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Editorial

In the ten years that have passed since positive psychology was formally introduced by Dr. Seligman, it seems that we have gotten past the debate – if it could in fact be called a debate – on the existence of a new branch of psychology dedicated exclusively to the study of the positive, as separate from or in opposition to the negative.

Based on an integral vision of the individual and of psychology, the Annuary of Clinical and Health Psychology has dedicated this volume to Clinical and Health Applications of Positive Psychology.

The interest in this subject has been strong, and we were lucky enough to receive contributions from important researchers like Carmelo Vázquez and Luis Fernández Ríos. These two authors’ different assessments of the theoretical corpus of positive psychology are well-known within this area. In addition, within the field of applications, we present the fascinating contributions of Xavier Méndez’s team at the University of Murcia and of Carmen Moreno’s group at the UNED.

Fernández Ríos and Cornes provide us with a necessary, critical revision of both the history and present of positive psychology. Using sources such as the classic texts of philosophy and anthropology from both the West and East, and from Egypt and other countries of the Arab world, they affirm that the eudaimonistic perspective of positive psychology does not represent a new viewpoint. Thus the use of the adjective positive may not be justified, at least in terms of referring to a different area within psychology, when we speak of very basic issues that have historically been addressed by human beings, such as personal effort, wellbeing, growth, happiness, optimism, resistance, self-sufficiency, invulnerability and quality of life, among others.

These authors’ proposals on what should or could be addressed by positive psychology – as well as the critiques of this focus. Their emphasis on issues such as the inconvenience of a high self-esteem is thought-provoking and anything but neutral.

Carmelo Vázquez is one of the authors who has published many texts and who has undoubtedly made one of the most important contributions to the development of positive psychology and its relationship to health in our country. Vázquez, along with authors like Gonzalo Hervás, Juan José Rahona and Diego Gómez, offers us an interesting manuscript that evaluates the role of psychological well-being in the prevention and recovery from illnesses. Their detailed revision allows us to glimpse the significant amount of rigorous empirical contributions in this regard. Similarly, the multidimensional model of Carol Ryff, the references to research on brain mechanisms that could promote hedonic wellbeing and the role of endorphins in modifying the immune system establish a relationship between wellbeing and health that is more causal than correlational.

In this volume, the clinical and health applications of positive psychology are analyzed in a work on increasing the curiosity and motivation of a group of high-school students to participate in program aimed at preventing the symptoms of depression. The authors of this study, Óscar Sánchez, Xavier Méndez and Judy Garber, note that being optimistic and having low levels of anxiety could be the working goals in terms of sparking interest in positive change. The second work presented addresses what proves to be an important issue in clinical psychology and health: interventions in infertility. In this study, María del Castillo Aparicio, Carmen Moreno-Rosset, María Dolores Martín and Isabel Ramírez-Uclés focus on the effect of positive feelings between infertile couples and possible differences between men and women in this regard. According to the authors, the differences discovered between infertile men and women with regards to their positive and negative feelings should be incorporated to the more traditional approach to psychological interventions with these couples.

The research section concludes with an analysis of ten important works on the chosen subject. In their study, Javier López-Cepero, Eduardo Fernández Jiménez and Maria Cristina Senin Calderón focus on publications that have been most acknowledged by other researchers and which have provoked the greatest impact.

We can conclude by saying that “all is well that ends well” and in this regard, there is no doubt that throughout this decade, the contributions that have been made in the area of positive psychology have given us the contents and empirical evidence for certain constructs that are not always well-defined or utilized but which are highly relevant for both clinical psychology and health.

I invite you to critically reflect on the studies that we present in this volume.

Eva María Padilla Muñoz
A critical review of the history and current status of positive psychology

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ABSTRACT

Positive psychology is emerging as an alternative to negative psychology. The positive approach seeks to highlight intrapersonal and interpersonal resources in order to favour the optimum development of people, groups, organisations and societies. This tradition has a long history in Western and Eastern philosophical and anthropological thought. Therefore, it is not a novelty or original and so can and should be criticised. This study concludes that positive psychology is not necessary or essential for healthy or reasonable psychology, as its proposals have long been widely known.

Key words: Well-being, post-traumatic development, happiness, realistic optimism, positive psychology, resilience

INTRODUCTION

The concept of positive psychology includes all those aspects which are related to the art of positive living or to resources for the good life. The approach here accepted is eudaimonic, as opposed to the hedonic, which focuses on happiness from an utilitarianism and pragmatism orientation. The eudamonic approach, by way of contrast, focuses on taking responsible charge of the historical and personal process of living. It seeks to build intrapersonal and interpersonal resources not only for invulnerability but also for personal development and in the search for happiness. Classic eudaimonía is better built with resources such as areté or virtus. This study chooses the alternative of identifying eudaimonía or happiness, with areté, which is in turn related to the concept of an ethical and virtuous person, virtus. Healthy values, which entail personal effort, contribute to creating positive personal and social resources which make up a framework by which a happy life can be built up.

As far as this study is concerned, good life is related to the healthy regulation of cognition, emotions and actions, which are useful to generate psychological invulnerability. Positive constructive emotions extend the positive existential perspective of human behavioural potential and favour coping strategies to extract benefit from adversity. They also favour the struggle for social justice, positive social interaction and moral emotions.

This study aims to establish a critical perspective of the present-day state of positive psychology. To do that, it starts by differentiating between positive psychology and negative psychology. Then, it reflects on whether positive psychology makes a really original contribution to psychological knowledge. Furthermore, it considers that there are too many concepts referring to the objectives of positive mental health which, in the last resort is related to the classic terms of eudaimonía, areté and virtus. Finally, it deals with the applications of the theoretical and practical principles of positive psychology and with an account of criticisms likely to be formulated.

From negative psychology to positive psychology

Either due to historical ignorance or to a lack of education, psychology seems, not always but in fact traditionally, to have put emphasis on the problems of human beings. At the end of the 1990’s this approach was named, we believe falsely and a mistakenly, negative psychology (Gillham & Seligman, 1999). It seems that traditional psychology undermines the resilience of people and victimizes them. Furthermore, it emphasizes unjustified epidemics such as depressive symptomatology and anxiety disorders. It is not true that the history of psychology, regarded in a broad sense, puts fundamental emphasis on predicting failure, hopelessness or despair and forgets about hope, persistence, creativity and the meaning of life. This approach is incorrect and is not justified historically.
In this instance, Gillham and Seligman (2009) show their great lack of knowledge about the history of human thought. This negative approach can be related to the deficit model, of risk or vulnerability. It is, therefore, a psychology for the society of risk, which highlights rehabilitation and the overcoming of personal and social pathologies. As a supposedly original alternative, positive psychology is framed within the traditional competence model or prevention-oriented invulnerability model. It adopts theoretical and practical perspectives founded on humanistic psychology and represents a hopeful approach to human nature and its existential course. Positive psychology is related to the human being’s positive and constructive explanatory drive and to the need for a feeling of competence. Nevertheless, this perspective does not theoretically contribute anything original. In the general population, the norm is resilience to life’s adversities and not a surrendering to them, which we have known for a very long time now. So, what’s new about positive psychology?

Is there anything really new in positive psychology?

As argued by Lazarus (2003a) positive psychology ignores much of the work of the past (p. 175). The history of psychology has traditionally been considered as presentist. That is to say, it regrettably supposes that the present day psychological knowledge is superior to that of the past. However, this perspective is not only inaccurate but also wrong in relation to positive psychology. As a matter of fact, psychology often uses new labels to refer to what has been known for centuries. Before going on with the description of this study, we think it could be useful to bear in mind the following statement by Descartes (1637/006, 6), “When we get excessively interested in what was being done over the past centuries, we get generally ignorant of what is currently going on.” This is an interesting idea, as scrutinising history too much may distort the present day and future perspectives of psychological knowledge.

Most of Western and Eastern anthropological philosophy, as well as the Egyptian and Arabic, have emphasis on: living with moderation, having a comprehensive world view, overcoming adversities, learning to suffer with strength, getting to know oneself, controlling anger, avoiding excesses, wisely guarding against danger, struggling for temperance and sound judgement, searching for spiritual harmony and peace, putting emphasis on personal effort, favouring internal potential, or establishing social resources for social support; etc. The aim is to achieve a good frame of mind and a balance in the cognitive and behavioural aspects of the existential passage. Delight and relish in the process of living represent an expansion of the existential potential, which coincides with the approach of positive mental health and holistic health. This is the approach of expanding and building positive emotions and the art of an ethical and virtuous life. If this is not positive psychology, it very much looks like it.

Anybody who lets themselves be guided by epistemic curiosity and a comprehensive view of history may come across the key ideas of positive psychology in many centuries-old studies. We here assert that the eudaimonic perspective of positive psychology does not represent a new point of view. Those who do think so, show their unjustifiable ignorance of the history of anthropological thinking and of Graeco-Roman and Oriental public health. The values advocated by the supposedly original positive psychology have no novelty or originality in them at all (Fernández-Ríos, 2008; Fernández-Ríos and Cornes, 2003). The historical development of positive psychology is not what appears in its manuals. These instead contribute to distort it. The possible real story is otherwise and usually outside the books on the history of psychology. All this manifests a deficient and inaccurate historical approach to psychological knowledge prior to the 19th century. Fernández-Ríos (2008) argues the following in another study, “I find it reasonable to conclude that positive psychology does not contribute solutions to any existential problem which have not already been addressed by classic Western and Eastern thinkers and by common sense” (p. 169). Common sense has been marginalized and unjustifiably ignored in the main, by present day psychology. For his part, Avia (2006) states that the approach of positive psychology “is not a new or homogeneous paradigm or model; not to speak of an alternative to ‘non-positive’ psychology” (p. 239). In this regard, we should wonder whether we have a clear idea of what positive psychology has historically represented. On behalf of a fake scientism, psychology has forgotten about people’s everyday history of philosophy, about their existential day to day efforts. This makes these words by Seligman (2008) clearly inaccurate and, ultimately, as wrong, namely, “I propose a new field: positive health” (p. 3). The terminology used by positive psychology is not novel nor does it contribute anything original to what we already knew.

Concepts related to positive psychology

Western classical anthropological philosophy makes emphasis on areté and virtue to achieve happiness. People with courage to live should not let themselves be uselessly consumed by suffering. According to scholasticism, traits of a healthy frame of mind are prudence, justice, strength of spirit and temperance. Human beings seem to have a healing strength coming from nature for acquitting themselves well in adverse circumstances. This is the issue of strength of health and the constructive value of suffering, historically known as hygiene of the mind or hygiene of the soul.

Positive psychology speaks of the controversial concept of the optimum human being. It seeks healthy psychological development, the struggle for well-being and personal thriving. Positive psychology is the allegedly scientific study of the psychological mechanisms of strengths, resources or virtues that, within each corresponding social and material context, contribute to constructing an optimum performance of individuals, groups, organizations and societies. Historically speaking, there is nothing new in it. The aim of part of Western
and Eastern anthropological and philosophical history has always focused on the struggle to extract benefit from adversity.

The present day discourse of psychology has at its disposal the following series of concepts and psychological mechanisms which are relevant for positive psychology: invincibility, protecting factors, temperament, resistance, elasticity, growth, prosperity, reward delay, invulnerability, strength, vigour, need to thrive, proactive self-efficiency, self-esteem, self-determination, resistance to temptation, dispositional optimism, hardness, religious beliefs, social support, sense of coherence, psychofotology, fortogenesis, power, energy, vitality, comprehensive optimizing personality, learnt powers, the positive side of negative thinking, constructive or proactive social comparison, dedramatising sense of humour, ability to forgive, or leisure time activities and so on. In general, all of this terminology refers to strengths or cognitive and emotional fortitude in people’s everyday lives.

So much redundant psychological discourse confuses rather than clarifies. When the concepts do not contribute anything new, we get into language games which are very often irrelevant to psychology. For this reason, we believe in using a terminology that highlights the common and finds a consensus, instead of focusing on what is wrongly different. The best thing for the human being seems to always be the middle way.

**From the wisdom of the middle way to positive psychology**

*Sophia* is defined as knowledge or awareness of divine and human issues. Philosophy, as far as we are concerned, represents the art necessary for a virtuous life. Wisdom makes reference to learning to live peacefully and virtuously from internal and external experience. Wisdom has to do with practical and moral existential integrity.

Classical Western thinkers spoke of *areté* and *virtus*. It is urgent to retake these concepts for the psychology of the morally mature person. Virtue works as a positive command for progress toward personal growth. Wisdom or maturity of self are useful to reach an authentic quality of life with courage, motivation and existential meaning. The classical formulation of virtue includes justice, bravery, moderation, magnanimity, sensibility, wisdom and calm.

The statement *in meso stat virtus*, meaning that virtue lies in the middle, is also relevant for the anthropology of the history of positive psychology. Aristotle (1985, 1106a-1106b), recognizes the relevance of the term *mesotes*, meaning the middle way. The search for moderation and balance is present in Western, Oriental and Arabic thinkers. This perspective of the middle way has been extrapolated to the current psychological thought under the vague, confusing and evasive concept of the optimum human being. The sense of the process of living has historically moved around understandability, which coincides with the perspective of humanistic or phenomenological and existentialist psychology. As well argued by Dilthey (1894-1945), “We ‘explain’ nature; we ‘understand’ emotional life” (p. 197). Thus, what is nowadays included within the concept of positive psychology?

**Assessment in positive psychology**

Positive psychology assesses psychological processes or resources implied in the choice and achievement of aims which are beneficial in heightening well-being. Some of the competences, resources, strengths or power to bear in mind during the assessment process are the following: optimism, hope, self-efficiency, problem solving, feelings of control, courage, positive emotions, certainty in attachment, ability to forgive, gratitude, coping strategies, dimensions of life quality and art of living, well-being, happiness, solidarity, self-determination, empathy, emotional intelligence, human resource ecology, sense of justice, transcendence, religiosity, spirituality, curiosity, creativity, authenticity, care, humility, or self control, etc. (Lopez & Snyder, 2003; Peterson & Seligman, 2004). This is fulfilled in practice by the creation of environmental contexts for building intrapersonal and interpersonal resources which may generate *richness* and *psychological resources*. As stated above, the discourse of positive psychology is very widespread in Western psychology. Now, what is its status in Spain?

**Positive psychology in Spain**

Spanish psychologists have also joined in the trendy discourse of positive psychology, within which we can distinguish four aspects. The first one refers to reflection on happiness and a happy life (Avia, 2008; Fierro, 2000). The second issue deals with the references and relevance of some aspects of epicurean philosophy for present day psychology, which can be included within positive psychology (Fierro, 2008; Pelachano, 2005, 2006). Thirdly, we can highlight monographic issues of journals (Carrillo & Prieto-Ursúa, 2006; Vázquez, 2006) and books (Vázquez & Hervás, 2008, 2009; Poseck, 2008). Finally, it is worth mentioning the reviews of some aspects of positive psychology (Avia, 2006; Prieto-Ursúa, 2006).

All of these studies are theoretically and practically well founded on the traditional discourse of positive psychology. However, we believe that they ignore many of the problems presented by positive psychology, which are dealt with below.

**Applications of positive psychology**

The theoretical and practical principles of positive psychology have been applied to all the aspects of human psychology and its existential contexts. This means referring to subjects who cope with adversity, families who cope with stress, positive organizations, or post-traumatic growth, etc. Positive psychology enjoys some empirical validation (Duckworth, Steen & Seligman, 2005; Seligman, Ernst, Gillham, Revichv & Linkins, 2009; Seligman, Steen, Park & Peterson, 2005; Sin & Lyubomirsky, 2009). The findings are moderately satisfactory, as in any other approach of psychological science. The perspective of proactive intervention focusing on invulnerability seeks to enhance people’s well-being.
Snyder and López (2007) introduce the terminology of prevention science within the field of positive psychology. They deal with primary enhancement, which includes the effort to establish an eudemonic state, optimal for a good life; and with a secondary enhancement, focusing on building the best life on already existing optimal performance and on seeking heightened experiences. In spite of some empirically founded findings, positive psychology displays serious drawbacks. These problems need to be overcome whenever possible.

**Criticism of positive psychology**

At a first look at positive psychology one could think that it is part of the spirit of the times (López & Rettew, 2009). However, this is an inaccurate conclusion, as it does not offer anything new from a philosophical or anthropological point of view. Thus, we find it relevant to consider the following criticisms of the theory and practice of positive psychology.

a) Excessively quantitative methodology. All that is quantitative in psychology is not always relevant for the existential meaning of life. We believe that putting excessive emphasis on the psychometric structure of psychological processes may make us forget about the human being as a whole. Excessive mathematization of psychological processes does not really help in understanding the human being.

This problem may be solved by applying any other useful and ethical resource to understand the process of living. In this regard, three important historical lines of thought can be pointed out in the effort to understand the human being. One of them is the narrative tradition of consolation in face of individual adverse events, such as the death of a loved one and the comprehensive description of emotional expression in face of collective catastrophes, such as earthquakes or epidemics. The second, which complements the first, is the use of mixed methods, which combine quantitative and qualitative traditions. The third line of thought deals with a contextual approach to research and with the methods emerging from research (Hesse-Biber & Leavy, 2008), e.g. vital projects, life stories, autoethnography, or ethnodrama, etc.

b) Acontextual individualism. This procedure primarily focuses on the individual without regarding the influence of the context on behaviour. When too much emphasis is put on individual personal self-realization, the context and the alter ego can be forgotten. Positive psychology seems to centre on the values of liberal individualism with a good dose of narcissism, which predominates in Western culture (Christopher & Heickinbottom, 2008). This is as if positive psychology were a perverse manifestation of the technical and instrumental rationality of this culture.

The alternative lies in bearing in mind the social and material context in which people are born, live and die. It doesn’t matter if one speaks of behavioural contexts, ecological niches, circumstances or social and material conditions of existence. In all cases the situation constrains and conditions people’s behaviour, as psychological processes are developed by social interaction. Cultural psychology and indigenous psychology emphasize the process of cultural build up of psychological resources. This gives importance to the relevance of socio-political and socio-economic issues on people’s well-being and happiness.

c) Forgetting classical knowledge about emotional intelligence and positive emotions. Emotional intelligence apparently represents something new, but it is not. The approach of emotional intelligence is a confused mixture of insubstantial opinions and exaggerated hopes. When something seems to be new and original we run the risk of ignoring history and supposing that the whole past was a mistake. Furthermore, psychology, maybe unable to understand the human being as a whole, formulates too many kinds of intelligence and so unjustifiably divides the human being into parts.

The correct perspective may consist in analyzing history and reflectively and critically reading the classical authors related to our topic. The present day emphasis on emotional intelligence, regarded as something novel and original, could be corrected by reading the classics. Among many authors we can point to are Aristotle (1858), Cicer (2001), Menandro (1999), Publio Siro (1963) and Seneca (2000). Much of the effort made by Western and Eastern anthropological philosophy has searched for emotional balance and the medium between reason and passion or between affection and cognition.

d) Neurologization and psychobiologization of positive psychology. Present day psychological research is producing a neurobiologization of psychological processes. This is an easy thing to do, but it eliminates any possible chance of psychological hermeneutics. The neuroscientific approach is very promising, finding out where in the brain psychological processes take place, which makes it scientifically very relevant, but it contributes little more to psychology. This issue is well provided for by the good interdisciplinary departments of neurology. We do not think that neuroscience meets the practical expectations that psychology has of it. It is not going to solve any problem dealing with existential phenomenology. Examples of research on neuroscience within the approach of positive psychology are the neurobiology of positive affect and the study of empathy from the perspective of mirror neurons. One more example is the biologization of will power, which leads Gailliot and Baumeister (2007) to speak about the physiology of will power.

The alternative lies in not adopting a neuronal and reductionist perspective of the person, as in the case of great classical authors. Human beings need meaning in their life experience (Heine, Proulx & Vohs, 2006). The research of the neurobiology of psychological processes does not reveal the meaning of cultural styles. For example, studies on mirror neurons do not lead to a better phenomenological understanding than interpreting existential work. Therefore, what is relevant for positive psychology is not so much neurobiology, but the existential meaning of the living process.

e) The tyranny of a perfectionist positive attitude in the living process and obsessive eagerness...
in the search for self-realization (Held, 2002). One of the negative aspects of being forced to always make rational choices for self-realization is frustration and disenchantment. The obsessive struggle for an unrealistic perfectionism only brings about negative consequences and may lead to a non realistic kind of optimism, in other words to excessive and obsessive confidence in oneself.

It might be more appropriate to opt for the concepts of critical optimism (Seligman, 1990) and flexible tenacity (Gollwitzer, Parks-Stamm, Jaudas & Sheeran, 2008) in relation to the living process. The relevant thing for psychology is to highlight the agency ability (Bandura, 2006) and coping strategies. Agency is conceptualized as the conditioned political, cultural and economic ability to turn social and material living contexts into healthy places to live and struggle for personal development. In addition to this, the positive value of negative thinking and the functional usefulness of negative emotions need also to be borne in mind.

f) Universal self-enhancement? The controversy whether self-enhancement is a cultural universal or is culturally conditioned is still unresolved. Whereas some research approaches believe that self-enhancement is in fact universal, others assume transcultural variations and, hence, believe that it is not. Self-enhancement seems to be higher in individualistic cultures, whereas it is lower in collectivist ones. This supposes that the distinction between individualistic and collectivistic cultures is higher in individualistic cultures, whereas it is lower in collectivist ones. This supposes that the distinction between individualistic and collectivistic cultures is pertinent. It is also worth noting that it is risky to extrapolate Eastern cosmovision into Western cultures. We recognise that the trend of uncritically importing Eastern cosmovisions into our Western culture may be pernicious.

The alternative may be through the research on the psychological mechanisms implicated in the wish to be a good and competent person in each culture (Heine & Hamamura, 2007; Smith, Smith & Christopher, 2007). This partially coincides with the lexical approach to personality features, which is a provisional alternative. It would also be desirable to assimilate an integration of cosmovisions which are different or even incompatible. It might be relevant for positive psychology to extract, whenever possible, the positive life styles of each culture in order to enhance psychological well-being.

g) Inappropriateness of high self-esteem. There is too much bibliograp hy available in order to reach some conclusions on self-esteem that often do not go much further than common sense. On many occasions, the objective benefits of high self-esteem are few and limited. The benefits of adequate self-esteem are well known, but what are their costs? The overemphasis on finding constant high self-esteem may weaken or interfere in personal autonomy, in the learning process, in interpersonal relationships, in self-control and in health (Crocker, 2006; Crocker & Park, 2004). Baumeister, Campbell, Krueger and Vohs (2003) state that self-esteem is not the cause of or the main predictor of almost anything.

