill-being in face of the unknown. In spite of this, throughout their work, the authors analyze anxiety and its relation with variables such as the diagnosis, the different phases of the treatment or their length.

The lack of personal and interpersonal resources that may facilitate adjustment to infertility put many couples in a vulnerable position. Empirical evidence shows the influence of negative affect and stress in these women's hormone system, which may suggest a lower rate of success in artificial reproductive techniques and so an increasing rise of emotional ill-being and the subsequent risks in all their life areas (Hendrick, Gitlin, Altshuler & Korenman, 2000; Pook, Krause & Rohrie, 2000; Sheiner, Sheiner, Carel, Potashnik & Shoham-Vardi, 2002; Stacy, 2004; Eskiocak, Gozen, Yapar, Tavas, Kilie & Eskiocak, 2005). This data not only provides information about the importance of emotions and psychological state as a factor that might predict or worsen infertility, but it also encourages further research on a possible softening effect on emotions and psychological states which might even favour fertility.

This study seeks to study positive affect, negative affect and emotional maladjustment in infertile couples, and test differences that may arise in both members of the couple. It also analyses personal and interpersonal adaptive resources in the study sample. Finally, it examines the predictive value that the variables studied have on the positive affect of patients assessed with infertility, as positive affect may foster better adaptation to infertility. In so doing, it is hoped to learn about the variables and resources of the people who have difficulty in having children and in this way find the factors that help to repair the ill-being of those suffering maladjustment. The issue is studied by taking into consideration gender differences in a positive light so that the results can be used for the wholeness and balance of the couple.

Method

Participants

The sample consisted of 101 participants with infertility problems, 51 males and 50 females, who went to a private assisted reproduction unit in Zaragoza, Spain, to ask for a study and assisted reproduction treatment. One female participant was not included in the study due to a mistake when completing the questionnaire. The average age for the male group is 34.42 years (SD 4.07), minimum

25 and maximum 40. The average age for the female group is 35.88 (SD 4.37), minimum 25 and maximum 47.

Instruments

The participants were assessed by means of the following instruments:

- The *Positive Affect Negative Affect Schedule* (PANAS; Watson, Clark & Tellegen, 1988). Adaptation by Sandin *et al.* (1999). This scale consists of 20 items. The individual responds how he or she usually feels in a Likert type scale ranging between 1 (strongly disagree) and 5 (strongly agree). It measures affect in two independent non-correlated dimensions. The positive affect reflects the extent to which someone feels enthusiastic, active, alert, energetic and with pleasurable participation. The negative affect shows a general dimension of subjective ill-being and unpleasurable participation, including a variety of aversive emotional states, such as annoyance, anger, blame, fear and nervousness. The Cronbach Alpha coefficients in the Spanish version applied to this study are [alpha = 0.89 (PA) and 0.91 (NA)] for males and [alpha = 0.87 (PA) and 0.89 (NA)] for females (Sandin *et al.*, 1999).

- The *Cuestionario de Desajuste Emocional y Recursos Adaptativos en Infertilidad* (DERA; Moreno-Rosset, Antequera & Jenaro, 2008), a scale for measuring Emotional Maladjustment and Adaptive Resources in Infertility. This instrument consists of 48 elements with a five-point Likert type response format with the aim of finding out the extent to which the subject agrees with each of the statements presented. It consists of four factors, namely Emotional Maladjustment, Personal Resources, Interpersonal Resources and Adaptive Resources. The Cronbach Alpha coefficients in the global scale is 0.85 and each one of its subscales has correlatively a reliability of 0.90, 0.57, 0.78 and 0.74. The validity studies convergent with the questionnaire on ways of coping with stressful events (CEA; Rodríguez-Martín, Terol, López-Roig & Pastor 1992) give evidence of the validity of the instrument. Other psychometric data can be looked up in the study by Moreno-Rosset, Antequera and Jenaro (2009).

Procedure

The infertile couples who first consulted the Assisted Reproduction Unit for a study and/or treatment of their infertility were informed about the research and asked to collaborate in it. There was no exclusion criterion regarding marital status or sexual orientation. The couples who agreed to participate signed the corresponding consent form and became a part of the study's sample group. In general terms, the people invited to participate did so voluntarily. Only those couples who had time problems turned down the offer. The selection of the sample was carried out over six months.

The instruments for psychological assessment were individually completed by each member of the couple in the clinic. This procedure (*in situ* and each one independently) avoided possible assessment bias. The study had been previously approved by the hospital's Comité de Ética Asistencial, *i.e.*, Ethics Committee.

