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Introduction

Infertility and Reproductive Psychology

Reproductive Psychology is a new discipline within Health Psychology, and hence a new interdisciplinary field for the psychologist. The term itself echoes those used in medicine and biology (Reproductive Medicine and Biology), in the same way as those of other specializations in psychology, such as Occupational Psychology, Forensic Psychology and Sports Psychology, which have their counterparts in medicine (Occupational Medicine, Forensic Medicine, Sports Medicine).

The ambit of Reproductive Psychology is the prevention and/or treatment of psychological maladjustments related to the reproduction. From puberty to old age, the intervention of psychologists can be required in any of the human reproductive phases. Between the adrenarche[1] and the menopause[2] there are many points at which emotional alterations may appear, and some of these – such as premenstrual syndrome, post-natal depression or menopause – have merited particular attention (Kervasdoué, 1995; Larroy, 2004).

However, scientific study and development in Reproductive Medicine at present primarily revolves around problems deriving from difficulties of reproduction: infertility[3] and sterility[4]. Estimates for Spain put infertility at 17% of the population of the appropriate age, having increased by 2% since 1999.

For almost a decade now we have been defending and demonstrating the need for psychologists to form a part of multidisciplinary Human Reproduction Unit teams (Moreno-Rosset, 1999, 2000, 2004, Moreno-Rosset, Antequera, Jenaro & Gómez, 2008). The year 1999 saw the founding of this interdisciplinary and inter-university research line, participants of which include psychologists such as Rosario Antequera Jurado (Univ. Sevilla), Alejandro Ávila Espada (UCM), Noelia Flores Robaina (Univ. Salamanca), Enrique García F-Abascal (UNED), Cristina Jenaro Río (Univ. Salamanca) and Mª Dolores Martín Díaz (UNED), gynecologists Francisco J. de Castro Pita (Hospital Príncipe de Asturias, Alcalá de Henares, Madrid), Bernabé Hurtado de Mendoza y López (Instituto Ginecológico La Cigüeña, Madrid) and Antonio Tirado Ruíz (Hospital Virgen Macarena, Sevilla), biologists Mark Grossmann i Camps (TEKNON de Barcelona) and José Santaló i Pedro (UAB), and lawyer Yolanda Gómez Sánchez (UNED, member of National and UNESCO Bioethics Committees). Our work is focused on direct research with infertile couples (Moreno-Rosset, 2003, 2007), as well as on training for psychologists, doctors, biologists, andrologists, lawyers and nurses working in Reproductive Medicine (Moreno-Rosset & Gómez, 2006).

Our efforts to provide psychological help to people who wish to have a child and are unable to do so by natural means should certainly not be trivialized. They are scientifically based, as can be appreciated from the different articles making up this special issue and which I introduce here. In addition, so that psychologists interested in this field might come to understand the patient's situation in a more direct fashion, this introduction includes some extracts from a novel recounting a typical patient's experience.

Infertility, as explained by Luís Llavona at the beginning of this special issue, has a stressful impact on the couple, causes a life crisis and involves facing up to a complex decision. Despite having tried for a long time without success, few imagine that they might have a fertility problem. The description in "El Diario de una Fecundación in Vitro" (*Diary of an In-Vitro Fertilization*) (Salvador, 2007) illustrates the situation: "*…clutching our results, we went off to the obstetrician's surgery for my scan… and when he had had a look at me he told us clearly*

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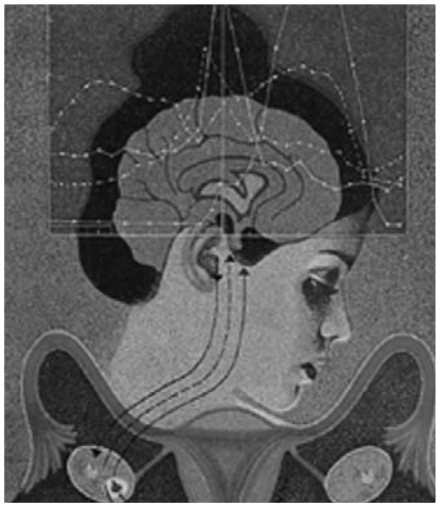
[1] Adrenarche: Pubertal awakening of the androgenic fraction of the suprarenal cortex. In females this takes place between the ages of 7 and 8. In males it occurs at age 8 or age 9.
[2] Menopause: Disappearance of menstruation due to cessation of ovarian activity.
[3] Primary infertility: when the couple achieve gestation but do not complete a full term and give birth to a healthy baby. Secondary infertility: when, after normal pregnancy and birth, the couple cannot obtain a second gestation leading to the birth of a healthy baby.
[4] Primary sterility: when the couple, after a year of sexual relations without contraception, fail to achieve pregnancy. Secondary sterility: when the couple, after having had one child, are unable to achieve a second gestation.

that we had to try ICSI (Intracytoplasmatic Sperm Injection[5]). He asked us whether we already had a clinic in mind (because of my age the National Health was out of the question), and seeing that we hadn't, he recommended one. We were quite taken aback. Even though we were really determined, when you realize you have to make decisions you feel incredibly dizzy."