The solution to this problem may lie on the concept of optimal self esteem (Kernis, 2003) in each socio-cultural context in order to reach authenticity in those social and cultural living conditions.

h) Useless philosophical controversies. Accepting the principles of positive psychology uncritically implies a naive philosophy of the human being’s psychological resources for coping with everyday living. Meddling in philosophical discussion without solution is a waste of time. The theoretical and practical integration proposed for positive psychology (Held, 2004, 2005) together with ontological controversies (Slife & Richardson, 2008) generate a discourse which may be philosophically appealing but is theoretically unsatisfactory and practically irrelevant to psychology.

The solutions to the possible philosophical controversies of positive psychology should come from the consensus emanating from a philosophy of science applied to psychology. We are aware that this is difficult due to great theoretical variation. The classical fragmentation into models or schools has two aspects. One of them is that the diversity of schools is not a problem in psychology, as it is positive to have various points of view for description and comprehension whenever they are carried out with faithful regard for the data and with existential coherence. The other aspect is that lack of unity in psychological theory creates an incompatible diversity of opinions which makes it impossible to reach a comprehensive solution. We are in favour of the latter idea, as we believe that unjustified or unjustifiable divergence of psychological theory is negative in itself. Unlimited theoretical controversies, not always reasonable or explicable, create a space for chronic divergence and unresolved polemic.

i) Is the concept of positive psychology a necessary one? Held (2002, 2004) argues that there is no theoretical or practical evidence to keep advocating positive psychology. As Lazarus (2003b) suspects, “Positive psychology does not mean the same thing for all psychologists” (p. 93). Held (2005) prefers to speak simply of psychology instead of positive or negative psychology. If the ultimate goal of positive psychology is to provide a meta-theoretical foundation for optimal human existence, it is something insubstantial and irrelevant.

The alternative to this might come from being critical with the concept of positive psychology itself. Its content could have been included within psychology of health just as well as within the general concept of psychology. We believe it is as simple as this. Furthermore, we consider that so much bibliography, supposedly and falsely considered original is not necessary to conclude what we already know.

CONCLUSIONS

In spite of all the conceptual problems of positive psychology, there is much in its favour to make it, we believe unjustifiably, theoretically and philosophically very promising. From our point of view, it is a mistake to uncritically accept the discourse of positive psychology. This is a regrettable consequence of the lack of constructive critical reflection on the discourse of psychological knowledge.

The theme of positive mental health is nothing new nor does it contribute anything original. It is just trendy, but little more. It is as if all previous psychological work were useless, had been ill
directed and lead by professionals who did not know what they were doing. This is not right, as the psychologists who were really concerned about human suffering have always aimed at the same goal, namely helping people to live without problems and to learn from mistakes. As a consequence, from philosophical and anthropological points of view, positive psychology does not contribute anything new.

REFERENCES


Positive Psychology is contributing to a more precise definition of the outline of human well-being and is fully incorporating studies on positive elements (strengths and positive emotions) that are without doubt amplifying the framework of research and conduct of psychology, in particular that of Clinical Psychology and Health Psychology. Over the last few years, academic debate has, from a scientific perspective, gone back to two ancient philosophical orientations, namely hedonism and eudaimonia. The hedonic approach conceives well-being as the presence of positive affect and lack of negative affect, whilst the eudaimonic perspective regards well-being as the consequence of a full psychological actualization from which people develop their whole potential. Whether assessed from a hedonic or eudaimonic perspective, well-being seems to play a role in the prevention of and in the recovery of physical conditions and diseases and so possibly contributes to an increase in life expectancy. Finally, the implications of these findings are discussed both from an academic perspective and, more generally speaking, from a social and political point of view.

Key words: health, well-being, hedonism, eudaimonia, positive affect

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INTRODUCTION

Positive health and negative health. The perspective of positive psychology

Este This article, published by a journal which has long dealt with clinical and health psychology, makes it possible to explain the contribution of positive psychology to the fields of positive health and negative health, which we believe to be enormous. Firstly, this vision of psychology allows for a more accurate definition of the outlines of human well-being. Furthermore, it is fully incorporating the study of positive elements such as strengths and positive emotions which, without any doubt, are widening the research and action frameworks of psychology in general (Vázquez & Hervás, 2008) and in particular as we attempt to concisely show in this paper, that of Clinical Psychology and Health Psychology.

As a matter of fact, we make many of our everyday decisions by weighing up the degree of happiness to be reached by us ourselves or by our loved ones (Gilbert, 2006).

As recently stated by Salanova (2008), a brief review of the scientific literature published over the last one hundred years (from 1907 to 2007) shows...
the publication of 77,614 articles on stress, 44,667 on depression, and 24,814 on anxiety, but only 6,434 on well-being. In this large and full production, the number of studies on happiness (1,159 papers) and on enjoyment (304 papers) is almost symbolic.

Something similar happens in the field of medicine. In spite of the fact that medicine is supposed to deal both with health and illness, a review of the published medical articles on depression, stress or anxiety shows a 6:1 ratio as compared to those on satisfaction, happiness or well-being (See Figure 1). And if we focus on specific studies analyzing the relationship between mood and physiological symptoms, the studies on negative mood such as depression or anger, among others, are twenty times more frequent than the studies dealing with positive emotional states (Pressman & Cohen, 2005).

In spite of this panorama, the traditional attention towards symptoms and diseases is gradually changing into an increasingly wider concept of health that includes aspects of personal optimal performance and not only the absence of diseases. As detailed elsewhere (Hervás, Sánchez, & Vázquez, 2008), this more positive conception of health was made explicit in the initial set-up of the World Health Organization, which, at the end of the Second World War stated in the Preamble of its First Articles of Association.

“Health is a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity.” (WHO, 1948)

A few years later, following a proposal from the WHO, the World Federation for Mental Health defined ‘health’ in 1962 as “The best possible state within the existing conditions.” Similarly, the final declaration of the first WHO International Conference on Health promotion, held in Ottawa in 1986, stated that:

“In order to reach a state of complete physical, mental and social well-being, an individual or group must be able to identify and to realize aspirations, to satisfy needs, and to change or cope with the environment. Health is, therefore, seen as a resource for everyday life, not the objective of living. Health is a positive concept emphasizing social and personal resources, as well as physical capacities.” (Ottawa Charter for Health Promotion. WHO, Geneva, 1986)

More recently, in a praiseworthy effort by the Scottish government to incorporate elements of positive psychology into their prevention and intervention health plans, mental health was defined as (Myers, McCollam, & Woodhouse, 2005):

“The emotional and spiritual resilience which allows us to enjoy life and to survive pain, disappointment and sadness. It is a positive sense of well-being and an underlying belief in our own and others’ dignity and worth.”

The 1948 definition by the WHO was visionary but maybe utopian as well (Vázquez, 1990), since at that time adequate measuring instruments were not available to professionals or citizens aware of and committed to this refreshing approach towards the concepts of health and illness.

In this regard, one of our most urgent challenges is to put the concept of positive health into operation at various levels (individual-community, physical-mental, etc). The incorporation of indicators of positive health into the design of prevention and intervention programs is most important and is bringing about a decisive change of outlook. In order to analyze mental health, in addition to morbidity criteria (such as the prevalence of people with mental disorders, suicidal cases, hospital beds available, etc.), indicators of positive health can also be used. In this sense, it is important to appreciate, for example, the attempt to include positive indicators (such as the vitality item taken from the SF-30 performance scale) in the mental health plan of the Spanish Ministry of Health (Estrategia en Salud Mental del Sistema Nacional de Salud, 2007).

In the research field about indicators of positive health, the WHO itself has made a considerable effort to make the concept of life quality operative and develop instruments that facilitate accurate measurement (WHOQOL Group, 1994). Coming from the field of psychology, and especially, but not only, from the movement of positive psychology (Seligman & Csikszentmihalyi, 2000), there is a growing number of instruments oriented towards measuring aspects related to well-being, such as satisfaction with life, emotional well-being, psychological strengths or positive emotions (Deaton, 2008; Diener, 2009; Ong & Van Dulmen, 2007).

In addition to providing a wider definition of health and incorporating the study of positive factors associated to health and well-being, the last two decades have started to reveal that positive psychological states are not only an integral part of health, but also that they can actually influence the onset of illnesses and physical problems as well as the recovery processes. The self-perception of healthy people, characterized by having positive feelings about themselves, a feeling of self control and an optimistic vision of the future, provides reserves of and a driving force for resources not only to cope with everyday difficulties but also with those which are especially stressful and even threatening for one’s existence (Taylor et al., 2000). Having a good physical or mental state should not only consist in not having an illness or disorder, but also in enjoying a series of resources or abilities that allow for coping with adversities (Almedom & Glandon, 2007). And,
what is even more important from the perspective of positive health, that very state of well-being is going to make it possible to achieve a greater psychological, social and community development (Fredrickson, 2009).

Positive psychological factors may have such a strong relationship with health as negative ones. As for the latter, a great amount of data has accumulated over the years. For example, negative expectations are associated not only with a quicker progression towards death in patients diagnosed with AIDS, but also to a faster onset of symptoms in those patients who had previously been asymptomatic (Taylor et al., 2000). But at the same time new studies have shown that the ability to keep being optimistic, however unrealistic it may be (Reed, Kemeny, Taylor & Visscher, 1999; Reed, Kemeny, Taylor, Wang & Visscher, 1994; Taylor et al., 1992) and the ability to find meaning in face of adversity (Bower, Kemeny, Taylor & Fahey, 1998) seem to be physical health protective factors.

Observers of the human condition have long held that positive states of mind may lead not only to a more profound sense of life but also to a healthier existence. The development of rigorous methodological procedures, including longitudinal studies, adequate measuring instruments and the necessary mechanisms to control biological and psychosocial influences, make it possible nowadays to empirically demonstrate the validity of these ideas (Taylor et al., 2000).

Components of well-being: Hedonism and eudaimonia

The popular definition of health from the WHO makes the idea of positive health turn around the concept of well-being. In spite of this, it might be interesting to consider what scientific psychology can contribute to the definition of well-being. Over the last few years there has been an emergence of interest and studies on well-being (Vázquez & Hervás, 2009) and important concepts and measures have been developed to delineate the concept of positive health.

Although from a subjective perspective it is relatively easy to identify one’s own degree of well-being or happiness, reaching more general findings from a more rigorous approach has proved to be a more complex task (Ryan & Deci, 2001). Over the last few years, academic debate, from scientific perspectives, has returned to two old philosophical orientations. The first of these perspectives has generally been called hedonism (Kahneman et al., 1999) which defines well-being as the presence of positive affect and the absence of negative affect. The second perspective, both as ancient and modern as the hedonic perspective, suggests that well-being does not consist in maximizing positive experiences and minimizing negative ones (Ryan & Deci, 2001) but refers to living fully or to allow for the richest human potential possible (Ryan, Huta & Deci, 2008). This second perspective is widely known as eudaimonia.

Hedonism has its roots in Greek philosophers and Epicurus is probably its principal exponent (McMahon, 2006). The basic idea is that the objective of life is to experience the greatest possible amount of pleasure (although oriented towards enjoyment and noble activities). Happiness would be, in some sense, the sum of pleasurable moments. Hedonic philosophy has had its continuation in philosophers such as Hobbes and Sade or in the utilitarian philosophers, whose ideas provided the foundations for the new economy of the 18th century. In the field of modern psychology, the predominant concept stemming from hedonic psychologists is subjective well-being. Subjective well-being usually includes two elements, namely affective balance, which is obtained by subtracting the frequency of negative emotions from the frequency of positive emotions, and, secondly, perceived life satisfaction, which is more stable and has a greater cognitive component (Lucas, Diener & Suh, 1996). Even though affective balance and life satisfaction imply different time frameworks for subjective well-being, as life satisfaction is a global judgement on life itself, whereas affective balance makes reference to the relative frequency of pleasant or unpleasant affects in one’s immediate experience (Keyes, Shmotkin & Ryff, 2002), they can be understood as concepts linked to an hedonic perspective (Vázquez, 2009a).

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Table 1. Authors, concepts and basic measurements of the hedonic and eudaimonic approaches to psychological well-being.

SWLS: Satisfaction with Life Scale (Diener et al., 1985)
PANAS: Positive and Negative Affect Schedule (Watson et al., 1988)
PWBS: Psychological Well-being Scale (Ryff, 1989)
VIA: Values in Action Inventory of Strengths (Peterson & Seligman, 2003)

In spite of the dissemination and wide use of this conception of well-being, other researchers have emphasized a different perspective, usually called eudaimonic well-being. (See some differentiating characteristics of both perspectives in Table 1). In his Ethics to Nicomachus, Aristotle urges men to live according to their daimon, that is, the ideal or perfection criteria that one hopes for and gives sense to one’s life. All the efforts to live in accordance with that daimon and to fulfill and reach one’s full potential are thought to give rise to an optimal state, namely eudaimonia (Avia & Vázquez, 1998). The eudaimonic conception establishes that well-being lies in the performance of actions coherent with deep values that imply a full commitment with which people feel alive and real (Waterman, 1993).
However, it might be appropriate to consider whether the eudaimonic perspective of human well-being can be assessed or it is a rather rhetorical element to measure. Carol Ryff, one of the most important authors within the eudaimonic approach, has argued that measurements for well-being have historically suffered from a lack of a theoretical basis and have forgotten important issues of positive functioning. By proposing the term psychological well-being to distinguish the concept from that of subjective well-being, which is more typical of the hedonistic conception, Carol Ryff has tried to overcome such limits and defines well-being as the development of a person’s real potential (Ryff, 1989, 1995). In this way, happiness or psychological well-being is not the main motivation of a person but rather the result of a well-lived life (Ryff & Keyes, 1995; Ryff & Singer, 1998).

Ryff’s proposal consists in a multidimensional model of psychological well-being linked to a questionnaire for measuring it (Ryff, 1995) which represents six different aspects of optimal well-being at a psychological level. Each dimension of psychological well-being posits a different challenge that people find in their efforts to function positively (Keyes, Shmotkin, & Ryff, 2002; Ryff & Keyes, 1995). In this way, those people who manifest eudaimonic well-being are characterized as follows:

- a) They have a positive self-regard that includes awareness of personal limitations (Self-acceptance).
- b) They have developed and kept warm ties with others (Positive relations with others).
- c) They create a surrounding context so as to satisfy their needs and desires (Environmental mastery).
- d) They have developed a strong sense of individuality and personal freedom (Autonomy).
- e) They have a sense of direction in life that unifies their efforts and challenges (Purpose in life).
- f) They have a dynamic of life-long learning and of continuous development of their abilities (Personal growth).

Similarly, the Self-Determination Theory (Ryan & Deci, 2000) also links the ideas of eudaaimonia and self-realization as central aspects in the definition of well-being. This theory is based on one of the basic premises of humanism, which holds that well-being is mainly a consequence of optimal psychological functioning. The self-determination theory states that healthy psychological functioning implies adequate satisfaction of all three basic psychological needs, namely autonomy, competence and relatedness, as well as a system of congruent and coherent goals (Deci & Ryan, 2000). The first element, satisfaction of basic needs, consists in keeping a life balance that guarantees an adequate level of satisfaction in each one of the areas independently. As for the second component, the model argues that in order to develop eudaimonic well-being, each person needs to establish their personal goals, if possible, following some criteria. For example, the goals should be intrinsic rather than extrinsic, coherent to one another and, finally, coherent with their own values and interests, as well as with their basic psychological needs (Vázquez & Hervás, 2008).

As we can see, the basic psychological needs proposed by this theory almost coincide with three of the dimensions in Ryff’s model, namely autonomy, environmental mastery and sense of being connected to others, in spite of there being conceptual differences between the two models (Lent, 2003).

In addition to this, according to the self-determination theory, satisfying basic psychological needs enhances both subjective well-being and eudaimonic well-being (Ryan & Deci, 2001). According to these authors, this fact closes the debate on an alleged antithesis between both types of well-being, namely hedonic versus eudaimonic (Ryan, Huta & Deci, 2008). In this sense, both can be regarded as different ‘paths to happiness’ (Seligman, 2003); the eudaimonic conception focuses on the content of one’s life and on the processes implied in living well, whereas the hedonic conception focuses on a specific result, to be precise, on achieving the presence of positive affects and the absence of negative affects, as well as a holistic feeling of satisfaction with one’s life.

Nevertheless, the definition and measurement of well-being, either hedonic or eudaimonic, is still at its outset. In spite of the increasing progress in eudaimonic research and the important theoretical and practical contributions that the study of well-being implies, there are authors who doubt whether it is possible to transfer into psychology those concepts linked to the eudaimonic philosophical approach (Biswas-Diener, Kashdan, & King, 2009).

However, in spite of its complexity, we believe that the path that has been opened is really fertile and is demonstrating an increasingly convergent validity. For example, psychological well-being is also linked to research related to the brain and the so-called affective neuroscience (Davidson, 2003, 2004). High levels of hedonic or eudaimonic psychological well-being seem to be associated to an asymmetric activity of the prefrontal cortex—for example, higher activation on the left prefrontal side than on the right one—(Urry et al., 2004). It is worth noting that, in this study, eudaimonic well-being revealed a link with asymmetry in the electroencephalogram which was maintained after statistically controlling for the role of hedonic well-being. This was not the case in the opposite direction, as hedonic well-being was no longer significantly associated with the asymmetric brain pattern after the influence of eudaimonic well-being had been adjusted. In another study using functional magnetic resonance, van Reekum and her collaborators (2007) showed that, in face of adverse stimuli, people with greater eudaimonic well-being had slower responses and a lower activation of the amygdala, as well as higher activation of the ventral anterior cingulate cortex. The latter finding suggests that some parts of the brain can be activated in order to minimize the impact of negative stimuli and, in this sense, it also suggests the existence of a possible mechanism by which eudaimonic well-being might be preserving and promoting hedonic well-being.

**Health and hedonic well-being**

The last decade has witnessed an explosion of scientific studies which have found specific
associations between the level of positive emotions and multiple physiological systems and health levels, both in perceived health and objectively measured health parameters.

An interesting prior question is whether positive affect and negative affect are two poles of the same continuum or on the contrary are two different dimensions independent from each other. If both were a part of the same continuum, the presence of positive affect would indicate the absence of negative affect. Furthermore, if this were the case, it would not make any sense to study the beneficial effects of positive emotions on health as it would be enough to turn to published studies that systematically relate the high presence of negative emotions with the propensity to develop certain illnesses (Booth-Kewley & Friedman, 1987; Herbert & Cohen, 1993). But if, on the contrary, positive affect and negative affect were two relatively independent dimensions (Bradburn, 1969), as has been demonstrated on numerous occasions (Vázquez, 2000a), then it would be appropriate and interesting to study the specific benefits that the presence of positive affect may contribute to health.

The relationship between negative affect and health has been widely studied from the field of psychoneuroimmunology. Some of these studies have found that distressed or depressed people show a worse immune response to vaccines. For example, in a recent study which included the human papillomavirus vaccine (HPV) (Fang et al., 2008), it was found that out of the women who had been vaccinated, those who manifested higher stress levels showed a weaker immune response to HPV. People with higher negative emotionality are also more vulnerable to infection and more prone to latent virus reactivation in their systems (Glaser & Kiecolt-Glaser, 2005). Furthermore, it has been found that negative emotional states increase the production of pro-inflammatory cytokines (Kiecolt-Glaser et al., 2003; Lutgendorf et al., 1999), such as interleukin 6 (IL-6), which has been related to various age-related diseases, such as cardiovascular diseases, type 2 diabetes, arthritis, osteoporosis, Alzheimer’s disease, periodontal diseases and some types of cancer (Kiecolt-Glaser, McGuire, Robles, & Glaser, 2002).

All these findings seem to indicate that negative emotions may weaken the response of the immune system. Now the question is whether this system can be boosted by positive emotions. One of the most powerful studies that have attempted to answer this question was led by Cohen, Alper, Doyle, Treanor and Turner (2006). Specifically, these authors measured the participants’ positive and negative affective styles together with other social and demographic variables. Next, participants in the study were inoculated with the Rhinovirus or with the Influenza virus and observed during a quarantine period of 5 or 6 days, depending on the type of virus. Positive affect was associated with lower rates of illness. Specifically, the participants who reported higher positive emotionality had three times less probability to develop an upper respiratory tract disease after the effects of other variables such as type of virus, body mass, age, educational level, the season or negative emotionality had been controlled. Still more relevant, in absolute terms, is that the degree of association between positive affect and illness rates was greater than that shown between negative affect and illness rates. Furthermore, when both variables were simultaneously used as predictors, negative affect lost its ability to predict illness. Even though this study is worth drawing attention to, due to its experimental design and accurate controls, it is not at all unique. Various studies have shown that positive affect might be related to better health and longevity. For example, in a two year long prospective study conducted with over two thousand 65-99 year old participants, Ostir, Markides, Black and Goodwin (2000) showed that the presence of positive affect or emotional well-being has an impact different from that of absence of depression or negative affect, and that, it is precisely positive affect that seems to protect individuals from physical deterioration due to age, and to positively affect their emotional independence and life expectancy. These same researchers have also demonstrated the relationship between postive affect and the lower risk of myocardial infarction (after a 3-year follow-up) and stroke (after six years) (Ostir, Markides, Peek, & Goodwin, 2001).

The well-known Nun Study by Danner, Snowdon, and Friesen (2001), carried out with nuns, found evidence that when positive affect was evident at around the age of 20, it could predict higher life expectancy 60 years later. This study showed a strong association between the positive emotional content in short autobiographical stories, written when entering the religious congregation, and the longevity assessed six decades later, when the participants were between 75 and 95 years old. To be precise, the nuns who had expressed more positive content in these texts lived an average of 6.9 years longer than those who had expressed less positive emotionality.

The studies by the group lead by Andrew Steptoe are relevant in this regard. These researchers have found that positive affect, measured by the total of well-being moments over the working day of the participants (middle-aged women), was associated to lower cortisol in the saliva, lower heart rate, lower systolic pressure and lower stress-related fibrinogenous response (Steptoe, Wardle, & Marmot, 2005). Overall, these indicators of good physical health were independent of the age, the socioeconomic status and the negative emotional state of these women. Furthermore, it was found that in a group of healthy middle-aged men, those who manifested a more positive affective state, measured by aggregating their mood assessments obtained at 4 different times over 2 working days, had a lower inflammatory response (assessed by fibrinogenous concentrations in plasma)\(^1\) and lower blood pressure when they were exposed to mentally stressful tasks under laboratory conditions (Steptoe, Gibson, Hamer, & Wardle, 2007).