FINDINGS

The statistical analyses were carried out through the SPSS 15.0 Statistics Pack for Windows. First, in order to establish gender differences in the various subscales of the PANAS (Positive Affect and Negative Affect), and the DERA (Emotional Maladjustment, Personal Resources, Interpersonal Resources and Adaptive Resources), and then two independent MANOVAS were carried out. Gender was considered the independent variable (male v female) and the various subscales of the PANAS and DERS scales were considered the dependent variables. Table 1 shows the means and standard deviations of the variables.

	Men		Women	
	PANAS			
	Mean	S. D.	Mean	S. D.
Positive affect	37.59	4.91	35.62	5.32
Negative affect	20.57	4.60	25.54	6.56
	DERA			
	Media	D.T	Media	D.T
Emotional maladjustment	54.16	13.62	65.04	16.50
Personal resources	40.51	4.22	41.58	8.21
Interpersonal resources	43.39	3.78	44.92	4.93
Adaptive resources	83.93	6.48	86.50	10.28

Table 1. Means and Standard Deviations of the scores obtained in the PANAS and DERA subscales

The results of the first MANOVA, which took gender as the independent variable and the two subscales of the PANAS scale (Positive Affect and Negative Affect) as the dependent variables indicate a main effect of the gender variable (Wilks' Lambda = 0.835; F (2.98) = 9.669; p = 0.000; $\eta^2 = 0.165$). Table 2 shows the results obtained.

Since the MANOVA showed significant statistical results, univariate ANOVA analyses were carried out for each of the dependent variables. Table 3 brings together the results of the independent ANOVA analyses for each of the dependent variables. As can be seen, a significant effect of the Gender variable was found in the Positive Affect variable (F (1.99) = 3.730; MCe = 26.224; p = 0.050; $\eta^2 = 0.035$). It shows lower positive affect in infertile women than in infertile men. As for the Negative Affect variable (F (1.99) = 19.506; MCe = 31.989; p = 0.000; $\eta^2 = 0.165$), it showed higher negative affect in infertile women than in infertile men.

The results of the second MANOVA, which take gender as the independent variable and the four subscales of the DERA scale as dependent variables (Emotional Maladjustment, Personal Resources, Interpersonal Resources and Adaptive Resources) indicate a main effect of the Gender variable (Wilks' Lambda = 0.781; F(3.97) = 9.084; p = 0.000; $\eta^2 = 0.219$). Table 2 shows the results obtained.

Table 3 brings together the results of the independent ANOVA analyses for each of the dependent variables. As can be seen, only one

significant effect of the Gender variable was found with the emotional maladjustment variable ($F(1,99) = 13.079$; $MCE = 228.633$; $p = 0.000$; $\eta^2 = 0.117$). It showed higher emotional maladjustment in infertile women than in infertile men.

The effect of gender on the personal resource, interpersonal resource and adaptive resource variables did not prove significant.

PANAS				
Gender	Wilks' Lambda=0.835	$F(2,98)=9.669$	$p=0.000^*$	$\eta^2=0.165$
DERA				
Gender	Wilks' Lambda=0.781	$F(3,97)=0.084$	$p=0.000^*$	$\eta^2=0.219$

Table 2. MANOVA scores

PANAS (Positive affect)				
Gender	$F(1,99)=3.730$	$MCE=26.224$	$p=0.05^*$	$\eta^2=0.036$
PANAS (Negative affect)				
Gender	$F(1,99)=19.506$	$MCE=31.989$	$p=0.000^*$	$\eta^2=0.165$
DERA (Emotional Maladjustment)				
Gender	$F(1,99)=13.079$	$MCE=228.6$	$p=0.000^*$	$\eta^2=0.117$
DERA (Personal resources)				
Gender	$F(1,99)=$	$MCE=0.682$	$p=0.411$	$\eta^2=0.007$
DERA (Interpersonal resources)				
Gender	$F(1,99)=$	$MCE=3.055$	$p=0.084$	$\eta^2=0.030$
DERA (Adaptive resources)				
Gender	$F(1,99)=$	$MCE=2.315$	$p=0.131$	$\eta^2=0.023$

Table 3. Independent ANOVA scores /

Secondly, considering the male-female differences in the variables studied, a Pearson's correlation analysis was independently carried out with the infertile female and infertile male groups.

Following the aim of the study, it was observed in the infertile male group that the Positive Affect variable only correlated significantly in a negative way with the Negative Affect variable ($r = -0.313$, $p < 0.025$). No other significant correlation was found with the rest of the variables. However, once the correlations in the infertile female group were carried out, it was observed that the Positive Affect variable correlated significantly with the following variables: negatively with the Negative Affect variable ($r = -0.468$; $p < 0.001$), negatively with the Emotional Maladjustment variable ($r = -0.499$; $p < 0.000$), positively with the Interpersonal Resource variable ($r = 0.505$; $p < 0.000$) and positively with the Adaptive Resource variable ($r = 0.452$; $p < 0.001$). There was no significant correlation between the Positive Affect variable and Personal Resources in the case of infertile women.