The emotional processes associated with infertility and assisted reproduction treatments are so important that it is essential for psychologists to form part of the multidisciplinary team. We have discussed in different forums the need for our professional participation right from the moment of the first tests for establishing the infertility diagnosis. Psychological assessment of the couple provides knowledge of their emotional adjustment, allows detection of those at risk of developing emotional disorders and forms the basis for offering psychological help appropriate to each case. The time necessary for the diagnostic medical tests, around three months, would be sufficient for dealing with any maladjustment identified, or for psychologically preparing couples with fewer resources to cope with the process of medical treatment for infertility. This is how we proceeded in our latest research, with highly positive results (Moreno-Rosset, 2007). Moreover, and in view of the lack of specific questionnaires for the assessment of chronic problems such as infertility, we designed the first validated and calibrated instrument for Spanish populations for measuring Emotional Maladjustment and Adaptive Resources (*Desajuste Emocional y los Recursos Adaptativos*) in infertility (DERA; Moreno, Antequera & Jenaro, 2008), which is described in this special issue in the article by Jenaro, Moreno-Rosset, Antequera and Flores.

On initiation of treatment with assisted reproduction techniques, mind/body interactions become a central focus, as Daniel Campagne highlights in his article. To continue our story: *"...last Monday, after the scan, it was decided to start the tedious and tiring hormonal treatment. Without leaving off the Synarel (supposedly an inhibitor, something I don't understand however much they explain it to me), and clutching the prescriptions, I began a marathon involving visits to nine chemists! We feel totally stupid, because we've had the prescriptions at home for exactly a month, and the treatment's supposed to start after 24 hours."* (op. cit.). Indeed, assisted reproduction treatment begins by arresting the activity of the ovaries so as to stimulate them in a controlled fashion: the ovarian function is disconnected from the hypothalamic-hypophyseal axis to stimulate it with drugs and produce a larger number of mature ovocytes in a single cycle *"…the process is simple: a daily injection in the tummy, alternating sides, and I know that the majority of women do them themselves… …for the last few days they've been giving me two injections instead of one. One drug to stimulate growth and another (hooray for contradiction!) for preventing me from ovulating. My tummy's a mess, today's Saturday and they've done another scan on me. On Monday I'm having a blood test. I'm full of holes!"* (op. cit.).



As it can be seen, pharmacological treatment can cause mood alterations that exacerbate the emotional situation of the woman and her partner – because "he" is also there: as the principal male character in the book by Reyes Salvador recounts: *"The tedious and tiring treatment began for my partner. It felt unfair: the problem was mine but she had to suffer the consequences. She learned how to inject herself and she would do it everywhere, toilets at airports or restaurants, and so on. Throughout the treatment the injection had to be done at the same time every day"*. In this phase of ovarian stimulation there may be difficulties that have often not been previously explained by the doctors, and that unfortunately occur in 9% of cases; I'm referring to cancellation of the treatment due to poor ovarian response. When women are notified of this, the majority feel as though they themselves are "the bad guys". They think: why is this happening to me, if I've done everything right, every day at the same time, every day without complaining? I remember a Muslim patient who always came to the Reproduction Unit wearing a veil, and who had a cycle cancelled because of poor ovarian response. When she came crying into my consulting room she felt discouraged, disheartened, disoriented, because she attributed to the fact that she was doing Ramadan. Clearly, the work of the psychologist is fundamental at all points of the medical treatment process. The characters in our story also recounted their disappointment: *"We were pretty upset, and decided to wait a while; and besides, we had to get straight again financially"*.

When all goes well, there comes a point in the treatment at which hope and optimism abound: the moment of extraction of the ovocytes, the "in vitro" fertilization in the laboratory and the subsequent transfer of embryos to the womb. This phase of the treatment is tremendously emotionally charged, both for her: *"my endometrium is at 10.4 (which it seems is good); I have three follicles of 17, one of 16, another of 14… Today, Wednesday, at 20.30h precisely, they have to carry out the intra-muscular administration of hCG (the hormone that stops the growth process). Friday at 7.30h we have to be at the clinic for extraction of the follicles. They'll sedate me, and once extracted (whilst Paco pays homage to himself in order to extract fresh – or rather warm – spermatozoids) they'll see how many of them can be fertilized"*; and for him: *"Paco told me about the incredible experience he had trying to masturbate and produce the semen… …Well, they gave him my coat and my bag (one hand or arm occupied!) and the jar in question, and… do the business! It seems that the first toilet he found had recently been used for some serious evacuation of the bowels, and the odour was quite overpowering, so he went in search of another, upstairs, downstairs, until he found one that was empty and more or less aseptic. There wasn't much space and the door had no lock, so I really dread to think in what conditions the ejaculation took place"* (op. cit.).