For its part, although life satisfaction is a more general indicator with more cognitive components than positive affect, it has also been linked to longer life expectancy. Koivumaa-Honkanen and her collaborators (2000) conducted a

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*Fibrinogen is a protein responsible for the formation of fibrin due to degradation. It has been associated with higher heart attack risk.*
Positive emotions and health. Proposed models

Pressman and Cohen (2005) propose that the influence of positive affect on health can be accounted for by two models. One of them highlights the direct effect of positive affect on the physiological system, as represented by Figure 2.

According to this model, positive affect encourages healthy practices, such as improving quality sleep, doing more physical exercise or having a more balanced diet, which are at the same time related to lower morbidity and mortality rates. Positive affect also works on the autonomic nervous system (ANS), generally by reducing heart rate, blood pressure and the epinephrine and norepinephrine levels in the blood. It affects the hypothalamic-pituitary-adrenal axis, as the presence of positive affect has been related to lower levels of cortisol in the blood (a hormone related to self-immune and inflammatory diseases) and, to a lesser extent, to higher levels of oxytocin and the growth hormone. Furthermore, positive affect favours the presence of endogenous opioids (endorphins), both indirectly, via physical activity, and in a more direct way through general emotional activation (Gerra et al., 1996, 1998). These endorphins reduce the activity in the ANS and in the endocrine system (Drolet et al., 2001) and modify the immune function (McCarthy, Wetzel, Sliker, Eisenstein, & Rogers, 2001). Apart from this, even though it is widely known that isolation and the presence of few or rather inefficient social nets is related to higher risk of morbidity and mortality (Cohen, 2004; Elliot & Humberson, 2004), there starts to be evidence that positive affect facilitates creating and keeping social links, which protect good health. More specifically, social reciprocity, that is, perceiving that one offers oneself to the social net but is also rewarded by it, is linked to a better health state (Siegrist, 2005).

It is probable that positive emotions are likely to have a direct effect on the body system (Barak, 2006). In fact, laboratory findings suggest that this can be so. Some studies have shown that various types of pleasant stimuli can have different psycho-biological impacts (Watanuki & Kim, 2005). For example, left frontal cortex activity increases in the presence of pleasant smells, whilst positive verbal stimuli increase the secretion of immunoglobulin A, a typical parameter of immune system activity, and decrease cortisol in the saliva, a parameter of activity in the hypothalamic-pituitary-adrenocortical system, which is involved in discriminating affective stimuli and emotional expression. Some studies have also shown that positive affect is associated to some electrical cortical activation patterns (Urry et al., 2004), and good everyday mood is related to high levels of the serotonergic central function (Flory, Manuck, Matthews, & Muldoon, 2004), which may also be important due to its relationship to higher insulin resistance and blood pressure levels. It has been known for years that inducing positive mood, by watching a comedy film, for example, may improve the immediate responses of the immune system, assessed by measuring immunoglobulin A in the saliva (Dillon, Minchoff, & Baker, 1985).

The second approach to account for the relationship between positive affect and health highlights the influence of stress on the physiological system. In this case, positive affect works as a buffer of stress by reducing the pernicious stress effects on the system, as represented by Figure 3.

According to the second approach, positive affect influences responses to stress at different levels. Firstly, people enjoying more positive affect do not have so many social conflicts, so they have a fewer number of stress factors to manage. Secondly, when having to deal with potentially stressful situations, people with more positive affect have...
better social networks on which they can rely on. Therefore they use more effective coping strategies which, in turn, also lead them to feel that they can cope with problems. Furthermore, positive affect makes it possible for physiological responses to return faster to a normal state after a stressful event (Fredrickson & Levenson, 1998; Fredrickson, 2009).

Even though most studies on the influence of positive affect on health indicate that such positive activity is related to lower morbidity, lower mortality, better life quality and functioning, lower number of symptoms, less serious diagnosis and greater survival, some studies have found an inverse relation, especially in people with serious diseases. This finding can be accounted for by the fact that people with more positive affect who are suffering from serious diseases can sometimes underestimate the number of symptoms, tend to be excessively optimistic about their prognosis development and so are less strict in following medical prescriptions (Derogatis, Abeloff, & Melisaratos, 1979; Devins et al., 1990).

**Health and eudaimonic well-being**

With regard to eudaimonic well-being, there is also growing data about its association with health-related biological indicators and, surprisingly, this type of well-being has been found to have a more consistent relation with physical health than the hedonic well-being measures (Vázquez & Castilla, 2007). The reasons for this fascinating finding are unclear; however, eudaimonic well-being may be related to short and long-term affect regulation mechanisms through the search for survival behaviours and others adjusting to environmental demands (e.g. giving sense to experience, searching for the positive in what happens to us, adjusting life goals, and so on), whereas hedonic well-being, although subjectively more important, is more related to satisfaction and enjoyment of immediate circumstances (Vázquez & Castilla, 2007).

The research group led by Carol Ryff, has found some of the most interesting results in this area. In samples with elderly women, they have found that those with higher levels of life purpose, more feelings of personal growth and better interpersonal relationships showed lower cardiovascular risk (lower levels of glycosylated hemoglobin, lower body weight, lower waist to hip ratios, higher rates of 'good’ cholesterol (HDL) and better endocrine regulation, that is, lower cortisol levels in the saliva throughout the day (Ryff et al., 2002; Ryff, Singer, & Love, 2004).

This link between lower cortisol levels and eudaimonic well-being has also been tested in other studies (e.g. Lindors & Lundberg, 2002). As for inflammatory factors, people with better interpersonal relationships—interpersonal well-being—and feelings of life purposes show lower levels of interleukin 6 (IL-6) and its soluble interleukin receptor (sIL-6r) (Friedman et al., 2005; Friedman, Hayney, Love, Singer, & Ryff, 2007).

Many of these variables (systolic and diastolic blood pressure, waist width, measures of cholesterol, hemoglobin, cortisol, epinephrine and norepinephrine levels) are related to the so-called allostatic load (Ryff & Singer, 2002). Longitudinal studies of ageing have shown that high allostatic load predicts cardiovascular diseases, cognitive and physical deterioration and mortality. Women are less likely to have high allostatic load than men, which may be significant, as women’s life expectancy is 7 years longer.

An especially important issue about the role of eudaimonic well-being in biology and health is that it seems to work as a buffer or protector in face of the adverse effects of negative experiences (Fredrickson, 2009). For example, some studies have shown that elderly women with sleep deficiency (defined as the total time asleep divided by the total time in bed), had higher interleukin IL-6 levels (Friedman et al., 2005). This difference, however, disappeared in the subgroup of women with a good level of interpersonal well-being.

In the prediction of glycosylated hemoglobin (HbAlc), Ryff’s research group has found that women with a lower economic level show an increase of this parameter over time (Tsengova, Love, Singer, & Ryff, 2008) but the results are moderated both by the role of hedonic factors, (i.e., positive affect) and eudaimonic factors (i.e. life purpose and personal growth). But a very relevant aspect in the study is that the HbAlc levels in women with high positive well-being did not differ on the basis of their socioeconomic status.

**The role of optimism in health**

Optimism is, of all personality traits, the most relevant for this review since, in addition to being strongly associated with greater well-being, it seems to play an important role in physical health (Avia & Vázquez, 1998). Numerous research studies have shown that optimism is related to higher protection in face of disease and to higher life expectancy. For example, Peterson, Seligman and Vaillant (1988) carried out an analysis of personal writings on situations experienced during World War II by a group of 99 Harvard University graduates. Over thirty years later, the optimists had better health and showed less mortality than the pessimists. Maruta, Colligan, Malinchoc and Offord (2000, 2002) found a similar result in a sample with more than 700 general medicine patients who had been assessed on an optimism scale. Thirty years later it was shown that not only did the optimists live longer than the rest of the participants (50% risk of death reduction) but their survival rate was significantly better than the one expected on the basis of their social and demographic characteristics, namely age, sex and year of birth. Furthermore, they had better physical and mental health, which was assessed by

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2 A form of hemoglobin (HbA1c) used above all to identify the average plasma glucose concentration during long periods of time. It can monitor average glucose in the blood in relation to a 2-3 month period previous to the testing and is also a relevant diabetic and cardiovascular risk marker.

3 Allostatic load has been defined as the cumulative strain on several physiological systems (cardiovascular, the metabolic system—the hypothalamic-pituitary-adrenal axis—and the sympathetic nervous system).
Optimism seems to have some influence on resistance to illness and health improvement but, through what mechanism? Just as previously described about the influence of positive effect on health, optimism can affect health through several paths. Firstly, optimism, hope and positive expectations are elements that can protect health in challenging situations for people’s equilibrium (Vázquez & Castilla, 2007; Taylor et al., 2000) by means of direct paths. For example, body systems of the most optimistic people generate better immunocompetence responses than those of the pessimistic ones, taking as an indicator the activity of NK cells (natural killers) (Sieber, Rodin, Larson, & Ortega, 1992).

In general terms, optimism also seems to be related to a better state of the immune system. Kamen-Siegel, Rodin, Seligman and Dwyer (1991) showed the relationship between an optimistic thinking style and better immune system responses in a group of 62-87 year old healthy people. Optimism’s benefits were reflected in a lower presence of T8 suppressor cells. Optimism is associated to better mood, greater NK cell cytotoxic activity and a greater number of T helper cells (Segerstrom, Taylor, Kemeny, & Fahey, 1998). Even in studies of women with breast cancer, in addition to other psychosocial variables such as the fact of having a steady relationship, initial optimism is a predictor of the quality of life several years later (Carver, Smith, Antoni, Petronis, Weiss et al., 2005).

Beyond the influence on the immune system, optimism seems to prevent diseases in two basic systems for survival, namely the respiratory and the circulatory systems. In an eight-year prospective study, Kubzansky and her collaborators examined the effects of optimism on lung performance in a group of 670 men between 45 and 89 years old. Those with a more optimistic attributional style had greater lung function, irrespective of smoking. An additional effect observed that after a ten-year follow-up period, the optimists had half the risk of suffering from coronary heart disease than those with high levels of pessimism (Kubzansky, Sparrow, Boconas, & Kawachi, 2001).

Secondly, a tendency towards optimism can affect health through the behaviour manifested in face of life problems in general and health problems in particular. This behaviour, if appropriate, can prevent chronic stress and the complication of physical and/or psychological problems. In this sense, optimism is very relevant, as it seems to encourage active problem-solving behaviours, self-care and recovery plans (Scheier, Weintraub, & Carver, 1986). For example, in the study conducted by Scheier and his collaborators (1989) with a group of patients undergoing coronary bypass, the most optimistic ones, assessed before the surgical intervention, not only made more active rehabilitation plans, but showed better recovery and life quality six months later in relation to resuming work and free-time, social and sexual activities.

**CONCLUSIONS**

All the findings described in this paper concur with the same idea, namely well-being is not only associated with greater psychological satisfaction, but it also has important implications for physical health. Whether assessed from a hedonic or eudaimonic approach, well-being seems to play a role in preventing and recovering from physical conditions and illnesses, even permitting an increase in life expectancy. The convergence of results should not suggest that the relation between well-being and health is a simple one. Rather the contrary, well-being seems to enhance health from various perspectives and through different paths. Firstly, all positive affect, life satisfaction and various dimensions of the eudaimonic well-being proposed by Ryff seem to predict positive health outcomes. Secondly, it seems clear that there are many well-being action paths to physical health. Well-being seems to have a direct relation with some physical protection parameters, such as the ones associated with immune capacity, but it can also have an effect through other paths, such as the increase of healthy behaviour, good health problem coping strategies, or stress buffers.

All these data suggest that promoting well-being can have important health effects. First of all, we should bear in mind the high, and difficult to estimate, cost of an illness and an early death. Secondly, we keep in mind the sanitary costs and other indirect costs such as sick leaves, lack of productivity, and so on. On the basis of this situation, it could be concluded that promoting well-being may be useful not only from a social and humane point of view, but also from an economic perspective (DeVol & Bedroussian, 2007). Therefore, the measurement and promotion of well-being becomes a desirable social and political objective (Diener, Lucas, Schimmack & Helliwell, 2009; Vázquez, 2009b).

This is even more of a truth in the case of some groups, such as elderly people, who, fundamentally due to cultural reasons, find it more difficult to feel good about themselves and about the activities they perform. Besides, as shown by a longitudinal study which took more than 20 years to carry out, the people with more positive perceptions of their ageing at the base line (when they were 50 years of age or older) lived longer (an average of 7.6 more years) than those who showed more negative perceptions about their own ageing (Levy, Slade, Kunkel, & Kasl, 2002). Therefore, promoting well-being in this period of life is especially necessary.

Findings described in this article also transmit the importance that health units and health professionals should pay attention to different emotional states, well-being versus discomfort. All the data shown suggests that enhancing positive emotions might improve health at the same level as the one shown by other activities, such as physical exercise, good nourishing or giving up smoking (Vázquez, Hernangómez, & Hervás, 2004). However, it is very unusual to come across preventive

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*n T helper cells assist other white blood cells in immunologic processes, including activation of cytotoxic T cells and macrophages, among other functions.
programmes enhancing well-being and positive emotions. So it is very difficult to find health professionals who give answers to the important role of well-being and positive emotions as healthy life elements. Disseminating these findings among doctors, nurses and other health professionals may be a necessary way to increasingly turn the current lack of attention to the positive within the health area into greater awareness and greater resources to put it into effect.

Looking further afield, public institutions should also be more aware of the mind and body connection and, specifically, of the role played by well-being in illness recovery and prevention. Designing and applying specific well-being promotion programmes into different life phases and encouraging the research of this association on specific illnesses are only some of the ways how institutions and professionals can respond to the importance of these findings.

Finally, it might be important to socially disseminate these findings in order to spread the idea that maintaining and increasing well-being is an important aim in times of good health, but also when health is seen to be threatened. As we said, this is crucial in elderly people, but also in other periods of life during which maintaining well-being is often pushed into the background as the result of overrating some professional or other aims.

This article started by reflecting on what the contribution of positive psychology to health and clinical medicine might be. As a conclusion of the review that we have undertaken, we think that these contributions can be fertile and varied, as long as:

1. This psychological approach promotes important conceptual changes in the definition of positive health by anchoring them into a complex vision of well-being which includes hedonic and eudemonic components (Vázquez, 2009a)
2. It incorporates the analysis and research of emotions and cognitions so far ignored by scientific psychology (Fernández-Abascal, 2009) and of great interest in the field of intervention (Vázquez, Hervás, & Ho, 2008; Hervás, Sánchez, & Vázquez, 2008; Vázquez, Pérez-Sales, & Hervás, 2008).
3. It favours research into the role of positive emotions and cognitions in the origin and maintenance of physical and mental well-being.
4. It redefines what is understood as therapeutic change and ‘recovery’ by using a wider and more comprehensive perspective than the traditionally used symptom based criteria (Zimmerman et al., 2006; Vázquez & Nieto, in press).
5. It incorporates a multidisciplinary perspective on the promotion of well-being which implies all individual, social and institutional spheres (Seligman, 2003; Vázquez & Hervás, 2008).

In conclusion, even though a valuable path has been covered, the future presents numerous challenges that should be addressed with the objective of shaping many of the research lines on the relationship between well-being and health. Some of the challenges belong to the scientific community, but we should not forget that other important steps correspond to public institutions and to the society as a whole.

References


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The promotion of students’ curiosity to participate in a preventive programme

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ABSTRACT

The aim of this study was to increase students’ curiosity and motivation to participate in a preventive programme and to assess their involvement, use and satisfaction with the programme. The participants were 87 students from seven high schools in the Murcia Autonomous Region, Spain, who were randomly assigned to either receive motivational pre-intervention, or no pre-intervention at all, according to Deci and Ryan's (1985) self-determination theory, Rollnick and Miller's (1991) focus on the motivational intervention and Prochaska, Norcross and Di Clemente's, (1994) stages of change. Promising evidence of the usefulness of pre-intervention was found. A significant negative relation between curiosity about positive change and the participants’ anxiety as well as a positive relation with optimism were also found. The need for further study of intervention studies aimed at increasing adolescents’ interest in participating in programmes to prevent depressive symptoms is commented on. As a conclusion, the need to further investigate the variable of curiosity, both at an intervention level and at an assessment level is emphasised.

Keywords: curiosity, optimism, self-determination, stages of change, motivational interview

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INTRODUCTION

One challenge for health professionals, parents, teachers and coaches is how to motivate their patients, children, students or sportspersons and how to encourage their curiosity, motivation and involvement with regard to what is wanted to teach them in order to enhance their well-being and assumption of relevant personal and social goals. The field of mental health promotion, which includes not only preventing disorders but also increasing happiness, vitality, personal goal achievement, love, feeling of life fulfillment, etc. (Weare, 2000), has traditionally assumed the ‘rational education’ model, which is based on the premise that people are fundamentally rational and their behaviour, including that related to health, is led by logical principles (Williams, 1989). Therefore, if the participants involved in the intervention are provided with adequate information, they can be expected to make the right decisions. However, various reviews point out that a lot of unhealthy behaviour can be accounted for by other factors than the supposed lack of knowledge (Liedekerken, Jonkers, Haes, Kok and Saan, 1990; Veen, 1995). Difficulties to keep to healthy life styles are verified even among the most motivated (Miller and Rollnick, 1991). The cognitive-behavioural approach, which completes acquisition of knowledge with that of abilities, is a powerful alternative to enhance autonomy, motivation and curiosity for change.

This study is contextualised within the framework of what has emerged from the socio-cognitive area, namely the attribution theory (Heider, 1958; Weiner, 1974) and the intrinsic motivation or self-determination theory (Deci and Ryan, 2000).

From the Attribution Theory to optimism

Heider (1958) proposes that one of the fundamental processes of the mind is to carry out attributions and understand the reasons for one’s own behaviour and that of others. Abramson, Seligman and Teasdale (1978) reformulated the learned helplessness model on the basis of the attribution theory and they consider the dimensions of
personalization (internal versus external attributions), permanence (temporary versus permanent) and perversiveness, referring to whether the reason for an event affects other areas of a person's life (universal) or only the one in question (specific). Seligman (1998) conceptualizes optimism as an attributional or explanatory style and not as a personality trait. Optimistic people tend to explain negative events with external, temporary and specific attributions. For example, failing in their healthy diet plan can be justified by the circumstance of seeing an old friend they had not seen for a long time, which has provoked the ‘slip’ in their objectives. On the contrary, the pessimistic explanatory style carries out internal, permanent and universal attributions of the negative events. A pessimist would think he or she has no will power and is unable to follow a balanced diet.

The manner of explaining events influences motivation in persevering with proposed goals. Optimism is related to the ability to postpone gratifications and to give up short-term benefits in favour of more valuable long-term objectives, probably because such goals are considered to be reachable (Carr, 2007). In fact, having positive expectations in the early phase of clinical intervention is a variable associated with positive results in the cognitive behavioural therapy, as has been corroborated by various empirical studies (Arnkoff, Glass and Shapiro, 2002). Optimism is associated with lower rates of physical illness, depression and suicide, and to higher levels of academic and sports performance, work adaptation and family life quality. (Gillham, 2000; Seligman, 1998; Seligman, Reivich, Jaycox and Gillham, 2005). Reformulating the model gives rise to the Theory of Despair, which proposes the existence of an attributional style working as a vulnerability factor for depression due to despair (Abramson, Metalsky and Alloy, 1989).

The Self-Determination Theory

The ideal of the well-adapted and happy human being is characterized by curiosity, vitality and the feeling that one is the agent of his or her own conduct or, at least, of the most important actions. Human activity is best accounted for by personal determining factors such as beliefs, desires or moral commitments rather than by external factors. Extrinsic motivation encourages action to achieve something agreeable or to avoid external disagreeable events (Carr, 2007). Examples are studying to get good marks and other associated reinforcements such as parental satisfaction, or avoiding bad marks and parental disapproval. Intrinsic motivation refers to natural orientation to assimilation, domination, spontaneous interest and exploration, which are essential for cognitive and social development and represent the main source of enjoyment and vitality (Csikszentmihalyi and Rathunde, 1993; Ryan, Deci and Grolnick, 1995).

Deci and Ryan describe the conditions that favour intrinsic motivation, understood as spontaneous interest, a tendency to explore and acquire new information, capacities and experiences. This type of motivation arises as far as the needs for capacity or competence, linking and autonomy are satisfied, and is less likely to take place when these needs are frustrated (Deci and Ryan, 1985; Ryan and Deci, 2000).

Autonomy

Autonomy is the main component of intrinsic motivation. People feel autonomous when they regard themselves as the origin or cause of what they are doing or are going to do, or when they have control over it. The more autonomy, the more motivation and intrinsic interest in the activity. Intrinsic motivation is encouraged when options are offered about how to carry out a task, which provides an opportunity for self-direction as well as positive feedback on the performance itself (Carr, 2007). Ryan and Connell (1989) found that those students who developed their work with greater autonomy and control had more fun and were more optimistic about and efficient in academic tasks. Interventions in the health field to increase the participants’ autonomy influences variables such as pessimism (Seligman, 1998), given that pessimistic attributions originate passivity and feelings of powerlessness or unworthiness and interfere in the promotion of health (Weare, 2000).

Competence

The perception of our abilities and capacities affects the tasks we choose to do, the goals we aim to achieve, and the planning, the effort and the persistence of the actions leading to the achievement of these goals (Huertas, 2008). The perception of competence is an important motivational factor, but it is subordinated to the feeling of self-determination, according to Deci and Ryan (2000). This way, when someone feels to be competent to carry out a specific task, pressure, threats or promises affect performance and interest.

Linking

Bowlby’s Attachment Theory (1979) was a pioneer in granting a primary role to the need for linking and social support, pointing out that exploration behaviour is more often manifested in safe environments and in the presence of the mother. Satisfying this need facilitates intrinsic motivation. A number of studies point out that the students with cold teachers who do not show them any fondness and ignore them are less motivated (Deci and Ryan, 2000; Ryan and Grolnick, 1986).