These results are shown in Tables 4 and 5, respectively.

Considering the infertile women correlations obtained and in order to verify the predictive value of the Negative Affect, Emotional Maladjustment, Interpersonal Resource and Adaptive Resource variables on the Positive Affect of infertile women, a stepwise multiple linear regression analysis was carried out.

The variance analysis due to the regression reflects the global statistical significance of the joint relation of the Positive Affect variable with the predictive variables ($F(4,45) = 8.228$; $p < 0.000$; $MCE = 17.812$). According to the regression analysis, Negative Affect, Emotional Maladjustment, Interpersonal Resources and Adaptive Resources predict 42.2% of the Positive Affect variable. The Personal Resource variable is outside the model, that is, the correlation analysis results finds that it is not predictive. Table 6 shows the constant, the β coefficients for the predictive variables and the regression line..

	Positive affect	Negative affect	Emotional maladjustment	Personal resources	Interpersonal resources	Adaptive resources
Positive affect		-0.313*	-0.244	0.180	0.256	0.272
Negative affect			0.606**	0.167	-0.315*	-0.075
Emotional maladjustment				-0.169	-0.508**	-0.407**
Personal resources					-0.310*	0.832**
Interpersonal resources						-0.786**

* The correlation is significant at 0.05 (bilateral)

** The correlation is significant at 0.01 (bilateral)

Table 4. Correlations between PANAS and DERA subscales in infertile men

	Positive affect	Negative affect	Emotional maladjustment	Personal resources	Interpersonal resources	Adaptative resources
Positive affect		-0.468**	-0.499**	0.262	0.505**	0.452**
Negative affect			0.725**	-0.046	-0.259	-0.161
Emotional maladjustment				0.005	-0.427**	-0.201
Personal resources					0.173	0.881**
Interpersonal resources						0.618**

* The correlation is significant at 0.05 (bilateral)

** The correlation is significant at 0.01 (bilateral)

Table 5. Correlations between PANAS and DERA subscales in infertile women

Constant : 23.188	Beta coefficients (β)
Negative affect (NA)	-0.193
Emotional maladjustment (EM)	-0.060
Interpersonal resources (IR)	0.230
Adaptative resources(AR)	0.127

REGRESSION LINE
 Positive affect = 23.188 +(-0.193) · AN (-0.060) · DE(+0.23) · RI(+0.127) · RA

Table 6. Constant, β coefficients and regression line (infertile women)

In the case of infertile men, given the fact that Positive Affect only correlates significantly in a negative way with the Negative Affect variable, a multiple regression analysis is of no use, and this is how it is evident statistically in the variance analysis due to the regression showing a non statistically significant relation of the Positive Affect variable with the predictive variables ($F(4.46) = 2.254; p < 0.078; MCE = 21.964$).

DISCUSSION

The findings of this study show differences as regards gender in infertile people in negative affect and emotional maladjustment. Women show significantly higher levels than men, whose scores are higher only in positive affect. This result is in the same direction as those from other studies which have found that in infertile couples, women have higher rates of anxiety, emotional maladjustment and negative affect (Oddens *et al.* 1999; Castro, Borrás, Pérez-Pareja & Palmer, 2001; Dyer, Abrahams, Mokoena, Lombard & Van der Spuy, 2005; Verhaak *et al.* 2007; Del Castillo, Moreno-Rosset, Martín, García-Fernández & Urries, 2008; Moreno-Rosset & Martín, 2008).

When gender results were analysed separately, men showed that the higher their positive affect the lower the negative. On the contrary, women showed that the higher their positive affect the lower their negative affect and their emotional maladjustment and the greater their interpersonal and adaptative resources. These findings are in tune with others which hold that men have better emotional balance than women, and no differences have been found between men undergoing insemination treatment and those expecting a child (Dhillon, Cumming & Cumming, 2000). Other non systematized studies have found that encouraging positive emotions in infertile men has helped the

artificial fertilization processes (Benedek, Ham, Robbins & Rubenstein, 1953). It would be important to clarify the extent to which this is not a product of the greater difficulty for some infertile men to express themselves emotionally (Conrad, Schilling, Langenbuch, Haidl & Liedtke, 2001).