It is not surprising that going through all these experiences changes even the world's most mentally balanced person. The article by Antequera, Moreno-Rosset, Jenaro and Ávila makes it clear that it is common to find

[5] ICSI (Intracytoplasmatic Sperm Injection). Technique that permits the fertilization of an ovocyte by means of micro-injection of a spermatozoid.

emotional maladjustment in infertile couples, and that it is often erroneously associated with anxiety or depression, though as time goes on the failures, repeated attempts, one's increasing age, etc., may indeed provoke anxious or depressive syndromes. Some authors find a particular type of emotional development in this population. At first they tend to be more or less adjusted emotionally, after a time they may develop mood disorders, and finally, learned helplessness returns them to their initial state.

But let us continue with our story. Assuming that everything goes well in the extraction of ovocytes from the woman and in obtaining semen from the man, the following day the couple have to call (or are called by) the Fertility Clinic's laboratory to see whether the ova have been fertilized and how many are viable; that is, how many can finally be transferred to the womb. *"They told us to keep our mobiles handy because a biologist would phone us to explain how things were going. Friends who have gone through the same process had told me that they used words such as "beautiful" and "pretty", and to be honest I didn't believe it. But it's true! The biologist talked about the ova as if they were babies! Of the five, one hasn't worked and four have been fertilized."* (op. cit.). Indeed, the call to the laboratory to see whether the embryos have taken or not is just one more stressor to add to the whole mix. I have personally seen many women cry because none of the ova have been fertilized, despite the physical, mental and financial effort, the effect on the relationship, even all the time off work… All that effort for nothing! And it's true. Depending on how the cells divide, biologists tend to call the embryos good-looking or ugly. But that's really another story – the language used by doctors, nurses, biologists, and so on… which may have an emotional effect, even though the words might be in some way appropriate.

When the transfer to the embryo takes place, many women think they already have a baby inside them, and that's not true – they only have some cells that are beginning to divide, and it still remains to be seen whether, inside the womb, the division will continue correctly or not, and if it does, whether or not they will "anchor", or "take"; and this is an aspect that Reproductive Medicine still can't control. Even so, the day of the transfer is party-time for the couple, an opportunity to have the child they yearn for so much; when they are asked to come into the room a whole world of hope opens up: *"They call me, I see in the waiting room one of the couples who were there on the day of the extraction. I'm in a daze; we embrace…let's go for it! It's the laboratory. At last, photos of babies. Fridges, microscopes, a lot of people for such a small space, and a small cubicle with an examining bed… at last, the doctor comes over to me… I saw a really long, thin plastic pipette shaped like a hook at the end. Clean entry into the vagina, the same discomfort as a scan, and nothing else. A nurse extends the bed a little, bends my legs and covers me with a thin blanket. I have to stay there for at least half an hour. I keep repeating, like a mantra: "Take, take, take!" I promise not to breathe, not to wee, not to poo, not to move, not to speak. I want to reduce myself to a vegetable so that they take root in my belly, so that they don't leave me empty, so that they grow and fill me up until I burst. "Take, take!"…* (op. cit.).

And after the embryo transfer the couple are sent home. This is the "waiting for results" phase, in which the psychologist's work has to become intensified because that of the doctor disappears altogether;, many women are left with a feeling of abandonment and helplessness, seeing as in the ovarian stimulation phase they went to the clinic several days a week for ovary and hormone checks. Therefore, these are two highly stressful and obsessive weeks, as we learn from the character of our story: *"Now there are the doubts, the uncertainty, the hope, the fear. So many feelings…! I'm convinced I'm going to get pregnant, but I have to arm myself against failure. I didn't think the wait would be so long; that if the implantation didn't work my period would come quickly. I keep looking at my knickers – I wear white ones all the time now so that I can see any signs –, but there aren't any… …They tell me at the clinic that if my period doesn't come at the weekend I should ask for a blood test on Monday. These two weeks have been desperate. I look at my breasts, my secretions…if I could I would stick my head in my vagina!... …Could I be pregnant? How much? You don't know that from a blood test! Am I pregnant with twins? With triplets? Is it ectopic? Will I lose them before the third month? The wait in these last weeks is killing me. Now I can't remember all the discomfort or everything I've had to go through… this is worse! I'm paralyzed; I can't think about anything else"*.