The self-determination continuum

Many educational, work or social activities are motivated by external factors. Several degrees of extrinsic motivation can be distinguished between the extremes of intrinsic motivation and lack of motivation and which are reflected in the self-determination continuum. The greater progress in this continuum, the greater the level of autonomy, improving academic performance or medical compliance, ecological activism, intimate relationships and even psychological treatment, for example that of depression (Zuroff et al., 2007)

Curiosity

In order to avoid redundancy and overlapping which may hold back scientific progress (Kashdan and Fincham, 2004), the variable of
curiosity gathers concepts such as disposition to change (Arkowitz, Westra, Miller and Rollnick, 2008); interest (Fredrickson, 1998; Krapp, 1999); or intrinsic motivation (Deci, 1975; Ryan and Deci, 2000), and includes positive affect, such as vitality, enjoyment, receptivity to new tasks, extension of cognitive processes, task concentration and active exploration of sources of interest.

In the context of positive psychology, centred on the scientific study of virtues and human development (Pérez-Sales, 2008), curiosity is considered a human strength (Kashdan, 2004). It is defined as the voluntary recognition, search and self-regulation of new and challenging opportunities, which reflect intrinsic values and interests (Kashdan and Fincham, 2004). Curiosity is one of the so-called emotions of knowledge (Kashdan and Silvia, 2009). In the school area, the more curious students are more academically successful (Hidi and Berndorff, 1998; Kashdan and Yuen, 2007; Schiefele, Krapp and Wünteler, 1992). In the field of work, curiosity is related to cognition and behaviour that predict better adjustment to new occupations (Wanberg and Kammeyer-Mueller, 2000) and to changes at work (Wanberg y Banas, 2000) as well as learning, satisfaction and performance in the work area (Reio and Wiswell, 2000; Wall and Clegg, 1981). In the clinical field, those individuals who are more curious about introspection and modification of behavioural goals obtain greater clinical gains (Williams, Gagne, Ryan and Deci, 2002; William, Rodin, Ryan, Grønli and Deci, 1998). In promotion of well-being, curiosity is related to reward systems (Depue, 1996) and to intrinsic motivation (Ryan and Deci, 2000). The people who feel curiosity change their concept of self, others and the world more easily, expand their knowledge and abilities, look for a sense of life and establish long-term goals in spite of obstacles (Ainley, Hidi and Berndorff, 2002). The satisfaction provided by curiosity is related to well-being, understood as eudaemonia or a full sense of life with rather than to the pleasure associated with hedonic activities (Kashdan and Steger, 2007). In addition to this, a negative correlation between curiosity and emotions such as anxiety has been verified (Kashdan and Breen, 2008; Kashdan, Rose and Fincham, 2004).

**Curiosity and the Self-Determination Theory**

Even though a number of theories offer a version of the social context and the self-regulation processes that support the expression of curiosity, Kashdan and Fincham (2004) argue that the self-determination theory is the most fertile for intervention. A considerable amount of data shows that satisfying the needs for autonomy, competence and linking improves curiosity, and so it is advisable to implement interventions to increase curiosity about treatment and positive change (Kashdan and Fincham, 2004).

**Interventions on curiosity in the field of health. Motivational interviewing**

Miller and Rollnick define motivational interviewing (MI) as “a directive, client-centered counselling style for eliciting behavior change by helping clients to explore and resolve ambivalence.” (2002, p. 25) On many occasions people show ambivalence on desirable behaviour changes, such as giving up junk food, in spite of the negative effects on health and many other reasons that justify the decision. This makes it convenient to reveal the contradiction between everyday behaviour and personal values and to encourage and increase curiosity about change (Kashdan and Silvia, 2009; Miller and Rollnick, 2002). From the time when MI was first clinically described, research studies and applications have grown rapidly. First applied to alcohol related problems, it has later been used in a variety of problems, including drug abuse, ludopathy, food disorders, anxiety disorders, chronic illnesses and different behaviour related to health (Arkowitz et al., 2008).

Motivational interviewing is strongly influenced by therapy centred on the client (Carl Rogers, 1951, 1959), which emphasizes understanding the client’s internal reference framework and current concerns as well as the discrepancy between their behaviour and values. Both in MI and in client centred therapy, the therapist provides the condition for growth and change by means of communication attitudes such as adequate empathy and unconditional positive acceptance. MI creates an atmosphere in which, rather than the therapist, it is the client that becomes the main change agent. However, differently from client-centred therapy, MI has specific goals, namely reducing ambivalence about change and encouraging intrinsic motivation for change. In this sense, MI is directive.

Kashdan and Fincham (2004) point out that MI increases the client’s curiosity about treatment by resolving ambivalence and challenges of personal change mainly through the satisfaction of self-determination. A central goal of MI is to increase intrinsic motivation for change, which arises from personal goals and values rather than from external sources or from other attempts to persuade, sweet-talk or coerce people to make them change. As a matter of fact, external pressures for change can create a paradoxical decrease of wishes for change. Brehm and Brehm (1981) argued that when people perceive a threat to their freedom, an aversive state of reactance appears. Reactance is less likely to happen when the therapist provides more support than guidelines to follow (Miller, Benefield and Tonigan, 1993; Patterson and Chamberlin, 1994).

**Motivational interviewing and stages of change**

There are many points in common between motivational interviewing and the transtheoretical model by Prochaska and Norcross (2004). They assume that people approach change with a different degree of disposition to that change. The transtheoretical model suggests that different stages of change are associated with different degrees of disposition to change. It specifically proposes five stages that people go through, namely precontemplation, contemplation, preparation, action and maintenance. These stages are common to all forms of psychotherapy and processes of personal change, irrespective of whether they occur in the context of psychotherapy or out of it (Prochaska, Norcross and DiClemente, 1994). Rather than a linear
progress through these stages, there are oscillations (Arkowitz et al., 2008). The reformulated model of human learned helplessness (Abramson et al., 1978) has also been related to stages of change in the field of drug addiction. It argues that feeling loss of control due to the tendency to put into effect pessimistic attributions in face of a relapse during a period of abstinence can undermine motivation for giving up drugs (Torres Jiménez et al. 2006).

Ambivalence is regarded as something normal both in MI and in the transtheoretical model, in which it is a characteristic of the contemplation stage. People for whom the disadvantages of change are more important than the advantages will be relatively demotivated to change. When the advantages are more important than the disadvantages, they are more motivated to change. Presenting the goal as ambivalent rather than as resistance allows for examining each side of the ambivalence and the dynamic relationship of each one. The reasons not to change are regarded as valid and as one more part of the change process. MI is designed to increase motivation for solving this ambivalence in the direction for change (Arkowitz et al., 2008). According to Prochaska (1999), it is possible to quantify the magnitude of the change in the pros and cons essential for an effective change.

Justification for the research

Interventions in the field of health to increase motivation or curiosity about positive change have been carried out by means of MI (Kashdan and Fincham, 2004). Even though it was initially applied to addictions (Miller, Rollnick, 1991), interventions in other psychological problems such as depression or anxiety have also been carried out by combining an average of three sessions of MI with cognitive behavioural therapy (Arkowitz et al., 2008). In relation to treatment for teenage depression, Méndez et al. (2002) wonder whether the greater degree of structure and directiveness of cognitive behavioural therapy might generate counter-control in some teenagers and, if so, they consider that it might be more effective to initiate therapy with an ‘open’ discussion phase about how to improve their interpersonal relationships, and to conclude with a ‘closed’ phase of training in social abilities by giving teenagers more protagonism and autonomy. With a few exceptions, such as Leaby (2002), cognitive behavioural therapy has not worked on motivation for change, resistance or ambivalence.

Research on mental health promotion and prevention of teenage depression and anxiety has increased dramatically over the last few years (Horowitz and Garber, 2006). Some researchers emphasise the need to increase the participants’ motivation in their implication in preventive programmes (Lowry-Webster, Barret and Lock, 2003). Allart and collaborators created a specific instrument, the Nijmegen Motivation List for Prevention (NML-P), for assessing the participants’ motivation to becoming involved in preventive intervention for adolescent depression (Allart, Hosman and Keijsers, 2004), arguing that even though the influence of motivation on drop-outs had been studied, there was not an appropriate instrument for measurement. These authors find that high

motivation predicts better results in preventive intervention for depression.

Objectives and hypotheses

This study is the first phase of wider research. It consists in applying a previous intervention to increase the participants’ curiosity about and motivation for getting involved in a programme for promoting mental health and for preventing teenage depression and anxiety. The application of the preventive programme proper constitutes the second phase of the study. The following are the hypotheses of the first phase:

1. Curiosity about or motivation for change is negatively correlated with anxiety and positively correlated with an optimistic explanatory style.
2. Increase of curiosity or motivation for change is expected in the experimental group in comparison with the control group.

Method

Participants

The participants were 87 students in the 1st and 2nd grades of compulsory secondary education (seventh and eighth graders). All of them were middle class, 51.7% were females and 48.3% were males from seven schools, four state and three private ones in the Autonomous Region of Murcia, Spain. Their average age was 13. The participants were randomly assigned to the experimental group (n = 51) and the control group (n = 36).

Design

A 2 x 2 mixed factorial design was used, with a combined interfactor (motivational previous intervention, non-intervention) and an intrafactor (pretest, postest) analysis.

Control variables and conditions

The correlational study variables were curiosity, optimistic explanatory style and anxiety. The experimental study variables were previous intervention (dichotomic independent variable with two values, 2 = experimental group; 1 = control group) and curiosity about or motivation for change (dependent variable).

1. Curiosity about or motivation for change

This variable was operationally defined as high rates in the positive perception of change, low rates in the negative perception of change, and high decisional balance.
2. Optimistic explanatory style

This variable is characterized by external, temporary and specific attributions of negative events, hope, optimistic explanation of causes, non-negative inferences about the future consequences derived from negative events and non-negative inferences about self from such negative events.
3. Anxiety

This variable includes both a general anxiety measure such as the specific dimensions of physiological anxiety, restlessness/hypersensitivity and social concerns/concentration.

Sanchez, O., Méndez, X., Garber, J.: The promotion of students’ curiosity to participate in a preventive programme
Materials and/or instruments
Adolescent Cognitive Style Questionnaire (ACSQ, Hankin and Abramson, 2002)

This questionnaire evaluates inferences in twelve hypothetical situations about reasons for negative events, and their consequences and implications for oneself. The dimensions are personalization, permanence, pervasiveness, hope (permanence plus pervasiveness), reasons (personalization plus permanence plus pervasiveness), consequences (non-negative inferences of events) and self (non-negative inferences of oneself). A total score is obtained by summing personalization, permanence, pervasiveness, consequences and self. The questionnaire scores show that the greater the score in each of the scales the greater tendency for optimism. Both in the original study (Hankin and Abramson, 2002) and in the Spanish adaptation (Calvete, Villardón, Estévez and Espina, 2008), the questionnaire properties are satisfactory.

Children’s Manifest Anxiety Scale Revised (CMAS-R, Reynolds and Richmond, 1985)

This 37-item scale assesses anxiety in children and teenagers aged 6-19. A total score, three partial scores in the specific dimensions cited above and a score in the ‘Lie’ control scale are obtained. Reliability and validity are adequate according to the authors of the scale.

Decisional Balance Scale (Prochaska et al., 1994)

Carr’s Spanish translation of this scale (2007) was used. It covers ‘pro’ dimensions (positive perceptions of change), ‘cons’ (negative perceptions of change) and ‘decisional balance’ (pros minus cons). The psychometric properties of the instrument are acceptable (Prochaka et al., 1994).

Procedure

The prevention programme was offered to twelve schools in the Autonomous Region of Murcia, Spain, of which seven accepted to participate in the study. All the schools but one were situated in the city of Murcia. The study was described to the school managers (headperson, head of studies and Department of Counselling) as well as to the Parent Association board. After approval, parents and teachers were summoned to an information meeting. The participation rate was 6.58%, below the 14% which is usual in this type of study (Gillham, Hamilton, Freres, Patto and Gallop, 2006; Jaycox, Reivich, Gillham and Seligman, 1994; Sánchez and Méndez, 2009). Some issues accounting for low participation need to be borne in mind:

1. Teenagers in out of school hours are usually engaged in other academic, sports or leisure activities. The PROA (Programas de Refuerzo, Orientación y Apoyo) Plan (a reinforcement, counselling and support plan), which has been implemented for only a couple of years in some schools, usually takes up two evenings a week, was one of the most important obstacles. The counsellors also stated that students on certain bilingual courses already had too much to study and they preferred not to offer it.

2. One more possible aspect to bear in mind is the fact that the school population, (teachers, parents, students and others), are not familiar with these issues on mental health, and maybe there is a lack of awareness about them.

3. In addition to the above, attempting to introduce an activity outside the school curriculum, which is very difficult due to timetabled problems, usually creates resistance, even more so when its usefulness is not properly seen. The programme should be presented well in advance and integrated with the rest of the curriculum, even as an out of school activity, as other teaching activities and the need to plan the necessary resources to implement the programme need to be considered.

The students, whose parents signed the consent form, were assigned to the experimental and control groups at random. The study began with 91 participants. By means of the GAUSS computer programme, a vector of random numbers was generated which followed a uniform pattern in the 0-1 value in range in such a way that values above 0.5 were associated to the control group and values 0-0.499 to the experimental group. There were 40 participants in the control group and 51 in the experimental group, although when the pre-test was about to start, 3 students in the control group dropped out. It is worth commenting that the larger the sample, the more likely it is for the randomisation to balance the groups more equally.

Later on the pre-test was conducted with both groups in a prior session in which the curiosity, optimism and anxiety measures were applied in order to carry out the correlational study. The motivational intervention was carried out, in one session the following week and, seven days later, the post-test of the curiosity measure was carried out, in order to check the effect of the intervention.

Motivational intervention

The interventional motivation took place during one 90-minute session in which the following activities were carried out:

- Discussion about the expectations of the programme.
- Explanation of the logic of the intervention by means of the personality triangle metaphor, namely feelings-behaviour-thoughts. (Méndez, Espada and Orgilés, 2008)
- Use of games to explain the Theory of Multiple Intelligence by Gardner (1993), which attempts to eliminate prejudices, and a description of the learning abilities provided by the programme as an extension of their school education.
- Account of teenage stories which highlight the protagonists’ benefits to acquire the abilities provided by the programme.
- Use of decisional balance by discussing the pros and cons of learning and practising the abilities offered by the programme.
- Written commitment to attend and actively participate in the programme, with the pros and cons as well as possible solutions to the drawbacks. The contract, which was voluntary, was signed by the participant and optionally by a peer chosen by him/her and by the monitor.

Throughout the session the feeling of autonomy was encouraged as was the significance in
relation to the personal goals that each participant was aiming to achieve from the programme, in an attempt to develop curiosity and intrinsic motivation.

**Findings**

Previously, it had been checked to see that the scores of both groups were adjusted to a normal distribution according to the Kolmogorov-Smirnov tests, as much for curiosity as for optimism and anxiety.

**Relationship between curiosity about or motivation for change and optimism**

1. **Pros and optimistic explanatory style**
   - The only significant correlation was with the personalization dimension (r<sub>xy</sub> = - 0.30; p = 0.010), which indicated that the positive perception of change correlates with internal attributions of negative events.

2. **Cons and optimistic explanatory style**
   - Statistically significant negative correlations were found in almost all the dimensions of explanatory style in agreement with that hypothesized, specifically in personalization (r<sub>xy</sub> = - 0.35; p = 0.002), permanence (r<sub>xy</sub> = - 0.28; p = 0.017), self (r<sub>xy</sub> = - 0.29; p = 0.013), hope (r<sub>xy</sub> = - 0.31; p = 0.007), reasons (r<sub>xy</sub> = - 0.40; p = 0.001) and universal optimism (r<sub>xy</sub> = - 0.34; p = 0.004). In pervasiveness (r<sub>xy</sub> = - 0.21; p = 0.076) and consequences (r<sub>xy</sub> = - 0.15; p = 0.196) non-significant correlations are observed at a statistical level, but at a low level according to Cohen (1988) and therefore of practical relevance. The data shows that an optimistic explanatory style, characterized by attributing negative events to something external (external personalization), fleeting in time (temporal duration), to the specific area in which the negative event took place (specific pervasiveness), with a hopeful vision of the future, without any negative inferences of the consequences of the negative event, without any sense of self-failure, is inversely related to a greater life. Thus optimism is regarded as a facilitating factor negative perception of changes or to valuing the disadvantages or drawbacks of making changes in for positive change.

3. **Decisional balance and optimistic explanatory style**
   - The positive correlations between these two variables are low-medium in pervasiveness (r<sub>xy</sub> = 0.215) and in hope (r<sub>xy</sub> = 0.230). The effect size of the remaining correlations, around r<sub>xy</sub> = 0.150, is low. Greater optimism and, more specifically, greater hope, are associated with higher motivation for change or curiosity about it.

**Relationship between curiosity about or motivation for change and anxiety**

The only dimension that correlated significantly with anxiety (r<sub>xy</sub> = 0.25; p = 0.026), particularly in restlessness / hypersensitivity (r<sub>xy</sub> = 0.27; p = 0.018) were the ‘cons’. A more threatening vision of change is associated with more anxiety and less curiosity about and motivation for change.

**Differences in curiosity, optimism and anxiety according to gender and school year**

A T-test was conducted for independent samples in order to study differences in curiosity, optimism and anxiety according to gender or school year. No differences were found between the groups in any of the variables under study.

<table>
<thead>
<tr>
<th>Control group</th>
<th>Experimental group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-test</strong></td>
<td><strong>Post-test</strong></td>
</tr>
<tr>
<td>ACSQ: total score</td>
<td>3.33 (0.80)</td>
</tr>
<tr>
<td>CMAS-R: total score</td>
<td>13.50 (5.20)</td>
</tr>
<tr>
<td>DBS: pros</td>
<td>31.57 (5.23)</td>
</tr>
<tr>
<td>DBS: cons</td>
<td>24.60 (5.37)</td>
</tr>
<tr>
<td>DBS: Decisional balance</td>
<td>6.98 (6.89)</td>
</tr>
</tbody>
</table>

**Tabla 1.** Means and standard deviations in the assessed measures.

Note. ACSQ: total score = Adolescent Cognitive Style Questionnaire (Total score)  
CMAS-R: total score = Children’s Manifest Anxiety Scale Revised (Total score)  
DBS: pros = Decisional Balance Scale: (‘pros’)  
DBS: cons = Decisional Balance Scale: (‘cons’)  
DBS: decisional balance = Decisional Balance Scale: (decisional balance)

**Effect of intervention on curiosity about or motivation for change**

In spite of the fact that the assignment to the groups had been at random, the T-test was applied to independent samples with the Decision Balance Scale pre-test scores, due to the small size of the sample. No differences were found between the groups. However, as shown by Table 1, the scores in the Decision Balance Scale dimensions are marginally different.

Given the fact that a medium-low effect was found in the ‘cons’ dimension (d = 0.268), with practical relevance, according to Cohen (1988), means that there are differences between the groups in the ‘cons’ variable, it being greater in the experimental group. In order to try and compensate for this inequality found in the group scores, change scores were calculated, that is to say, the differences between the pre-test and the post-test scores in the various dimensions of the curiosity measure. Then, the T-test was applied to independent samples with
the change scores that had already been calculated. Even though in the experimental group ‘pros’ and decisional balance increased and ‘cons’ decreased, the differences were not statistically significant. Nevertheless, the lack of statistical significance may be due to the low statistical power of the test because of the small sample size, for which reason the effect size was calculated, and it was found that:

1. There is a significant difference at a practical level (d = 0.57) of a medium-high level (Cohen, 1988) which indicates that the mean of the ‘pros’ dimension increases in the experimental group but not in the control group, this being one of the basic objectives of the motivational intervention.

2. A significant difference, at a practical level, of a medium-low degree (d = - 0.38) was found, which indicates that in the experimental group there is, after the intervention, a bigger decrease of the ‘cons’, than in the control group.

3. A medium-high practical significant difference (d = 0.56) (Cohen, 1988) was found, which indicates that in the experimental group, there is, after the intervention, an increase of curiosity about or motivation for change, which is bigger than in the control group.

Decision taking ambivalence

Finally a positive correlation was found between ‘pros’ and ‘cons’ in the pre-test (rxy = 0.288). This supports the ambivalence hypothesis, which states that people consider that carrying out an activity may bring about simultaneous benefits and drawbacks, which would make the change difficult. This finding suggests the possible benefits of reducing ambivalence as a step previous to the modifying intervention.

Discussion

This study considered the positive relationship of curiosity about positive change with optimism and a negative one with anxiety. The findings show that a negative perception of change or ‘cons’ is negatively related to the optimistic explanatory style, above all to hope, and the same perception is positively related to anxiety, especially to restlessness or hypersensitivity. A more optimistic view of change facilitates curiosity about and motivation for change. In the same way, Miller and Rollnick (2002) speculate that resolving the ambiguity about the change is associated with an increase of optimism about change. This speculation is later demonstrated empirically by Westra and Cozios (2006). However, it would be wise to be cautions with this data, given the small sample size.

As regards motivational intervention, the improvement in the experimental group did not reach statistical significance. However, the data is promising, as revealed by the effect sizes, it being perhaps a problem of statistical power in that the significance is not statistically shown by the findings. A limitation of the study was that the motivational intervention was carried out in only one session, due to conflicts in the school agenda. Therefore, we suggest having more sessions in order to be comparable to other more successful interventions, such as the one conducted by Westra and Cozios (2006), which used three pre-treatment sessions with MI in contrast to a control group in a sample whose participants had been diagnosed mainly with anxiety (45% panic disorder, 31% social phobia and 24% generalized anxiety disorder).

Both groups received further cognitive behavioural therapy in a treatment for anxiety. They found that the group which received pre-treatment with MI showed a significant increase in positive expectations to change in anxiety (d = 0.60), a significantly higher increase in household chores (d = 0.96) and a higher number of participants completing the therapy (84%) in comparison with the control group (63%).

A sample with more participants might also contribute to obtaining clearer findings, bearing in mind that we are dealing with mental health promotion and with prevention of teenage psychological disorders. It would also be desirable to extend curiosity assessment by using measurement instruments adapted to the Spanish population and to the specific field of mental health, and by taking repeated measures. As indicated by Kashdan and Fincham (2004), the interventions that assess multiple components of curiosity throughout the programme sessions are more sensitive and detect changes in this variable better.

Other limitations of this study are the group size imbalance, which may have affected the findings. It should also be important for further research to bear in mind that it is easier to lose participants in the control group, since they have no special motivation for participating in the programme. For this reason, in face of an eventual group size imbalance, it should be larger than the experimental group. A larger sample would also provide more equitable random assignment.