Finally, the findings of this study insofar as positive affect in women is concerned is predictive of lower negative affect, lower emotional maladjustment and greater interpersonal and adaptative resources offers relevant information concerning appropriate therapeutic orientation in cases of fertility. As shown by the formerly cited literature, negative affect and emotional maladjustment are often a reason for failed artificial fertilization attempts (Pook *et al.* 2000; Eskiocak *et al.*, 2005). In the light of the findings of this study, we can wonder whether the success rates of reproductive treatments could be increased by encouraging positive affect, given its relation to ill-being variables. We should not forget about studies that show that positive affect is related to a lower risk of not giving birth to a child who is not born alive (Klonoff-Cohen *et al.*, 2001). Given the long tradition for psychology to study negative variables, new studies may be necessary which analyse infertility and its relation to positive variables and which not only provide greater well-being to cope with treatments, but also invaluable support to encourage their success. This would verify the advisability to foster strengths and behaviours which may increase the quality of life and well-being of infertile couples, especially in those aspects related to interpersonal resources, which this study has shown to have a close relationship with positive affect and confirm the statement by Fernández-Abascal (2009) that our relationships with other people exert a bidirectional effect and convey the main source of positive affect.

Various studies have found that interpersonal resources facilitate adaptation to illness

and exert a protective role in face of stressful circumstances (Carver, Pozo-Kaderman, Harris, Noriega, Scheier, Robinson, Ketcham, Moffat & Clark, 1993; Scheier & Carver, 1997; Maddi & Hightower, 1999; Maddi, 2006). Other studies confirm the relationship among social support, positive affect and a greater level of well-being (Greenglass & Fiksenbaum, 2009). The importance of interpersonal relationships is a corroborated fact in the adjustment to and accommodation for illness (Barrón, 1996; Östberg & Lennartsson 2007).

This work could be an object of improvements which would extend the information that it provides. The findings obtained should be taken cautiously, since it was not borne in mind at what moment of the treatment each couple was in. Furthermore, as in the cases of other infertility studies, access to a wide sample is difficult. (Moreno-Rosset, Antequera y Jenaro, 2009).

As for the limitations of this study, it is worth stating that, as well as in most studies on this issue, the samples used have consisted of couples who have actually accepted to undergo assisted reproduction techniques. Therefore, the results cannot be generalized to those subjects with infertility problems who choose not to undergo these treatments (Newton, Sherrard, y Glavac, 1999). It is precisely the study of the latter subjects that would allow us to differentiate the effects of infertility from those generated by assisted reproduction techniques. (Berg, 1994).

Based on this work several research lines for further study are open, among others, as mentioned above, the level of the same variables at different times in the treatment and, it would also be interesting to analyse their effect on the biological variables implied in the outcomes of assisted reproduction techniques, that is to say, in successful or unsuccessful pregnancy.

Apart from this, we need to keep searching for resources and positive emotions which may help people with fertility problems. We need to analyse the amount of personal and interpersonal resources that couples count on to overcome difficulties to identify and express their emotions and to relieve the tension that infertility entails. As has been shown, the interactions between resources and affect are different in each gender, so the recommendations for men and women are most likely to vary too. In fact, the relations between and among the variables in this study differ notably according to gender, which may increasingly clarify the specific way each member of the couple experiences infertility. Consequently, it is necessary to keep investigating in order to design not only a specific infertility related psychological treatment but one adapted to the gender of the subject that it is addressed to, since it has been shown that psychological correlations may be different according to gender (Del Castillo *et al.*, 2008), so what may therapeutically work with men may not necessarily work with women, and vice-versa.

Most studies have up to now referred to the female member of the couple, who is the one who experiences the greater ill-being. The priceless support provided by the better male adaptation as a tool for support and encouragement of the more hurt of the two is usually lost sight of. Couples often live

through these coping differences with disquiet and lack of understanding. However, from the field of psychology we can help to see such problems as a common strength in a couple.

CONCLUSIONS

It has been verified that the affective and emotional experience in infertile couples varies. As a consequence, further research is necessary to design support programmes and psychological treatment which take these differences into account and promote positive affect in each member of the couple as well as their adaptative resources, specifically, those related to social or interpersonal support.

Promoting social abilities and encouraging behaviours that increase the quality of life are goals pursued by positive psychology in order to prevent emotional disorders. Therefore, encouraging positive emotions and emotional adjustment are goals to incorporate into advice, support and intervention psychological programmes.

Practical psychological intervention guidelines addressed to professionals of psychology and self-help materials for infertile couples have recently been published on the basis of these premises (Moreno-Rosset, 2009a, 2009b). Needless to say, more research is necessary in this still incipient field of psychology of reproduction, in which the application of positive psychology can prevent possible psychopathological disorders deriving from the usually long stressful process and heavy chronic emotional burden of infertile couples undergoing assisted reproduction. As argued by Vázquez (2008) when referring to Positive Psychology based clinical intervention, these tasks have to be undertaken as a wide-ranging programme in the conquest of a psychological and social space which is better for all.

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