This emotional process we have described with the help of a true account can be even more complex in assisted reproduction treatments in which gamete donors are necessary. Then we are talking about assisted reproduction involving third parties, in which other personal and moral values of the couple come into play. In such cases it is necessary to reposition many more variables: What will he be like? Will he look more like him than like me? (in the case of needing a semen donation). Or to look at it another way: Who will she be? Who will my baby look like? Shall we tell her one day? Should we tell your parents, my parents? Should we keep it a secret? Moreover, the law permits couples who have undergone assisted reproduction to donate surplus embryos to couples requiring them. These cases could be likened to an adoption, with the fundamental difference that the adoptive mother can experience the pregnancy and birth as though it were her genetic child. In all these cases, in which scientific and legislative developments permit people who would otherwise have no possibility of engendering a child to have one, it is also true that the new family situations involved cause confusion, doubts, fears, irrational ideas, rational thoughts and many feelings that can be channelled with the help of psychology.

Consequently, psychological intervention is clearly necessary in this new field of Health Psychology. Not only because it might help increase the success of medical treatments, but also with a view to enhancing the quality of life of these patients, who suffer as much as, or even more, than patients with life-threatening chronic illnesses. Hence, the professional relevance of the article by Ávila and Moreno-Rosset, which offers guidelines for a clinical intervention protocol. In their work they took into account both information provided by relevant authors in the field and their own experience gained from direct contact with patients through R+D+I projects (Moreno-Rosset, 2003, 2007).

Finally, it should be mentioned that, in this whole process, regardless of the whether the diagnosed source of infertility is the woman, the man, mixed or idiopathic, the relationship suffers, and depending on the degree of balance and adjustment, in some cases the relationship cannot support such pressure, and the result can be an intensification of unresolved problems and even separation. Difficulties that the couple were unprepared for can also emerge. Of course, sexual relations are considerably affected, first of all because they take place with or without real desire in an effort to achieve the goal, and subsequently, after making contact with the Reproduction Unit, because they are maintained only on the appointed days. It is like leaving the sexual relationship in the hands of medicine since it is not needed for obtaining a child. Thus,

in many cases patients talk to the doctors about their need to get back into the intimate relationship: *"I asked him with a little embarrassment whether we could have sexual relations. Maybe he's not the right person, but he's the one who's on the other end of the phone at the moment, and it's clear that in these fertilization processes what you do least of all is make love. Not that I've a wild desire for sex, but in the last few weeks we've just done as we're told: so many days for the frozen sperm, so many days for the spermatozoids to mature on the day of extraction… What's more, if all goes well, I've no idea when we'll be able to have sex. I don't want, we don't want it to affect our intimate relationship."* Problems may even appear in the longer term, as Paco, one of the characters in the story, recounts: *"Since I found out about my infertility until that time, about four years had passed,… we left some time before the new attempt because my wife had some after-effects of the two previous treatments. In mid-2000 we started to have problems in the relationship – I think partly because of not being able to have children – and two years later we separated"*. This story is not fictional, and is a highly probable scenario, as is also the opportunity to take advantage of the experience of infertility to grow and come closer as a couple. But every day couples turn to private psychologists in search of help, so that it is necessary for the psychologist to have good training in relationship therapy, an aspect covered in depth by Flores, Jenaro and Moreno-Rosset in this special issue.

By way of conclusion, it seems clear that infertility is a central theme in Reproductive Psychology, which explains the selection of the different aspects dealt with in this special issue, in which we attempt to offer a broad picture from the professional perspective for psychologists interested in the field. Likewise, we chose the novel by Reyes Salvador in view of the recency of its publication, and because it provides an excellent and true-to-life illustration of the profound emotional process that accompanies infertility and its treatment. Psychologists who wish to look more deeply into this matter may wish to consult texts such as those by Bayo-Borràs, Cànovas and Sentís, 2005, Guerra, 1998, Kittel, 2007, Moreno-Rosset, 2000, or Tubert, 1991, 1996; and the accounts by Pérez-Aranda, 2000, Smolowe, 1998 and Yago, Segura and Irazábal, 1997.

As with any new professional field, the beginnings are not easy, and even less so in matters of health, whose primary pathology (infertility) must be treated by doctors. Although multidisciplinarity appears to be accepted and recommended by health institutions, there is still a long way to go before patients are offered attention to their body/mind health, as advocated by the WHO. Nevertheless, we believe that "you make the path as you walk", so that those of us writing in this special issue who have begun the journey hope to be contributing relevant information and guidance for psychology professionals with regard to one of the central issues in Reproductive Psychology, that of infertility.

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