As for the low participation in the programme, it might be advisable to carry out campaigns to improve awareness and to give information about other aspects of psychology which are more centred on learning about psychological resources and competences and about personal excellence and growth. It might also be advisable to communicate important research findings, in plenty of time, to all the people involved. This could be done by means of advertising campaigns to increase social awareness; lectures to school administrators, counselling departments, form teachers, teachers in general and to the rest of the school community, as well as to parents. Lectures, leaflets, letters, courses, etc. are all active means to provide teenagers with resources for positive change. We suggest presenting the programme in plenty of time and integrating it with the school curriculum, even if only as an out of school activity, since other teaching activities and resources to implement the programme need to be planned in advance. All of this has to be kept in mind.

Conclusions

This article sought to confirm, first of all, a positive relationship of curiosity about or motivation for change with optimism, and a negative one with anxiety. These are variables to bear in mind when encouraging curiosity in this and other areas, as has already been pointed out by other studies (Kashdan...
and Breen, 2008; Kashdan, Rose and Fincham, 2004; Westra and Dozois, 2006). Thus having a more optimistic explanatory style and lower anxiety levels could be seen as beneficial for work on the encouragement of curiosity about positive change.

We also found promising results in the application of motivational pre-intervention to increase curiosity about positive change and its implications in a prevention programme. Studying curiosity is thought to be relevant in promoting mental health and in preventing physical and psychological disorders, in addition to other fields, so we conclude that it is advisable to carry out interventions to encourage curiosity about the benefits that it brings about (Kashdan and Steger, 2007).

As stated above, interventions in the field of health to increase motivation for or curiosity about positive change have been carried out by means of the MI (Kashdan and Fincham, 2004). Even though we initially saw that it had been applied to addictions (Miller and Rollnick, 1991), other interventions have also been carried out for other psychological problems, such as depression or anxiety, mainly by combining MI (with an average of three sessions) with cognitive behavioural therapy (Arkowitz et al., 2008).

In the area of mental health promotion and in that of the prevention of teenage depression and anxiety, a number of authors have emphasised the need to increase the participants’ motivation to get involved in prevention programmes (Lowry-Webster, Barret and Lock, 2003). Allart and her collaborators (2004) have found that high motivation to get involved in a preventive intervention programme for teenage depression predicts better results in the preventive effect of depressive symptomatology. Thus we find it fundamental to encourage curiosity and interest in order to get people involved in attending and to put into practice, both during the programme’s implementation and later, those techniques (such as carrying out pleasant and significant activities, to cope with problems effectively, social abilities, optimistic explanatory style, etc.) which research studies have shown to be related to greater well-being and to preventing psychological disorders such as depression.

REFERENCES


319.


Heider, F. (1958). The psychology of interpersonal relations. Nueva York: Wiley


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

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ABSTRACT

This research study seeks to assess positive affect, negative affect, emotional maladjustment, adaptative resources in infertility 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 adaptative 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

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 (Oshansky, 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 & Nieuwenhuyse, 1999). Similar results have been found by Ozkan and Baysal (2006) when comparing anxiety levels in an infertile-woman sample with
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 ovocites 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 adaptative 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 ‘adaptative 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 adaptative 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 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 helpful 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, Altschuler & Korenman, 2000; Pook, Krause & Rohrle, 2000; Sheiner, Sheiner, Carel, Potashnik & Shoham-Vardi, 2002; Stacy, 2004; Eskiocak, Gozen, Yapan, Tavas, Kille & 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 adaptative 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 4.97), 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 Sandín 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 unpleasant 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 (Sandín 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 concurgent with the questionnaire on ways of coping with stressful events (CEA; Rodriguez-Martin, Terol, Lopez-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 vs 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.

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PANAS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive affect</td>
<td>Mean 37.59</td>
<td>Mean 35.62</td>
</tr>
<tr>
<td></td>
<td>S. D. 4.91</td>
<td>S. D. 5.32</td>
</tr>
<tr>
<td>Negative affect</td>
<td>Mean 20.57</td>
<td>Mean 25.54</td>
</tr>
<tr>
<td></td>
<td>S. D. 4.60</td>
<td>S. D. 6.56</td>
</tr>
<tr>
<td><strong>DERA</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional</td>
<td>Mean 54.16</td>
<td>Mean 65.04</td>
</tr>
<tr>
<td>maladjustment</td>
<td>D.T 13.62</td>
<td>D.T 16.50</td>
</tr>
<tr>
<td>Personal</td>
<td>Mean 40.51</td>
<td>Mean 41.58</td>
</tr>
<tr>
<td>resources</td>
<td>4.22</td>
<td>8.21</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>Mean 43.39</td>
<td>Mean 44.92</td>
</tr>
<tr>
<td>resources</td>
<td>3.78</td>
<td>4.93</td>
</tr>
<tr>
<td>Adaptive</td>
<td>Mean 83.93</td>
<td>Mean 86.50</td>
</tr>
<tr>
<td>resources</td>
<td>6.48</td>
<td>10.28</td>
</tr>
</tbody>
</table>

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; η² = 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; η² = 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; η² = 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; η² = 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 \( (F(1.99) = 13.079; \text{MCE} = 228.633; p = 0.000; \eta^2 = 0.117) \). 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.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Wilks’ Lambda=0.835</th>
<th>( F(2,98)=9.669 )</th>
<th>( p=0.000^* )</th>
<th>( \eta^2=0.165 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Wilks’ Lambda=0.781</td>
<td>( F(3,97)=0.084 )</td>
<td>( p=0.000^* )</td>
<td>( \eta^2=0.219 )</td>
</tr>
</tbody>
</table>

Table 2. MANOVA scores

<table>
<thead>
<tr>
<th>Gender</th>
<th>( F(1,99)=3.730 )</th>
<th>( \text{MCE}=26.224 )</th>
<th>( p=0.05^* )</th>
<th>( \eta^2=0.036 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>( F(1,99)=19.506 )</td>
<td>( \text{MCE}=31.989 )</td>
<td>( p=0.000^* )</td>
<td>( \eta^2=0.165 )</td>
</tr>
<tr>
<td>Gender</td>
<td>( F(1,99)=13.079 )</td>
<td>( \text{MCE}=228.6 )</td>
<td>( p=0.000^* )</td>
<td>( \eta^2=0.117 )</td>
</tr>
<tr>
<td>Gender</td>
<td>( F(1,99)= )</td>
<td>( \text{MCE}=0.682 )</td>
<td>( p=0.411 )</td>
<td>( \eta^2=0.007 )</td>
</tr>
<tr>
<td>Gender</td>
<td>( F(1,99)= )</td>
<td>( \text{MCE}=3.055 )</td>
<td>( p=0.084 )</td>
<td>( \eta^2=0.030 )</td>
</tr>
<tr>
<td>Gender</td>
<td>( F(1,99)= )</td>
<td>( \text{MCE}=2.315 )</td>
<td>( p=0.131 )</td>
<td>( \eta^2=0.023 )</td>
</tr>
</tbody>
</table>

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 \( (F(4,45) = 8.228; p < 0.000; \text{MCE} = 17.812) \). 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 \( \beta \) coefficients for the predictive variables and the regression line..

<table>
<thead>
<tr>
<th>Positive affect</th>
<th>Negative affect</th>
<th>Emotional maladjustment</th>
<th>Personal resources</th>
<th>Interpersonal resources</th>
<th>Adaptive resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive affect</td>
<td>(-0.313^*)</td>
<td>(-0.244)</td>
<td>0.180</td>
<td>0.256</td>
<td>0.272</td>
</tr>
<tr>
<td>Negative affect</td>
<td>(0.606^{**})</td>
<td>(-0.315^*)</td>
<td>(-0.407^{**})</td>
<td>0.832^{**}</td>
<td>(-0.786^{**})</td>
</tr>
</tbody>
</table>

* 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
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 (Odden et al. 1999; Castro, Borras, Pérez-Parra & Palmer, 2001; Dyer, Abrahams, Mokoena, Lombard & Van der Spuy, 2005; Verhaak et al. 2007; Del Castillo, Moreno-Rosset, Martin, García-Fernández & Urries, 2008; Moreno-Rosset & Martin, 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 adaptive 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 adaptive 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; Eskioak 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

<table>
<thead>
<tr>
<th>Positive affect</th>
<th>Negative affect</th>
<th>Emotional maladjustment</th>
<th>Personal resources</th>
<th>Interpersonal resources</th>
<th>Adaptive resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive affect</td>
<td>-0.468**</td>
<td>-0.499**</td>
<td>0.262</td>
<td>0.505**</td>
<td>0.452**</td>
</tr>
<tr>
<td>Negative affect</td>
<td>0.725**</td>
<td>-0.046</td>
<td>-0.259</td>
<td>-0.161</td>
<td></td>
</tr>
<tr>
<td>Emotional maladjustment</td>
<td>0.005</td>
<td>-0.427**</td>
<td>-0.201</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal resources</td>
<td></td>
<td>0.173</td>
<td>0.881**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interpersonal resources</td>
<td></td>
<td></td>
<td></td>
<td>0.618**</td>
<td></td>
</tr>
</tbody>
</table>

* 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

<table>
<thead>
<tr>
<th>Constant : 23.188</th>
<th>Beta coefficients (β)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative affect (NA)</td>
<td>-0.193</td>
</tr>
<tr>
<td>Emotional maladjustment (EM)</td>
<td>-0.060</td>
</tr>
<tr>
<td>Interpersonal resources (IR)</td>
<td>0.230</td>
</tr>
<tr>
<td>Adaptive resources(AR)</td>
<td>0.127</td>
</tr>
</tbody>
</table>

** 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)**
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 & Fiskenbaum, 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.

REFERENCES


women’s adjustment to early stage breast cancer. Cancer, 73 (4), 1213-1220.


INTRODUCTION
Positive psychology has generated increasing interest year after year ever since Seligman adopted the label as a psychological approach in 1998. This fact may be seen in the publication of registered titles which include this key term in the PsycINFO database, maintained by the American Psychological Association (APA). Figure 1 shows the number of journal articles and book chapters containing the term positive psychology in the keyword section, over the last few years. Apart from the apparent decrease in the number of articles in the year 2009, due to the time lag in catalogue updating, the scientific community actually manifests a growing interest in this approach.

Similar to most advances in the science in our field, the publication of comprehensive handbooks in Spanish has been rather belated in comparison to that in English speaking countries. In 2006, Vera carried out a bibliographical review showing this deficiency. Now, three years later, we can state that Spain has started to overcome the problem with the publication of monographic issues in the Papeles del Psicólogo (2006) and Clínica y Salud (2006) journals, which provide part of the bibliographic references for this paper; with the translation of handbooks, such as Carr’s in 2007, and with the publication of national handbooks, such as the one by Vázquez and Hervás (2008).

The Anuario de Psicología Clínica y de la Salud has itself also collected related contributions, such as the review carried out by Romero (2008) on emotional intelligence, and by Vázquez (2005) on resilience after the September 11 and May 11 terrorist attacks.

Even though the study of positive psychology was undertaken before the label was coined, its use as a term is relatively recent and, so it is still too early, by consensus, to establish an agreed definition. Nevertheless, the great proliferation of schools of thought which name themselves as such within the area of scientific psychology makes it obligatory to accurately establish what positive psychology is and what it is not. A proposal, added in 2003, can be found in the PsycINFO Thesaurus, which draws attention to the factor common to all the definitions likely to be found in the literature:

Positive Psychology: An approach to psychology that emphasises optimism and positive human functioning instead of focusing on psychopathology and disfunction.

So, positive psychology proposes a different approach to guide research with classical issues already addressed, for example, by Humanistic Psychology. The main national and international authors of the field, Seligman, Peterson, Csikszentmihalyi, Avia, Vázquez, or Hervás, some of whose works will be cited in this review, have pointed out that this epistemologic change is a crucial one. The change consists in giving prominence to positive emotions, strengths and prevention, versus the most traditional view of psychology as a science focusing on inadaptation, weakness and illness. In any case, the methodological requirements and rigour are identical to those from other approaches in psychological research, namely quantitative and qualitative empirical endeavour. This distinguishes positive psychology from any philosophical proposal (Avia, 2006). In spite of having adopted terms such as happiness, optimism or good mood, which may lead to confusion, as they are deeply rooted in philosophy and religion, positive psychology differs from them in the fact that, far from any dogmatism, it is founded on accurate research and is circumscribed to the professional and scientific world (Vera, 2006).
The topics encompassed by positive psychology are very diverse and its young age may make it difficult to list all the points of interest. A possible procedure to systematize them can be found in some studies by Seligman (2000, 2006), who classifies them in relation to the time when the cognition is carried out, namely past, present and future. Thus, we see concepts referring to acts carried out by people concerning past time experiences, such as gratitude, resistance, post traumatic growth, satisfaction, personal fulfilment and pride; to the present time, such as happiness, rapture or flow, and, finally, those focusing on future time, such as optimism and hope. In addition to this, by using another systematization axis on this pragmatic focus, it can be noticed that, even though most of the former constructs appeal to psychological experiences restricted to specific vital experiences (variables of state), positive psychology emphasizes a series of dispositional constructs (variables of trait) which are shared cross-culturally, such as character strengths and virtues.

However, accurate classification of the contributions to positive psychology may be rather complicated. Firstly, we find texts which cover the above characteristics but do not add the corresponding label. As is to be expected, the pioneers of the approach, such as Goleman (1995) or Csikszentmihalyi (1990) started to work from this perspective before it had been named as such. Secondly, these signs of identity may appear implicitly in some handbooks and guides centred on professional practice, but without any conceptual introduction that clearly states their part in this form of work. Thus, we can find Spanish contributions such as those by Moreno in the field of infertility (2009), which integrated optimism and happiness in her outline for supervision and intervention.

This paper describes ten reviews which have been selected for their relevance and which may be of interest in a first approach to the field of knowledge encompassed under the umbrella term of positive psychology. A first group has two texts that may be used as a general introduction, namely the handbook recently published in Spanish by Vázquez and Hervás (2008) and the introductory article that Seligman and Csikszentmihalyi contributed to in the monographic issue published by the American Psychologist in 2000. A second group brings together four monographic texts dealing with some of the main issues of positive psychology, namely happiness, flow, optimism, hope and resilience. To conclude, four papers on assessment and intervention in positive psychology are reviewed: one article about the creation of the currently most often used assessment instrument, Virtues in Action or VIA-IS, by Seligman, Park and Peterson (2004); a cross-cultural study in which more than 100,000 subjects participated; a case of positive psychotherapy in the depressive spectrum, and a community preventive intervention manual. Even though we are aware that this panorama might not be exhaustive enough, we hope that this selection will provide a reasonable overview of the current state of positive psychology.

**Group 1. Introductory studies to positive psychology**


Summarizing the contributions of this handbook far surpasses the size of this paper. However, we would like to draw attention to the fact that this work is an indicator that publications on positive psychology in Spanish have overcome the drawbacks pointed out by Vera (2006). Given the fact that most of the book is devoted to intervention, it is worth noticing that it starts out by exploring the theories put forward to account for the changes and limits that the study had, by updating a previous text (Vázquez, Hervás & Ho, 2006). In coherence with the aim of giving maximum scientific rigour to research in Clinical Psychology, the authors discuss two empirical studies.

Their first review makes reference to the concept of hedonic adaptation proposed by Diener, Lucas and Scollon (2006). These authors carried out a follow-up study and compiled information on the participants’ degree of vital well-being several years, before and after, going through some given positive events, such as marriage or negative ones, such as widowhood. Their main finding is that, with the passage of time, people return to a degree of well-being similar to their initial ones. This study supports the idea that, at least partially, the degree of well-being is stable in time, possibly due to biological questions. This base level is called the set point. The second research plays down the weight that this set point has by providing a wide review of evidence on its stability or change. They argue that well-being is affected 50% by the set point, 10% by life circumstances, and 40% by voluntary, and therefore modifiable, activities (Lyubomirsky, King & Diener, 2005). In this way, the authors conclude that even though the improvement of well-being is limited by biological factors, it is possible and, in fact, is well documented.

The remaining chapters are organised around the possibilities of intervention from positive psychology (clinical, community and education), and about specific contexts, namely (with elderly people and organizations), something which makes the study a guide for intervention, especially attractive for those professionals looking for a first contact with the area.


This text is an introduction from Number 1 of Volume 55 of the American Psychologist journal, which monographically addresses the approach of positive psychology in fifteen articles. The study shows positive psychology as a renewed emphasis around an object of study largely dealt with in the past, in order to shift the focus of attention from the psychopathological issues framed in the deficit model towards the study of the strengths and virtues of the human being, as well as on those factors that promote personal fulfilment and prosperity in the community.

The text organizes the subsequent articles into three thematic axes. In the first section, a evolutionary perspective points to the influence of genes (phylogenetic determinants) and memes (social
and cultural determinants) on people’s ontogenetic development as a substratum that allows living positive experiences. In the second section four positive personal traits are described, namely subjective well-being, coming from cognitive and affective self-assessment of existence; optimism, a dispositional construct including cognitive, affective and motivational issues which is also affected by issues in the social and cultural context; happiness, in which the author proposes three promotional factors, as are religious faith, a certain income level and good interpersonal relationships; and self-determination, a construct in which personal needs for competence, autonomy and belonging merge. In the final group of articles people’s characteristics of excellence are discussed, such as wisdom, exceptional intellectual abilities in childhood, creativity and talent.

Finally, a series of challenges that positive psychology needs to tackle in future research is emphasised, namely adopting an evolutionary perspective to study all of these positive characteristics; going deeper into the neuro-scientific and community aspects of this approach, and distinguishing the mechanisms by means of which people’s positive resources cushion and prevent the development of psychological problems.

Group 2. Platitudes of positive psychology


This work deals with the concept of happiness, one of the first objects of study for positive psychology. Seligman presents an overview of the topic by combining data coming from research studies and passages extracted from his personal experience, which is especially relevant given his role as a pioneer during his presidency of the American Psychological Association.

The book is divided into three parts. The first of them deals with different aspects of positive emotion from evolutionary and present-day points of view. Constructs such as optimism, resilience or happiness, among others, can play an important role in survival, as they modify the possibility of success in face of important challenges. In this way, they are characteristics perpetuated by natural selection. Nevertheless, as argued by Seligman, eudemonia or happiness can be understood as the result of a function which combines more stable inherited terms and questions affected by voluntary actions, and are, thus, modifiable. Hence, positive emotion can be studied from a personal time perspective, as it combines assessment of the past, current behaviour and future expectations, all of them improvable by means of cognitive changes.

Seligman reflects on the possible confusions that the term happiness may bring about. So, he separates pleasures, immediate and transient, from gratifications, which allow one to achieve eudemonia or authentic happiness. In spite of the label chosen, the real thing is that happiness does not so much depend on the enjoyment as on the commitment with the activity, on fascination or concentration. Thus, gratification is not always pleasing and an example of this is illustrated by the ending of a project on which a great amount of work has been invested. Part of this explanation is based on the term flow, developed by Csikszentmihalyi (1990), and which is analysed below.

The second part of the book offers a general view on its main strengths and summarizes the classification developed together with Peterson in 2004 (see the article by Seligman, Park & Peterson, 2004; in this text). The last third of the book is devoted to an analysis of strengths in everyday situations, such as work context, living as a couple or bringing up children,


This recent publication on positive emotions, coordinated by Enrique Fernández Abascal, includes a chapter on flow written by Mihaly Csikszentmihalyi. The text is an up-to-date summarized version of his best-seller Flow: The Psychology of Optimal Experience, published in 1990.

Csikszentmihalyi uses the term flow to refer to a subjective experience that takes place when someone is involved in an activity to such an extent that is he or she is not aware of time, tiredness or what surrounds him or her. The activity itself is satisfactory and the individual is not worried about how little he or she is going to achieve from it. During the activity, a feeling of control is experienced over what is being done, all resources for attention are completely implicated in the task and negative feelings or thoughts are excluded.

In order for flow to take place, the activity needs to have a set of aims to guide the behaviour and give it a purpose, to provide immediate retroactive information about the correct progress of the task, and to establish a balance between the challenges and the abilities perceived and so avoid boredom or anxiety, among other feelings. The experience of flow appears as a result of the interaction between a high skill and a high challenge. In this state, concentration and self-esteem are enhanced.

The findings of studies on flow indicate that it is a powerful motivating force. During the experience of flow, intrinsic motivation takes place. This is a state in which people show interest in the activity they are performing just for the sake of doing it, without necessarily expecting an external reward in exchange, in such a way that the experience itself becomes both the means and the aim. In addition to this, emerging (or unpredictable a priori), motivation is also involved. This manifests itself when, due to the interaction with the environment, new aims are found in a new activity, or in one which had previously been unattractive.

To conclude the chapter, Csikszentmihalyi speaks about culture and defends the role whereby flow develops in it and the importance of society providing flow experiences in productive activities. Otherwise, people will look for flow in activities which are disruptive, rather useless and, consequently, disturbing.

Bonanno, G.A. (2004). Loss, Trauma, & Human Resilience: Have We Underestimated the Human Capacity to Thrive After Extremely Aversive...

This article is a very complete and obligatory reference point for the study of resilience in face of loss and other potentially traumatic events. It starts by setting out the difference between recovery and resilience. Recovery refers to the process by which the normal performance of a person turns temporarily into a threshold or subthreshold psychopathology, six months after which it gradually returns to the pre-event level. By contrast, resilience reflects the ability to keep a steadily healthy level of mental and physical performance after a stressful or traumatic event has taken place. This is an interesting distinction, as many trauma theoreticians think that those people who do not show distress in face of losses or traumatic events react in a pathological way, when the fact is that they may have overcome such trauma by setting up an adaptive, healthy and positive adjustment process.

For some time, all those individuals who went through a traumatic situation under this premise were submitted to psychological intervention. In this way debriefing was created as a therapeutic intervention, in other words, as a brief and early preventive strategy that was used after a traumatic event with the aim of facilitating, evoking and discussing this event. The application of this intervention method has been very much criticized, as it may pathologize normal reactions to adversity and damage natural resilience processes. In order to avoid this, a selection of a group of individuals with risk factors for post-traumatic stress disorders (PTSD) was proposed, as they would benefit the most from this type of intervention.

At the end of the article some traits or dispositional aspects are presented which are related to the ability to display resilience. They are the following: strength or hardiness, defined as a personality trait that helps to soften the exposure to extreme stress; self-enhancement, which refers to excessively positive or realistic bias in favour of oneself; repression coping, understood as a defence mechanism which, as well as emotional dissociation, avoids unpleasant thoughts, emotions and memories; and, finally, positive emotions and laughter.


This is a chapter from the book by Alan Carr published in 2004 and translated into Spanish in 2007. The book is very complete and recommendable as an introduction to the field of positive psychology. This chapter addresses some of the traditional studies on how and why people adopt a positive view of the world.

Optimism is presented from two perspectives. The first one defines it as a personality trait characterized by personal expectations with a positive balance. The second focus conceptualizes it as an attributional style. Thus, whereas optimistic people tend to attribute negative experiences to external, temporary and specific factors, the pessimists attribute them to internal characteristics, both stable and general. For its part, hope is made up of two basic components, namely planning ways to reach desired objectives in spite of difficulties, and motivation to follow these ways.

Another interesting contribution is the concept of expectationism, which derives from the hypothesis of risk homeostasis by Wilde, which is also described in the same chapter. Expectationism makes reference to the preventive damage and prejudicial strategies that people implement in function to the value that they give to their future. These strategies have a bearing on their life styles and, hence, modify the probability to have accidents, suffer from diseases or assume risk-taking behaviours.

One of the factors that promote the putting into effect of these strategies is the anticipation of incentives in face of the merely immediate reward, since the coming gratification contributes to increasing the subjective value of the future and so can modify the risk threshold assumed by the person. This idea is especially interesting to prevent risks or accidents, for example, at work.

In conclusion, it is argued that optimistic and hopeful people live longer, enjoy better mental and physical states, recover more quickly after illnesses or operations, persevere in face of challenges and are more competent at work and sport.

Group 3. Assessment and intervention in positive psychology


In this article the authors discuss two topics: firstly, the rules by which virtues and strengths can be classified; and, secondly, the instrument developed for its assessment.

The authors describe the differences between virtues and strengths. The former are general personal characteristics which have been appreciated in a number of cultures throughout history, namely wisdom, courage, humanity, justice, temperance and transcendence. On the other hand, strengths are the psychological processes that allow the development of these virtues. So, while virtues are located at an abstract philosophical level, strengths are much more specific, likely to be modified and assessed, in other words, more operational. Other characteristics of strengths are the facts that they are valued for themselves, and not in relation to the outcomes that they permit to be reached; that they are promoted by the cultural environment by means of rituals and habits, and that they do not damage other people, and so permit living in community in a positive way.

The resulting classification offers a total number of 24 strengths. They were analyzed in depth in a previous lengthy work Character Strengths and Virtues by Peterson and Seligman (2004), which offers a view complementary to those of manuals on diagnosis criteria such as CSM and CIE. The second part of the article describes the psychometric value of the Values in Action Inventory of Character Strengths (VIA-IS), which is a self-administered instrument with 240 items, ten for each strength, to be answered by choosing the degree of agreement with the statements given in a five level Likert type scale. The original version was tested by means of a sample
consisting of over 100,000 English speaking subjects. It measured an internal coherence alpha higher than 0.70 in all scales and, after four months, a test-retest reliability higher than 0.70.

The authors respond to criticism about the possible influence of social desirability in this self-administered report by administering in their studies, the instrument developed by Crowne and Marlow for this effect. Significant correlation was only found between desirability and two of the 24 strengths, which sets VIA-IS within the standards used for regarding an instrument adequate, according to the authors. VIA has been translated into Spanish and is available on the www.authentichappiness.com web site.


This study seeks to assess the prevalence of character strengths in the fifty federal states of the USA and in another fifty-four countries all over the world.

As for the study sample, 117,676 adult participants were included in the analysis of results who answered the VIA-IS self-report once, via the www.authentichappiness.com web site. Of them, 71% were from the USA, and the remaining 29% from other countries in which a minimum of 20 participants had been registered.

The findings of the research point out a high similarity of character strength hierarchies among the different states of the United States, with differences only in religiousness. Specifically, the most often self-described strengths are kindness, justice, honesty, thankfulness and judgment. The least often ones were care, humility and self-regulation, all of them described in this paper.

A profile similar to that of the rest of the participants was found too. These findings point to universal common characteristics shared by people and to the existence of some moral values which are minimally necessary for the viability of social functioning. In addition to this, the text discusses the generalization of these findings.


Opposed to the psychotherapeutic treatments exclusively centred on symptoms and associated discomfort, this study proposes Positive Psychotherapy, which is illustrated by two clinical interventions in the depressive spectrum in which positive emotions are enhanced, the engagement of patients in activities (such as work, leisure and intimate relations), and a meaningful life by means of involvement in supra-individual objectives (whether they be family, religious, political and/or community). All in all, it is intended to re-educate the cognitive and emotional bias centred on negative issues which are usually magnified in the spectrum of depression. In this sense, positive emotions extricate people from a negative complaining style, and the emphasis is on the use of their own strengths that involve them in projects of commitment and of a sense of life.

The first study consisted of a sample population of young adult students with low or moderate symptoms of depression and a control group who did not receive any treatment. The therapeutic process, which was group oriented, prescribed the six following activities: identifying the five most important strengths in the participants and thinking of ways for better everyday application; writing out the three most positive things that had happened every day and thinking about why they had happened; briefly writing out how one would like to be remembered if dying after an utterly satisfactory life; reading a thank-you letter to someone to whom one has not yet shown how thankful one is; responding enthusiastically when other people communicate good news; calmly enjoying habits that are usually performed in a hurry, and writing out how these habits were later experienced in contrast to when they are hastily done. The group under treatment experienced a substantial reduction of symptoms up to normal mood levels, which lasted one year after the therapeutic intervention had taken place. This was accompanied by a significant increase in satisfaction with life.

As for the second study, the participants were patients diagnosed with a severe depressive disorder who had turned to psychological help. Three types of individual intervention were designed. One group was assigned a process of positive psychotherapy, which also addressed psychopathological issues; a second group was exposed to usual therapy, and the third group underwent the usual therapy plus pharmacological treatment. The first group showed significant symptom reduction and higher levels of clinical remission and happiness in comparison with the two other groups.


This recent work contextualizes prevention within social and cultural contexts from a constructionist perspective. In the opinion of the authors, it does not make any sense to separate an individual from his or her community environment, as both necessarily coexist.

Society is an active agent that largely affects about how we value our own experience. So it plays an important role in the sense of well-being. Nevertheless, they warn about the need to break away from the idea of social determinism, and remark that individuals can initiate changes and transform the shared system of beliefs on the basis of how the experience is interpreted.

The authors reflect on how the professionals cope with the challenge of prevention. Firstly, and in a similar way to the aforementioned authors, they start by pointing out the need to change the focus of attention from a reaction to adversity to the promotion of well-being. Secondly, contrary to the present-day view, in which risks are compartmentalized within different areas (Medicine, Psychology, or Educational Science), they propose a more interdisciplinary approach in which the different disciplines are coordinated in order to give
rise to a Science of Prevention with a coherent conceptual body.

Among the concepts related to resistance or invulnerability of social groups, the authors emphasise empowerment and social support. Resistance makes reference to individual and group tendency to learn to solve, in a positive manner, the challenges their environment presents them. Resistance can be studied as a process, in other words, as a mobilization of resources and effort to gain control over the situation itself, and as a result, influence over expectations of control. For its part, social support has a well documented relationship with health. To have a social network that offers safe relationships, a context in which to share experiences and that can offer emotional support in face of adversity are protective factors which benefit the general population’s health and sets them apart from the so-called risk groups. This is the direct effect hypothesis.

The second half of the book deals with the description of a risk prevention programme and with teenage health promotion, namely Construyendo Salud (meaning building up health), in which the steps necessary to set out, implement and assess intervention are covered.

CONCLUSIONS

Positive psychology has progressed very clearly over the last decade, when very relevant contributions have been grouped under a common label which has allowed a more orderly development. We find it necessary to highlight here some of the theoretical and empirical advantages offered by positive psychology. First of all, it puts emphasis on strengths, virtues, solutions, growth or development, and allows researchers and therapists to have an alternative approach, a new lens through which to assess and intervene in situations that the profession makes them deal with. Secondly, by adopting a dimensional perspective it allows for greater descriptive flexibility, contrary to the category focus which has historically been employed in the most often used diagnostic manuals (at present in DSM-IV-TR and CIE-10, versions). In this sense, positive psychology could serve to definitively encourage psychopathology to assume such a dimensional focus. By adopting this quantitative framework, psychopathological phenomena are expressed in a continuum which connects the general population with the one affected by mental disorders, in such a way as to reject differences among people in qualitative terms as if a person suffering from a psychopathological manifestation were greatly different from one who does not suffer from it (WHO, 2008). In addition to this, as this dimensional perspective offers a more flexible and dynamic clinical assessment, it abandons the static diagnostic categorization that casts a shadow over the strengths and positive resources that all individuals possess. Utterances such as people suffering from schizophrenia, or the most aberrant view of the schizophrenic, bring about implications in the construction of personal identity that these words suppose.

Apart from epistemological assumptions, we have given specific examples of how positive psychology has made serious efforts to validate its proposal by means of research studies. Thus, the development of assessment instruments such as Virtues in Action, applied in about fifty countries, and putting into effect psychotherapeutic and community intervention programmes, evaluated with the same methodological requirements as other more traditional psychological approaches, are the clearest examples of the usefulness and rigour that positive psychology aspires to. Due to this very reason, however, we support the call for caution from Vázquez and Hervás (2008) being aware that it is not any panacea.

Positive psychology has made an extensive and solid proposal that counts on such important support as that of the manual developed by Peterson and Seligman in 2004, which offers a full and operative view of dispositional and trans-cultural concepts. However, the youthfulness of the proposal is manifested when verifying some of the definitions used for fundamental concepts, such as those referring to happiness or to resilience (in some of their variants). The appearance of concepts that limit very close issues in different ways makes it recommendable to start a meta-analysis study that gathers and compares the different perspectives that have arisen for each one of these topics.

All in all, positive psychology appears as a real alternative to other classical approaches in our discipline. The fact that the conceptual proposals are diverse and the difficulty in reaching definitions by consensus is, at the same time, a sign of health, as it is an indication to us that its usefulness is on the increase. Needless to say, a terminological debate supported by empirical efforts will be necessary to clarify these issues, but the authors working with this approach have made a great effort in building up a solid body of knowledge. This encourages us to think that, within the next few years, positive psychology can keep consolidating its recognition and popularity within the field of psychology.

REFERENCES


Factorial structure, comorbidity and prevalence of the Thought Problems empirical syndrome in a paediatric sample

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ABSTRACT

This study shows the findings about prevalence and comorbidity of alterations in thinking in a paediatric clinical sample. Its aim was to find out about the empirical configuration (factor structure) of thought problems in minors with psychological problems.

Method: The sample population included 300 minors from 6 to 12 years old who showed psychological alterations and had been referred by different medical specialists. The assessment instrument used was an adaptation of the Child Behaviour Checklist (CBCL), consisting of 96 items.

Results: From the factorization carried out an empirical syndrome which partially coincides with Achenbach and Rescorla's (2001) factorization can be seen. The percentage of cases above the 98 percentile of the mean plus one and two standard deviations were calculated both in the thought problems factor from Achenbach's factorization and in the paediatric factorization. The prevalences found ranged between 2.1% (pc 98) and 24.5% (sd mean + 1). In all the cases the percentage of boys with thought problems was higher than that of girls. Furthermore, the thought problem factor showed a high degree of association with the following factors: dissocial, somatic complaints, confrontational/defiant, attention deficit hyperactivity disorder and, to a lesser extent, anxiety and depression.

Key words: CBCL, child clinical inventory, prevalence, comorbidity, thought problems.

INTRODUCTION

During childhood it is hard to discriminate whether some behaviour and attitudes are actual characteristics of thought alterations or mere traits associated to the developmental stage that the young child is in (Caplan, 1994; Rothstein, 1981). At present, categorial classifications such as DSM-IV and CIE-10 do not have a specific section for thought problems in their descriptions of children's psychological disorders. Clinical psychologists are sent descriptions of generalized disorders in children's development, such as autism or Asperger's syndrome, or psychotic problems, specifically schizophrenia, in adult classifications. Kraepelin (1883) was the first to use the term 'dementia praecox' to name what we now know as schizophrenia. In the fourth edition of his Compendium der Psychiatrie he discusses a type of dementia in young people. In the sixth edition he groups paranoia, catatonia and hebephrenia, under the common heading of dementia praecox, whose fundamental features are affective isolation, indifference, loss of the inner unity, alteration in the course of thinking and reasoning, and lack of will.

Empirical studies in adults support the existence of a wide psychotic spectrum (Claridge et al., 1994; Eysenck, 1992). In this sense, the dimensional model proposes a continuum of personality variables which indicate a predisposition with no necessary manifestation of the pathology. The construction of the P scale (Psychotizism) in Eysenck's theory is regarded adequate to estimate vulnerability within a wide spectrum of psychotic problems (Claridge et al, 1996). Ballespí, Barrantes-Vidal and Obiols (1999) reviewed bio-behavioural markers of the schizophrenic spectrum and concluded that there are premorbid manifestations in childhood which are part of the schizophrenic spectrum in adult age. Some of these symptoms are: difficult temperament, passivity, inhibition and lack of spontaneity.

García and Pérez (2003) stated that adolescence is an especially complicated developmental period in which the resolution of conflicts typical of this stage may be determinant in the appearance of symptoms similar to those of schizophrenia. Poulton, Caspi, Moffitt, Cannon, Murray and Harrington (2000) found that 13% of eleven year olds respond affirmatively to an item
which assesses psychotic symptoms. Over the last few decades the research of this phenomenon in the normal population (Johns and Van Os, 2001) has been very relevant by highlighting the so called attenuated or subclinical psychotic experiences; among them, paranoid ideation, magical thinking and strange perceptions (Nelson and Yung, 2009). These symptoms, which are not clinically significant and do not allow a specific diagnosis of psychosis, can be regarded as schizophrenic or pseudo-psychotic signs (Venables, 1995). In a recent study, Yung et al. (2007) made reference to the differences between psychotic and pseudo-psychotic symptoms and concluded that such differences lie essentially in the degree of discomfort that they generate as well as in the frequency and intensity of the symptoms, and that both symptoms, psychotic vs pseudo-psychotic, are similar. Other studies carried out with the child population (Cannon, Mednick and Parnas, 1990; Walker and Lewine, 1990; Watt, Grubh and Erlenmeyer-Kimling, 1982) found that shyness, social isolation, immaturity and emotional instability, aggressivity and other behavioural problems are some of the symptoms characteristic of thought problems in childhood.

Starting from the factorization carried out on the second part of the Child Behavior Checklist (CBCL), Achenbach (1991a/b) described the Thought Problems Empirical Syndrome, which consists of obsessive thinking, self-injury or suicide, seeing or hearing what others cannot see or hear, sleeping problems, pinching parts of the body, repeating actions or behaviour, storing things, strange behaviour or ideas and worries about sex (Table 2).

A great number of worldwide studies have been conducted with Achenbach’s scales (Lambert, Knight, Taylor and Achenbach, 1994; Stanger, Fombonne and Achenbach, 1994; Verhulst et al., 2003) from an epidemiological point of view. The factorial analyses carried out show an empirical syndrome which includes characteristics of thought problems. On the other hand, some studies conducted with the CBCL in childhood (Achenbach, 1991; Lambert et al., 1994; Verhulst, et al., 2003) show that psychological alterations detected in symptoms such as unsociable behaviour, aggressiveness and criminal behaviour are related to the presence of thought problems, specifically schizophrenia in adulthood (Miller, Byrne, Hodges, Lawrie and Johnstone, 2002), in spite of not having the main symptoms of the diagnosis. In addition to this, Baum and Walker (1995) found in a retrospective study, which used a modified version of Achenbach’s questionnaire (CBCL) together with the versions for parents, of Andreasen’s Scale for the Assessment of Positive Symptoms (SAPS) (Andreasen, 1984) and the Scale for the Assessment of Negative Symptoms (Adreasen, 1983), that cognitive disorganization and psychomotor poverty in schizophrenic adults might be directly related to shyness and inversely associated with anxiety and depression during childhood. Furthermore, in the general population, Jones, Rodgers, Murray and Marmot (1994) observed that those minors who became schizophrenic in their adulthood had shown characteristics of shyness, introversion and anxiety during their childhood.

Stanger, MacDonald, McConaugh and Achenbach (1996) applied the CBCL, its TRF version (Teacher’s Report Form; Achenbach, 1991b) and the YSR version of it (Youth Self-Report; Achenbach, 1991c) to a sample population of 1,103 children and teenagers aged 4-18 in order to identify syndromes that might predict the beginning of mental problems. The findings obtained from the self reports showed that the teenagers had problems of shyness, anxiety and depression. Another study carried out by Dhossche, Ferdinand, Van der Ende, Hofstra and Verhulst (2002) with the YSR questionnaire, among others, states that 6% of teenagers report hallucinogenic experiences. In Spain, López-Soler et al. (1998) and Lemos, Valdejo and Sandoval (2002) conducted research on the general teenage population with the YSR and found that up to 3% of teenagers that make up the thought problems empirical syndrome is equivalent to the one found by Achenbach in the American population. The prevalence of the thought problems disorder in the study by López-Soler et al. (1988) was 17.5% with moderate symptoms (19.4% in males and 15.5% in females) and 5% with severe symptoms (3.8% in males and 6.2% in females).

López Soler and Freixinós (2001) conducted a study with the YSR, whose objective was to find out the relationship between alcohol use and associated psychopathology in a general sample population of 324 teenagers aged 12-17. This study found statistically significant differences between consumers and non consumers in the thought problems factor. More often than their non-using counterparts, alcohol users reported hearing things that others do not hear, seeing things that others cannot see, thinking strange things, and so on. In the same teenage sample, the thought problems empirical syndrome is significantly related to criminal and antisocial behaviour (López and López Soler, 2008).

In spite of the research on empirical syndromes during childhood, the fact is that the characteristics of the psychotic spectrum is still difficult to identify and diagnose. In the scarce data about the prevalence of this disturbance in childhood, Loranger’s retrospective study with 10 to 14 year old children (1984) found that psychotic pathology or thought disturbances are present in 18% of males and 11% of females. If we compare Loranger’s study with similar ones, such as those by Gillberg, Wahlström, Forsman, Helligren and Gillberg (1986) and Thomsen (1996), we can observe that the percentages found by these other studies are lower and range between 0.14% in males and 0.25% in females below the age of 14. These percentages are more in tune with schizophrenia throughout life, which is approximately 1% (DSM-IV-TR, 2003).

In relation to gender, though, the studies coincide in that the prevalence is higher in males. (Gillberg et al., 1986; Loranger, 1984). Moataz et al. (2004) applied the CBCL to study a general population sample of 1,416 of only male children and teenage students from Saudi Arabia and found a prevalence of 11.9% in ages ranging 6-15 years and 6.8% in those older than 15.

As for comorbidity, a disorder seldom manifests itself in isolation. It is generally associated with another or other disorders. Thus, Verhulst and Van der Ende (1993) reported that the children with high rates in only one syndrome have a better
prognosis than those showing high rates in two or more syndromes. In this sense, CBCL has proved to be a very adequate scale to screen a number of disorders Biederman et al. (1995); Hazell, Lewin and Carr (1999). Both studies used the CBCL as an instrument to discriminate mania with attention deficit hyperactivity disorders by using large samples of subjects with two diagnoses plus a control group. In the first study, Biederman et al. concluded that the scales of delinquent behaviour, aggressive behaviour, somatic complaints, anxiety or depression, and thought disturbances of the CBCL showed excellent convergence with the diagnosis of mania. A study by Hazell et al. which sought to differentiate minors with mania and attention deficit hyperactivity disorder (ADHD) from those showing only ADHD found that, when the CBCL was applied, mania plus ADHD obtained a high rate of significance in the syndrome of shyness, thought disturbances, delinquent behaviour and aggressive behaviour and a high comorbidity among anxiety, depression and psychotic symptoms. Finally, López-Soler et al. (1997) found in a teenage sample that the thought disturbances factor showed significant correlations with the factors of depression-anxiety, aggressiveness, drug use, somatic complaints and inability to pay attention.

Objectives of the study

The general objective of this study is analyse the structure of the thought disturbance empirical factor, its prevalence and comorbidity in a paediatric sample. Furthermore, the specific objectives set out are:

Find out the symptoms/items that constitute the thought disturbance factor in the paediatric sample.

1. Obtain the prevalence of the thought problems empirical syndrome in the paediatric sample on the basis of the following criteria: a) the normalized rates obtained by Achenbach for this factor in the general population, which correspond with the items in Table 2, and b) the scores corresponding to the thought problems factor with the factorial structure found in the paediatric sample (Table 2).

2. Find out the comorbidity of thought problems taking the items from the structure by Achenbach and Rescorla (2001) (Table 6) as the reference point as well as the factorization carried out using the items in the Inventario Clínico Infantil (ICC) or Child Clinical Inventory (CCI) by López-Soler (1987) with the rest of the syndromes found.

METHOD

Participants

The sample studied consisted of 300 minors, 207 males (69%) and 93 females (31%) with ages between 6-12 (Mean = 8.457; standard deviation = 1.826). The average age of boys was 8.469 (sd = 1.797) and that of girls was 8.430 (sd = 1.896). The minors were referred to the Consulta de Psicología Clínica Infantil (child psychology clinical unit) of the Virgen de la Arrixaca University Hospital in Murcia by different units of paediatric hospital departments and primary health care centres in the Autonomous Region of Murcia due to the fact that they manifested indicators of possible psychological alteration, according to the medical specialists who had referred them. The parents of all the minors in the sample were given full information and signed their consent. No minor with intellectual disability was included in the sample.

Procedure

The procedure followed was to hold an initial interview with the parents to find out about the basic problems of the minors, to ask for their consent for the management of the data found in the research, to administer the CBCL and the CCI to the parents, and to administer the specific psychological tests to the minors.

The minors were referred to by using a checklist in which specialist doctors described the characteristics of the minors which might be indicators of psychopathology or emotional alteration. The specialist in clinical psychology carried out a semistructured psychological interview by means of which aspects of the minor’s psychological development, usual performance, behavioural and emotional responses, school performance and problems at school, as well as the makeup and attitudes of the family were detailed.

In order to have access to specific and unbiased information about the child, parents and minors were given a battery of psychological tests both for general screening and for some specific disorders identified during the interview so as to be able to carry out reliable psychodiagnosis.

The CBCL or the abbreviated CCI version were a part of the general screening tests. Once the psychological examination had been carried out, a report was made and sent to the specialist who had first been consulted. At the same time, the psychological treatment was started and, if necessary, the parents were directed to the appropriate psychological service to go to with their psychological problems.

Instruments

The information collected from the minors’ parents who were referred to consultation was obtained by means of the Inventario Clínico Infantil (ICC) or Child Clinical Inventory (CCI) by López-Soler (1987) and is the object of this research. This inventory assesses the behaviour and feelings of boys and girls. It consists of 96 items with four alternative answers to choose from, from 0 to 3. Its preparation is based on the second part of the Child Behavior Checklist by Achenbach and Edelbrock (1984).

In order to obtain significant information about the children’s altered behaviour and to find indicators of psychopathology, the first part of the CBCL was eliminated, this part assesses social characteristics of the families and the aptitude and abilities of the minors. The items of the second part of the CBCL, which describe behaviour not indicative of psychopathology were not included either. A first study was carried out with this instrument in paediatric population, which showed a Cronbach’s alpha coefficient of .931 (López-Soler et al., 1995).

Statistical analysis

In order to study the dimensional structure
of the Child Clinical Inventory, an exploratory common factor analysis was carried out with the SYSTAT 12 statistical analysis software. The resulting scree-plot graph was studied in order to select the interpretive number of factors. Also, Varimax, a criterion of orthogonal rotation and Oblimin, an oblique criterion, were used in order to obtain a more simple structure of the specific syndromes in the sample under study. As the results of the oblique solution were virtually the same as those of the orthogonal rotation, the latter was chosen on the basis of its more interpretative simplicity.

The prevalences of the thought problems factor in the paediatric sample were obtained according to the following statistical criteria:

1. Global percentage and by the gender of the minors in or over the 98 percentile in the thought problems factor of Achenbach’s factorization.

2. Global percentage and by the gender of the minors who were above the mean plus one standard deviation and plus two standard deviations in Achenbach’s thought problems empirical syndrome in the general population.

3. Global percentage and by the gender of the minors who were in or above the 98 percentile of the paediatric sample in the thought problems factor in the CCI factorization.

4. Global number of minors and by gender of those who were above the mean plus one standard deviation and plus two standard deviations in the thought problems factor in the CCI factorization.

Finally, the study of the relation between the thought problems factor with the rest of the syndromes obtained in our factorization was carried out by means of Pearson’s product-moment correlations.

**FINDINGS**

**Factor structure**

As the number of items of the CCI scale was very high, the scree-plot graph which resulted from applying the exploratory common factor analysis did not show a clear rupture in the incline of the eigenvalues. So an eight factor choice was made which accounted for 39.75% of the total variance of the correlation matrix. Table 1 shows the percentage of variance accounting for each of the factors in the eight factor factorization.

<table>
<thead>
<tr>
<th>F. I</th>
<th>F. II</th>
<th>F. III</th>
<th>F. IV</th>
<th>F. V</th>
<th>F. VI</th>
<th>F. VII</th>
<th>F. VIII</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dissocial</td>
<td>Anxiety/ depression</td>
<td>Attention deficit hyperactivity</td>
<td>Somatic complaints</td>
<td>Insecurity</td>
<td>Oppositional defiance</td>
<td>Thought Problems</td>
<td>Depression</td>
</tr>
</tbody>
</table>

Table 1: Percentage of variance accounted for by each of the factors.

The choice of the items which made up the thought problems empirical syndrome was carried out depending on whether its factorial load was equal or higher than 0.30 (Table 2).

<table>
<thead>
<tr>
<th>General population (CBCL)</th>
<th>Paediatric population (ICI)</th>
<th>Factor loading (ICI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thoughts / Obsessions</td>
<td>Self-injury / Suicidal attempts</td>
<td>0.568</td>
</tr>
<tr>
<td>Self-injury / Suicide</td>
<td>Talks about killing him/herself</td>
<td>0.558</td>
</tr>
<tr>
<td>Hears things that others cannot hear</td>
<td>Often gets injured</td>
<td>0.348</td>
</tr>
<tr>
<td>Sleeping problems</td>
<td>Stares or makes his/her eyes white</td>
<td>0.344</td>
</tr>
<tr>
<td>Pinches parts of his/her body</td>
<td>Nervous movements or tics</td>
<td>0.318</td>
</tr>
<tr>
<td>Repeats actions / behaviour</td>
<td>Thoughts / Obsessions</td>
<td>0.315</td>
</tr>
<tr>
<td>Sees things that others cannot see</td>
<td>Lost in his/her thoughts</td>
<td>0.314</td>
</tr>
<tr>
<td>Stores things</td>
<td>Sleeping problems</td>
<td>0.300</td>
</tr>
<tr>
<td>Strange behaviour /ideas</td>
<td>Self-injury / Suicidal attempts</td>
<td></td>
</tr>
<tr>
<td>Worried about sex</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Thought problems factor.

As can be seen in Table 2, there are differences between the factorial structure found in the general population and the one found in the clinical population. In their factorization, Achenbach and Rescorla (2001) obtained ten items which made up the thought problems syndrome, whereas our study has obtained nine, only three of which coincide with those by Achenbach, namely self-injury or suicidal attempts, obsessive thinking and sleeping problems.

It is worth mentioning that the items sees things which others cannot see and hears things which others cannot hear, and strange behaviour/ideas which are fundamental in Achenbach’s thought problems factor, appear in the dissocial factor.

**Analysis of reliability**

The analysis of reliability for the whole scale with the Cronbach’s alpha coefficient was 0.95. Therefore, we can regard the whole scale as a reliable instrument for the assessment of child psychopathology. The alpha coefficient for the thought problems factor was 0.65. Even though this is a relatively low value, it is necessary to remember that the thought problems factor consists of only nine items of the whole CCI scale.

**Prevalence of the Thought Problems Syndrome**

Table 3 shows the prevalences of the
thought problems factor in relation to gender.

<table>
<thead>
<tr>
<th>98 Percentile</th>
<th>Mean + 1dt</th>
<th>Mean + 2dt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>2.1%</td>
<td>20.8%</td>
</tr>
<tr>
<td>Boys</td>
<td>3.6%</td>
<td>21.2%</td>
</tr>
<tr>
<td>Girls</td>
<td>1.1%</td>
<td>19.8%</td>
</tr>
</tbody>
</table>

Table 3: Thought problems prevalence. CBCL items (Achenbach and Rescorla, 2001).

If we attend to the first criterion, the global percentage of minors in or over the 98 percentile in Achenbach’s thought problems factor is 2.1%. When regarding gender difference, the percentage ranges from 3.6 in boys to 1.1% in girls. By using the mean plus one standard deviation (M + 1SD) and the mean plus two standard deviations (M+ 2SD), the sample total obtains a prevalence of 20.8% and 3.2%, respectively. Regarding gender, the prevalence of M + 1SD is 21.2% in boys and 19.8% in girls, whereas with M + 2SD the prevalence is 3.6% in boys and 2.2% in girls.

<table>
<thead>
<tr>
<th>98 Percentile</th>
<th>Mean + 1dt</th>
<th>Mean + 2dt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>2.8%</td>
<td>22.7%</td>
</tr>
<tr>
<td>Boys</td>
<td>2.6%</td>
<td>24.5%</td>
</tr>
<tr>
<td>Girls</td>
<td>1.2%</td>
<td>18.6%</td>
</tr>
</tbody>
</table>

Table 4: Thought problems prevalence. CCI items.

The total percentage of minors in or above the 98 percentile of the thought problems factor in the CCI factorization is 2.8%. With regards gender, we obtain 2.6% in boys and 1.2% in girls.

Finally, the prevalence with the mean plus one standard deviation is 22.7% and with the mean plus two standard deviations it is 2.8%. When the assessment is done in relation to gender, the prevalence with M + 1SD is 24.5% in boys and 18.6% in girls, whereas with M + 2SD, the prevalence is 3.6% in boys and 2.3% in girls.

The cut-off point scores corresponding to the mean plus one standard deviation (M + 1SD), to the mean plus two standard deviations (M + 2SD) and to the 98 percentile criterion are shown in Table 5.

Table 5: Global cut-off scores

We can see that the sample size differs from the number of subjects of the total sample. This is due to the fact that the statistical programme used for finding these data eliminates those minors who lack some data in some of the items that contribute to calculating the thought problems factor. The cut-off point scores obtained both with the CCI items and with the CBCL are very similar and use the criterion of mean plus one standard deviation (8.456 in CCI and 8.468 in CBCL) and the criterion of mean plus two standard deviations (12.075 in CCI and 12.073 in CBCL). When the 98 percentile criterion is taken, there are almost two points of difference (13 in CCI and 14.82 in CBCL).

Table 6 shows the comorbidity of thought problems with the rest of the syndromes in the CBCL and CCI.

<table>
<thead>
<tr>
<th>CBCL</th>
<th>ICI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dissocial</td>
<td>.731**</td>
</tr>
<tr>
<td>Anxiety / Depression</td>
<td>.434**</td>
</tr>
<tr>
<td>ADHD</td>
<td>.613**</td>
</tr>
<tr>
<td>Somatic complaints</td>
<td>.682**</td>
</tr>
<tr>
<td>Insecurity</td>
<td>.263**</td>
</tr>
<tr>
<td>Oppositional / Defiant</td>
<td>.648**</td>
</tr>
<tr>
<td>Dysthymia</td>
<td>.218*</td>
</tr>
</tbody>
</table>

Table 6: Comorbidity of the thought problems factor according to the CBCL or the CCI with other CCI factorization syndromes.

The comorbidity of the thought problems factor has been carried out with Achenbach’s factorization items and with the one obtained in the CCI. In both cases its correlation has been established with the rest of the syndromes in our paediatric sample. Thus, taking as a reference the configuration of the thought problems syndrome in the CBCL, a high correlation can be observed with the following factors: dissocial (.731), somatic complaints (.682), oppositional/defiant (.648), and attention deficit
hyperactivity disorder (.613), whereas the correlations are lower for the mixed anxiety depression factor (.434), uncertainty (.263) and dysthymia (.218).

According to the CCI factorization, although the positive correlations obtained are similar, the order is not the same, since the highest correlation is with somatic complaints (.623), followed by dissocial (.597), oppositional/defiant (.597) and attention deficit hyperactivity disorder (.545). As happened in the CBCL, the least significant correlations are established by internalizing factors such as anxiety/depression (.456), insecurity (.315) and dysthymia (.279).

The highest correlation obtained was established between the thought problems syndrome and the dissocial factor from Achenbach’s factorization. This strong association is partly due to the fact that two of the items (seeing things and hearing things) from Achenbach’s thought problems syndrome are part of the dissocial empirical syndrome in the factorization of our paediatric sample.

Conclusions

As for the first objective to reach, obtaining the items that make up the thought problems factor in the paediatric sample, we can observe that there is a very important difference between Achenbach’s factorial structure and the one obtained by this study: the items seeing things that others cannot see, hearing things that others cannot hear, or strange behaviours or ideas do not form part of the factor, they appear in the dissocial factor.

Apart from this, in relation to prevalence, we can see that when the alteration criterion taken is the 98 percentile, the prevalence obtained in the total sample is very similar in both structures (CBCL and CCI factors), and slightly higher in the paediatric structure (2.8% versus 2.1%).

If the criterion taken is the mean plus one and plus two standard deviations, very similar rates are again found with both structures. The rate is higher with the criterion of mean plus two standard deviations. The mean plus two standard deviations is higher in the factorial structure of the CBCL. Furthermore, the prevalence rates are higher with this criterion than with the 98 percentile.

When the prevalence obtained in children is compared in both structures, the 98 percentile prevalence is similar. When the reference is the mean plus one standard deviation, the paediatric structure is three points higher than the one found in the CBCL structure (24.5% versus 21.2%, respectively). However, if the criterion is the mean plus two standard deviations, the prevalence is 3.6%, the same in both structures.

The prevalence found for girls both in the paediatric structure and in the CBCL structure is practically the same, being slightly higher in the CBCL structure, 19.8% versus 18.6%, which are obtained in the factorization of the clinical group. It can be observed in Tables 3 and 4 that the prevalence in thought problems is higher in boys than in girls.

The cut-off point scores obtained for both the CBCL structure and the one in the paediatric sample do not differ. Only in the 98 percentile is the cut-off point score higher in the CBCL factorization.

As for comorbidity, there is a greater relation with externalising problems, such as dissocial conflicts, attention deficit hyperactivity and oppositional defiant attitude, than with internalizing problems, except for the somatic complaint factor in the paediatric factorization, which shows the highest correlation with thought problems.

DISCUSSION

The factorial structure found by Achenbach in the general population does not coincide with the factorial structure of the clinical paediatric population. Only three items out of the nine obtained in our factorization coincide with those of Achenbach. Surprisingly, seeing things and hearing things do not appear within the items in our factorization.

Our findings do not coincide with the ones obtained in the configuration of the thought problems factor in samples of Spanish teenagers in the general population (Lemos, et al., 2002 and López-Soler et al., 1998). However, aggression and antisocial criminal behaviour do show a close relationship with teenage thought problems (López and López-Soler, 2008).

As stated above, in spite of the numerous studies carried out all over the world, the characteristics that make up the thought problems factor describe a great variety of symptoms. Cannon et al. (1990), Caplan (1994), Walker and Lewine (1990) and Watt et al. (1982) spoke of isolation, immaturity, aggressiveness and other behavioural problems that may be characteristic of thought problems during childhood. Miller et al. (2002) thought that aggressiveness was a trait in childhood which was likely to predict psychotic problems during adult life. Some manifestations of aggressiveness during childhood may actually include symptoms of thought problems, as it has been shown in this study.

The presence of two clearly psychotic symptoms in the dissocial factor of our factorization is very peculiar and requires further research that would permit us to find whether it is part of a stable symptomatologic configuration or merely a specific finding in this sample. As the research consulted shows no data in this respect, we are inclined to think that the finding may be just a characteristic of this sample.

The findings might be important in the design of childhood protocols, as the referral of minors to clinical consultations is mainly due to behavioural problems and very seldom to possible psychotic alterations.

Some behavioural disorders might include psychotic symptomatology which is difficult to observe and, therefore, not specifically assessed, as it is not so evident or disturbing in the environment as are behavioural alterations.

As for the gender variable, our study coincides with the ones by Gillberg et al., (1986) and Lorange (1984), in which the prevalence of thought problems is also higher in boys than in girls.

In relation to comorbidity, both somatic
complaints and anxiety/depression have a high correlation with thought problems. This finding is in the line of the research carried out by Yung et al. (2007), which concludes that the highest scores in the dimension of depression may increase pseudo-psychotic symptoms. However, it might also indicate that thought problems are a risk factor for the development of depressive symptoms, given that perceiving or interpreting reality in a peculiar way and not finding social validation may trigger responses of anxiety and depression.

The limited detection of thought problems during childhood, its combination with aggressive symptoms and its psychopathological importance in teenage and adult life make it necessary to look out for its signs at an early age, which is easy to do by collecting parent information by means of the CBCL or other specific scales. Only in this way shall we reliably find out how pseudo-psychotic symptoms are manifested in childhood and be able to establish adequate psychological treatment, which would improve the well-being of minors and decrease the probability that psychotic disorders appear or worsen in the future.

REFERENCES


Andreasen, N. C. (1983). Scale for the Assessment of Negative Symptoms (SANS). The University of Iowa, Iowa City, IA.


Lambert, M. C., Knight, F., Taylor, R. y Achenbach,


A history of injuries and their relationship to psychological variables in tennis players

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ABSTRACT

This study seeks to establish relationships between injuries in tennis players and psychological variables such as stress control, assessment of performance, motivation, mental ability and team cohesion. It specifically aims at finding out whether the seriousness and type of the injuries suffered by tennis players are related to the psychological variables studied. Sixty-three tennis players aged 16-49 participated in the study (M = 31.62; SD = 8.93). The findings indicate that those tennis players with fewer moderate injuries showed higher levels of motivation. In addition to this, the tennis players with a lower number of muscular injuries manifested greater self-control which is needed in sports performance. When the incidence of a tendinitis was lower, the tennis players were able to assess their performance better, and when the number of fractures was smaller, they showed greater team cohesion.

Key words: Sports injuries, tennis players, psychological variables

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INTRODUCTION

An injury can be regarded as a inherent fact in the practice of sport which, in one way or another, affects a great number of sportspeople. On most occasions, perhaps as a result of the increase of sports demands on high level and performance sportspeople (Bahr and Krosshaug, 2005; Ekstrand, Walden and Häglund, 2004), injuries provoke negative and stressful situations.

An injury can be regarded as “a work accident” (Buceta and Bueno, 1995), since getting injured may give rise to really important negative consequences for professional sportsmen in addition to those related to their health itself, such as interrupting their sports career, losing professional status or a loss of income, etc. Furthermore, anyone practising sport, even if they are not considered high performance sportspeople, may also be affected by the negative consequences of an injury.

Research on the correlation between injuries and psychological factors has increased dramatically over the last few years. One of the most remarkable perspectives of this study has been analysing how psychological factors influence the vulnerability of sportspeople in the face of injuries (Udry and Andersen, 2002).

Whereas the first studies centred on searching for a type of personality prone to injuries (Coddington and Troxel, 1980; Valliant, 1981), the most recent research has focused on the analysis of specific aspects of the sportsperson’s psychology and on how they are related to the risk of injury (Ali, Marivain, Héas and Boulvais, 2007; Díaz, 2001; Díaz, Buceta and Bueno, 2004; Olmedilla, García-Montalvo and Martinez-Sánchez, 2006; Williams and Andersen, 1998; Williams and Roepke, 1993).

The theoretical models proposed for the study of relationships between psychological aspects and injuries emerged in the 1990s. The model of stress and athletic injury by Andersen and Williams (1988), revised one decade later (Williams and Andersen, 1998), incorporated the study of those psychological factors that might make a sportsperson suffer an injury. This model puts forward the hypothesis that, in face of a stressful situation, a sportsperson gives a response, known as a stress response, which is the product of the cognitive assessment he or she makes of the situation, provoking physiological changes, such as increase of muscular tension, and changes in attention, such as inadequate focusing of attention, which increase the probability of getting injured. In addition to this, other components of the model such as personality, the history of the sportsperson’s stress and coping resources, measure the type of response and so increase stress or help to control it.

Starting from the proposal of this model, most of the studies have focused on examining the relationship between stress and injuries (Díaz, 2001; Junge, 2000; Udry and Andersen, 2002) on using this as a theoretical basis. A number of personality aspects have been studied (Currens, 2001; Hanson, McCullagh and Tonymon, 1992; Rogers and Landers, 2002; Smith, 2001), such as self-confidence, anxiety or locus of control. Some studies have found a
positive correlation between self-control and the risk of getting injured (Petrie, 1993; Wittig and Schurr, 1994), whereas others have found a negative relationship, which means that high levels of self-confidence minimize the risk of injuries (Jackson et al., 1978; Valliant, 1981). More recent studies have found that medium and lower levels of self-confidence are related to a higher probability of injuries (Abenza, Olmedilla, Ortega and Esparza, in press).

The relationship between anxiety and injuries has also produced contradictory results. Whereas some studies have not found any relationship whatsoever (Kerr and Minden, 1988; Kerr and Fowler, 1988; Olmedilla et al., 2006), others have positively correlated high rates of anxiety and a higher tendency of getting injured (Lysens, Auweele and Ostyn, 1986; Olmedilla, Andreu, Ortin and Blas, 2009a; Olmedilla, Andreu, Ortin and Blas, 2009b; Pascual and Aragües, 1998; Petrie, 1993).

Research on the correlation between locus of control and injuries has also given unclear findings. Some studies state that sportspeople with an internal locus of control manifest a lower tendency to reporting having suffered from an injury (Labbe, Weish, Coldmith and Hickman, 1991), but others do not find any relationship (Passer and Seese, 1983). The use of instruments not adapted to the field of sports may partly account for these findings, since the research by Dahlhauser and Thomas (1979), on employing a locus of control scale that had been created by themselves, did find a relationship between external locus of control and appearance of injuries. The tendency seems to be that those sportspeople with an internal locus of control may be less vulnerable to injury, as stated in a study by Ortin, Olmedilla, Garcés de los Fayos and Hidalgo (2008). However, it would be desirable to improve the evaluation tools of the locus of control.

In addition to the above, as can be gathered from the model by Andersen and Williams (1988), the cognitive assessment of a given situation made by a sportsperson is a key factor in bringing about physiological and attentional changes. How a sportsperson interprets the assessment of his or her sports performance carried out by other significant people—such as coaches, technicians or fellow athletes, etc—and the way the sportsman interprets his or her own self-assessment are key issues in provoking a stressed response which former studies have related to serious injuries but not to minor or moderate ones (Abenza et al., en prensa; Olmedilla, Ortega and Abenza, 2005; Olmedilla et al., 2006).

Another important aspect of the model refers to the sportsperson’s attention ability and to the cognitive assessment he or she makes in some stressful situations. These issues may affect some attention processes and bring about responses inappropriate to the original stress and which also increase the risk of injury.

Some studies have found significant relationships between the ability to concentrate and lower risk of injury (Kerr and Minden, 1988) and between better management of attention ability during training and competitions and lower risk of injuries (Olmedilla et al., 2006).

One of the components of the model (Williams and Andersen, 1998), namely the history of the sportsperson’s stress factors, includes, among other aspects, the injuries he or she has suffered from, which turn into a history of injuries and, therefore, into potential stress which might affect psychological variables that could also increase stress rates. This means we are referring to a circle with no solution to its continuation. In other words, a history of injuries characterized by many injuries with some degree of seriousness might negatively affect some psychological aspects such as the ability to control stress, motivation or the management of coping strategies, which might also determine the sportsperson’s responses to stress and, therefore, increase the probability of getting injured. All in all, we are in face of a most interesting theoretical framework, which, still needs more empirical research to provide data confirming the bidirectionality between personal variables—such as different aspects of personality, specific stress factors, coping abilities—and the response to stress. In addition to this, as stated by Udry and Andersen (2002), research has found and seems to suggest that some methodological limitations need to be overcome. These limitations have been collected in the works by Williams and Roepke (1993) and by Petrie and Falkstein (1998), who indicate that the sometimes contradictory findings of research are due to some methodological problems such as lack of rigourous design, generic instruments which are not specifically applicable to the sports field, small or overheterogeneous samples, and complexity of the different sports.

This study seeks to overcome some of the limitations which have been observed by previous research and suggested by a number of authors (Díaz et al., 2004; Petrie and Falkstein, 1998; Williams and Roepke, 1993; Weiss, 2003), and extend the empirical research as regards the relationship between one element of the model, the history of stress and some of the most relevant psychological variables in the sports world. It has specifically tried to make the sample homogenous by choosing one sport, tennis, one gender, male, and one instrument for evaluating psychological variables adapted to the sports field, the CPRD questionnaire—Cuestionario de Caracteristicas Psicológicas relacionadas con el Rendimiento Deportivo—on psychological characteristics related to sports performance.

The aim of this study was to establish the relationship between the injuries of male tennis players and the psychological variables of stress control, influence of performance assessment, motivation, mental ability and team cohesion, and, specifically, to find out whether the seriousness of the injuries were related to the psychological variables under study.

**METHOD**

**Participants**

A total number of 63 tennis players aged 16-49 (M = 31.62, SD = 8.93) participated in the study. Of them, 50.8% were injured at the time of the study. Of the 50.8%, 49.2% were not injured. All of them belonged to tennis clubs of the Bajo Vinalopó region in the province of Alicante, Spain, and were
registered in intraclub and interclub tournaments. Most of the players were very experienced in terms of practising tennis; 30.16% had played it for over 12 years, 25.40% for between 8 and 12 years, 28.57% for between 4 and 8 years, 12.70% for between 1 and 4 years, and only 3.17% had experience of less than one year. As for how long they used to practise it, most of them, 52.38%, would play between 1 and 3 hours per week, 22.2% for less than one hour, 14.29% between 3 and 5 hours, 7.94% between 5 and 8 hours, and only 3.17% used to play for more than 8 hours a week.

**Instruments**

Two instruments were used to explore the following variables: a history of the injuries suffered by the tennis players and psychological variables related to sports performance.

- **Self report questionnaire for data collection on injuries.** In order to assess the histories of injuries of the tennis players, a self report questionnaire was used. It was the same as the one utilised in former studies (Díaz et al., 2004; Olmedilla, Ortega and Abenza, 2007; Ortín, 2009). It registered the number, seriousness, types of injuries suffered from, during the previous sports season—approximately one year—and the sportsman’s situation of being injured or non-injured at the time of the study. In order to assess the seriousness of the injuries, a functional criterion was used (Díaz et al., 2004; Olmedilla et al., 2006; Pascual and Aragüés, 1998; Van Mechelen et al., 1996) which differentiated among mild injuries, which interrupt training for at least one day and require treatment; moderate injuries, which oblige the tennis player to interrupt his training and competitions for at least one week; serious injuries, which imply one or two months of not playing at all, sometimes hospitalization and even surgical operation, and very serious injuries, which bring about a permanent drop in the player’s performance, needing constant rehabilitation to avoid a worsening of the condition.

- **The CPRD questionnaire: A questionnaire of psychological characteristics related to sports performance—“Cuestionario de Características Psicológicas relacionadas con el Rendimiento Deportivo”** (Gimeno, Buceta and Pérez-Llantada, 1999). The CPRD questionnaire is one adapted from the PSIS (Psychological Skills Inventory for Sport) by Mahoney (1989). The Spanish version (Gimeno et al., 1999) consists of 55 reagents in a five choice Likert-type scale; 1 meaning ‘in complete disagreement’ and 5 ‘in complete agreement’, with saturation higher than 0.30, with a Cronbach’s alpha coefficient of 0.85 and it accounts for a variance of 63%. To be specific, the CPRD questionnaire assesses five psychological variables:

1. **Stress control (SC).** This factor, consisting of 20 reagents, refers to potentially stressful situations during which control is necessary, and to the sportsman’s responses in relation to training and competition demands. A high rate indicates that the sportsman has psychological resources to control the stress related to the practice of his sport.
2. **Index of performance assessment (IPA).** This factor, consisting of 12 reagents, refers to the characteristics of the sportsman’s responses in face of situations during which either he assesses his own performance or he thinks how other people significant to him are assessing him. Furthermore, it includes the evaluation of previous assessment which may give rise to an appraisal of his sports performance. A high score indicates that the sportsman shows high control of the impact from a negative assessment of his performance.
3. **Motivation (MO).** This factor, consisting of 8 reagents, refers to the sportsman’s motivation and interest in all that is related to the practice of his sport, such as training, competitions and the effort to better himself day by day. A high score indicates that he shows a high level of motivation to practise his sport.
4. **Mental ability (MA).** This factor, which consists of 9 reagents, includes psychological abilities that may favour sports performance. A high rate indicates that the sportsman has abilities or psychological strategies that help his performance.
5. **Team cohesion (TC).** This factor, which consists of 6 reagents, refers to the sportsman’s integration into his team or sports group. A high rate indicates that the sportsmen shows adequate integration. This has less importance in the tennis player’s sports activity, since the competitions are usually individual. However, it has been included in the study due to its potential importance in relation to those players with whom he shares activity (in training with other players of the same club and in tournaments with his partner when playing doubles).

**Procedure**

This is a descriptive correlational study with a cross-selectional research design in which all the variables were assessed at the same time (Hernández, Fernández and Baptista, 2003). At first, the tennis club managers were contacted by phone in order to ask for their permission and support in the data collection process. They were briefly informed about the objectives of the study. Appointments in the tennis club facilities were arranged in order to inform them personally about any information they might be interested in and in order to establish first contact with the tennis players. After having arranged appointments with the tennis players in the facilities of their own clubs, the objective of the research was briefly explained to them and, then, the dynamics of the questionnaires to fill in. Under the supervision of an expert in sports psychology, a graduate in Science of Physical Activities and Sport directed the data collection sessions, explained how to complete each questionnaire and solved any doubts that arose individually. It took the players about 60 minutes to fill in the two questionnaires. All the participants showed the voluntary nature of their collaboration by signing their consent before beginning.
Statistical analysis

This study has made use of a correlational methodology. The statistical techniques applied have been Pearson’s correlation analysis and Student’s “t” statistic for measures coming from independent samples. The analyses have been carried out with the SPSS 15.0 program for Windows.

FINDINGS

Table 1 shows the distribution of the sample in relation to injuries; to be specific, about whether the tennis player is currently injured or not and, if so, about the seriousness of his injury and the history of the injuries suffered while playing tennis. Almost half of the sample population was not injured at the time of the study and almost a third (30.2%) had never been injured. It is important to point out that over 20% were suffering from a moderate or serious injury.

<table>
<thead>
<tr>
<th>Current injury</th>
<th>Frequency</th>
<th>%</th>
<th>No. of injuries received</th>
<th>Frequency %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non injured</td>
<td>31</td>
<td>49,2</td>
<td>None</td>
<td>19</td>
</tr>
<tr>
<td>Mild injury</td>
<td>19</td>
<td>30,2</td>
<td>One</td>
<td>25</td>
</tr>
<tr>
<td>Moderate injury</td>
<td>11</td>
<td>17,5</td>
<td>Two</td>
<td>10</td>
</tr>
<tr>
<td>Serious injury</td>
<td>2</td>
<td>3,2</td>
<td>Three</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>63</td>
<td>100</td>
<td>Total</td>
<td>63</td>
</tr>
</tbody>
</table>

Table 1. Current situation of the tennis player as to whether or not he is injured and number of injuries suffered throughout his practice of tennis

Table 2 shows the frequency and percentages of the types of injuries suffered by the tennis players. It is worth pointing out that the great majority of the injuries are muscular and tendinitis (81.94%), that there is only one fracture (1.39%) and not one contusion.

<table>
<thead>
<tr>
<th>Type of injury</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muscular</td>
<td>33</td>
<td>45,83</td>
</tr>
<tr>
<td>Tendinitis</td>
<td>26</td>
<td>36,11</td>
</tr>
<tr>
<td>Sprains</td>
<td>8</td>
<td>11,11</td>
</tr>
<tr>
<td>Fractures</td>
<td>1</td>
<td>1,39</td>
</tr>
<tr>
<td>Bruises</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>5,56</td>
</tr>
<tr>
<td>Total</td>
<td>72</td>
<td>100,00</td>
</tr>
</tbody>
</table>

Table 2. Frequency and percentage of the types of injury suffered from by the tennis players

As can be seen in Table 3, significant relationships are found between muscular injuries, tendinitis and the psychological variables. To be specific, a negative correlation can be seen between muscular injuries and stress control (r = -0.271; α ≤ 0.05), that is to say, when the incidence of muscular injuries is lower, the sportsman’s stress control is higher. In the same way, a negative relationship is to be seen between tendinitis and the influence of performance assessment (r = - 0.292; α ≤ 0.05). In other words, when the incidence of tendinitis is lower, the sportsman has a higher score in this factor.

<table>
<thead>
<tr>
<th>Injuries</th>
<th>SC</th>
<th>IPA</th>
<th>MO</th>
<th>MA</th>
<th>TC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate injuries</td>
<td>-0,08</td>
<td>0,007</td>
<td>-3,40 bądź</td>
<td>1,76</td>
<td>0,06</td>
</tr>
<tr>
<td>Muscular injuries</td>
<td>-2,71**</td>
<td>-1,19</td>
<td>-6,55</td>
<td>-6,66</td>
<td>-2,02</td>
</tr>
<tr>
<td>Tendinitis</td>
<td>-2,23</td>
<td>-2,52</td>
<td>-0,67</td>
<td>-2,27</td>
<td>-0,55</td>
</tr>
</tbody>
</table>

Table 3. Correlations between CPRD factors and sports injuries
** The correlation is significant at 0.01 level (bilateral)
* The correlation is significant at 0.05 level (bilateral)
a Cannot be calculated as at least one constant is variable

DISCUSSION

The aim of this study was to find out the relationship between the injuries of tennis players and some psychological variables—stress control, influence of the assessment of performance, motivation, mental abilities and team cohesion. To be specific, the objective was to analyse whether the seriousness and type of injuries were related to the psychological variables studied.

When analysing the seriousness of the injuries, the findings indicate that significant relationships have only been found between moderate injuries and motivation, in the sense that the tennis players with a higher number of moderate injuries showed a lower score in the motivation factor. That is to say, a history of moderate injuries might be affecting the tennis players’ motivation and interest in training and competitions. Other studies, though, have not found relationships between the seriousness of the injuries and the psychological variables studied in those cases when the lesions were mild or moderate (Abenza, Olmedilla, Ortega and Esparza, 2008; Abenza et al., in press; Olmedilla et al., 2006).

It is interesting to verify, that in these studies, the sample was made up of football players, who are team sportspeople, whereas this study has focused on tennis players. In this respect, the low sample population may be preventing a better statistical analysis, since the number of serious or very serious injuries is low. However, the specificity of the sport may bias these findings. Therefore, a moderate injury might not be really important for a football player, since he can recover within a week.
and miss, at most, one match, but it could be significant for a tennis player, who might miss a number of competitions within a week. In this sense, it would be most interesting to study the impact of the seriousness of the injuries on the psychological variables of the sportsperson by comparing team players and individual players and, even within individual sportspeople to see if this relationship behaves in the same way or is different for each kind of sport.

In addition to this, the instrument used in the evaluation of the psychological characteristics is also likely to be affecting the findings. The research carried out with football players applied the CPRD version for football players; however, this study has used the general version of the CPRD by Gimeno et al. (1999). This fact might indicate that the assessment of psychological variables should be carried out bearing in mind the type of sport practised, which would increase the reliability of the instrument.

In any case, after having analysed the findings of this study and those of the research by Abenza et al. (2008), it can be stated that a history of moderate lesions might negatively affect a tennis player’s motivation to practise his sport, whereas a history of serious or very serious injuries might affect a football player by increasing his anxiety level, by diminishing his self-confidence and by causing a worse handling of situations generated by the assessment of his sports performance.

When the relationship between the type of injury and the psychological variables is analysed, the findings indicate that psychological variables show statistically significant relationships with muscular injuries and tendinitis. Specifically, the results show that when tennis players have more muscular injuries, their ability to control sports stress is lower. Furthermore, when tennis players suffer from a greater incidence of tendinitis, they show worse management of the pressure brought about by the assessment of their performance. No significant relationships have been found with the rest of types of injuries, maybe because there were very few cases of them.

Thus, the history of injuries, when muscular, tendinitis or moderate, seem to affect some psychological variables of tennis players, such as stress control, managing the pressure of having their performance assessed and motivation. In this sense and in the line of what Williams and Andersen (1998) suggested in their revised model of stress and injuries, in which the personal variables (personality, history of stress factors and coping resources), show a bidirectional relationship, injuries can be said to bring about really stressful factors negatively affecting some psychological variables, such as motivation and coping resources such as stress control and worse handling of assessment. This relationship might increase stressed responses in tennis players and increase the probability of suffering an injury.

In the line with other studies carried out with football players (Abenza et al., 2008), the data found permit the consideration of the sense of reciprocity between the different elements in Andersen’s and Williams’ (1988) stress and injury model. If an important history of stress and few or inadequate coping resources bring about stressed responses, increasing the sportsman’s vulnerability to the injury, the injuries suffered, when they are moderate affect the whole process as true stress factors. The relationship between psychological factors and vulnerability to injury is complemented by the correlation between the history of injuries and psychological factors. The scientific literature shows empirical evidence of this as regards the first level of relationship, but very little as regards the second.

The study of the history of injuries is limited to analysing their relationship to the possibility of getting injured again. In this sense, in a study with young football players, Kucera, Marshall, Kirkendall, Marchak and Garrett (2005) indicate that the previous history of injuries is a relevant factor in the possibility of getting a new injury. Those football players who had already been injured were 2.6 times more likely to get injured than the ones without a previous history of injury. However, in general terms, the studies have centred on the relationship between psychological factors and vulnerability to injury. Most of them have used cross and correlation methodological approaches, so although the cause and effect relationship cannot be established, it can however, be observed that some psychological variables are related to the number of injuries received, to their seriousness and, to a lesser extent, to the type of injury.

All in all, the findings of this research provide some new and interesting data. First of all, they confirm some of the premises of the Williams and Andersen (1998) stress and injury model, since the history of the injuries is related to psychological variables, to be precise, to the tennis players’ motivation and coping abilities, such as their capacity to control stress and their adequate handling of the assessment of their performance. In one way or another, these findings can help to better understand the reciprocal relationship between stress-injuries-stress. On the other hand, the greater number of injuries dealt with in this study have been muscular and tendinitis, with only one fracture, as opposed to that of Pluim, Staal and Windler (2006) who found in their research that most of the tennis players’ injuries came from stress fractures or were tendinitis, although the authors themselves mention the great variability in the of the type of injuries in tennis.

Limitations of the study and suggestions for future research

Even though we think that it could be important to continue this line of research, we are aware of some of the limitations of this study:

1. The size of the sample is small. This makes the number of injuries taken into consideration for our study to be small too, which may have affected the statistical analyses carried out, meaning that some associations have not been detected, as well as in the differences of the means of response. It is worth noting that in other sports, such as football, injuries have actually shown relationships to psychological variables, when they have been serious and very serious (Abenza et al., in press), and we believe that the same thing would happen if the size of the tennis player sample were increased, but this
is still a task to be carried out.

2. It would be interesting to carry out a longitudinal study about the effect of the history of injuries on some psychological variables, and about the effect of such variables on the sportsperson’s responses to stress and on the number, type and seriousness of the injuries received. In this sense, in the line of what some authors (Petrie and Falkstein, 1998) suggest, it would be useful to make the sample population more homogeneous. Although this has partly been achieved by this work, the fact is that the range of SD in the age of the tennis players should be reduced, as it is excessively wide in this study, and above all players should be analysed at the same competition level.

3. The influence of some socio-demographic variables likely to be relevant, such as educational level, occupation or marital status, should be examined in further studies. If the use of instruments as CPRD-f is advisable for assessing psychological variables in football, applying instruments specifically adapted to tennis might be recommendable too. Besides, it would be great help to count on other types of instruments to register injuries, such as register forms completed by physiotherapists and by other sport professionals, and not only on the information provided by the tennis players’ self reports.

4. Finally, it would be interesting to engage in multivariate design research which can study the mediation of some personality factors such as self esteem or extroversion versus introversion, etc.

REFERENCES


Juveniles and the new information technologies (IT). Use or abuse?

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ABSTRACT

The very frequent use of the new information technologies (IT) by juveniles generates some degree of social alarm. However, there is little data regarding the issue and this is the aim of this research, that is, to gather more data on the frequency of IT use by young people. The study sample consists of 1,710 12-17 year old juveniles. The data points to a very frequent use of the new information technologies by this age group (6.41 hours per day). The TV is the most frequently used technological device (97.23%) and the one used for the longest time (1.96 hours). Videogames, on the other hand, have the smallest frequency of use (55.26%) and are the devices used for the shortest time (0.70 hours). Gender related differences are found. Females use the mobile phone and the Internet more often than males, who make a more frequent use of videogames than females. There are also differences related to age. The older the person, the more frequent and longer use of the Internet and the mobile phone and the less frequent and shorter use of videogames. This data is discussed below.

Key words: minors, the new information technologies, abuse, addiction.

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INTRODUCTION

The new information technologies (IT) of information and communication are a relatively recent phenomenon which has generated important changes in our society and whose effects are far from being clear. Even though IT has undoubtedly contributed to improving people’s quality of life, it does not seem to be without problems or risks. This situation has generated a situation in which there is no consensus and disparate opinions and very frequent alarmist attitudes can be seen, which is often common in these cases.

Certainly, there is an increasing concern in this regard, not only about the value of these Information Technologies, but also about the use that young people make of them. It is not uncommon to hear that young people often make an uncontrolled, inadequate or even addictive use of IT; however, there are no references as to what is meant by a controlled or adequate use of them. As a matter of fact, there is hardly any information about the use of these devices by juveniles. In short, there are many opinions but little data, so it an imbalance to overcome.

First of all, we should specify what is understood by IT. IT is a wide and varied range of devices, instruments, tools, channels and supports dedicated to the use, management, presentation, communication, storing and recovery of both analogic and digital information. It is easy to associate IT with the computer, the mobile phone or videogames, but not so much with television, which was one of the pioneers, the most often and longest used and probably the most powerful of all IT in our society. The common everyday use of television has made it become regarded as something ‘habitual’ for many years now. Due to this fact, its capacity to generate addiction is seldom taken into consideration. Actually, the fact that everybody spends some hours per day every day watching TV is accepted as something ‘normal’.

IT has brought about a very important change in people’s lives and in the functioning of society, since its use affects a great variety of areas. It is easy to appreciate many positive aspects in its use, among them: the fact that it facilitates immediate access to up-to-date information, its importance at work, in communication with other people, in getting to better know our own environment and other far-away or even remote ones, inaccessible for the majority and, especially, in entertainment and enjoyment of our free time. On the other hand, its use has special characteristics that cannot go unnoticed, namely it is omnipresent in practically all homes and work places; in some cases, it keeps some people company for the whole day. In addition to this, some IT demands attention and almost exclusive dedication for a long time every day.
This remarkable dedication of time and attention is also a fact in the use that juveniles make of it, which has generated great alarm, especially among parents and educators, as it has been verified that a great number of young people have reduced attention to other activities traditionally acknowledged as being very positive, such as studying, reading, going out with friends or practising sport etc., in order to dedicate more time to different IT. Lack of reference criteria about the adequate use of IT makes it difficult to know to what extent young people’s dedication to this type of activity can be considered normal or abnormal.

Certainly, there is already some data referring to Spain and although it is rather sparse and not always reliable, it can be used as a reference on the issue. Some of which are considered below.

**The Internet**

In 2002 the *Protégeles* (Protect them) Association conducted a study for the *Defensor del Menor* (Commissioner for Juveniles) entitled “Seguridad infantil y costumbres de los menores en Internet” (Child safety and juveniles’ habits on the Internet). This research pointed out that 48% surfed the net every day but 65.5% of them did for less than five hours a week. It is worth pointing out, however, that 11% of those young people who admit using the Internet habitually manifest the following characteristics: a) the need to be often connected (37% of those surveyed); b) are frequently connected. In fact, 91% are connected for more than 10 hours a week; c) the search for sensation, not only for information, (among those who need to be frequently connected, 33% visit pornographic pages and 40% to pages related to violence.....).

The study “Jóvenes, sociedad de la información y relaciones familiares” (Youngsters, information society and family relationships), carried out by the *Centro de Investigaciones Sociológicas* (CIS) (The Spanish Centre for Sociological Research) in the year 2002, points out that there is at least one personal computer in 56.8% of Spanish homes. As for the behaviour of children younger than 18, it was verified that 59.9% of males and 45.4% of females used the Internet. It was admitted by 71.8% of parents that there were no norms regarding the use of Internet in their homes. Forty point four percent admitted that although they would really like to know what their children did on the Internet, they found it impossible to do so.

But data changes quickly due to the progressive introduction of these devices. According to the report “Penetración Regional de la Nueva Economía” (Regional Penetration of the New Economy) carried out by CEPREDE (The Centre of Economic Prediction) for the Community of Madrid in 2007, 72.3% of 10 to 14 year old children use the net and 47.95% start to use it from age 16. There are important differences among autonomous regions, ranging from 88.5% in Catalonia to 68.6% in Cantabria.

The survey on Spanish youth conducted by the CIS in 2007 stated that 70.1% of 15 to 29 year olds used the Internet.

**Mobile Phone**

According to the report by the Commissioner for Juveniles “Seguridad infantil y costumbres de los menores en la telefonía móvil” (Child safety and juveniles’ habits on the mobile phone, 2005) having a mobile phone does not entail using it mainly for making phone calls. Only 24% use it to make calls on a daily basis. The mobile is mainly used for sending an SMS, which 50% do on a daily basis.

This report also points to behaviour that may indicate problems associated with the use of the mobile phone: a) feeling badly when they are made to do without one (38%), b) admitting they have even lied, cheated and stolen from their parents to recharge their account (11%), and c) admitting having excessive mobile phone costs (25%).

According to the 2007 “Penetración Regional de la Nueva Economía” report, 94.7% of Spanish homes had a mobile phone and 58.3% of the 10 to 14 year old youngsters had one too, although with big differences among the autonomous regions, ranging from 67.9% in Extremadura to 50.7% in Catalonia.

A survey on Spanish youth (CIS, 2007) proved that 96.1% of 15 to 29 year olds had a mobile phone, 18.9% more than in the year 2002 (CIS, 2002). The most frequent use of it was to send an SMS (32.6%) and to call friends (29.1%). It is worth pointing out that 82.5% of the people with a mobile phone state having it on permanently, and 57.8% state that, in case of robbery or loss, they would do without one (38%).

**Videogames**

The data available indicates an important penetration of the use of videogames in 11 to 19 year old juveniles. (see Table 1). The 2006 annual report by Adese (Asociación española de distribuidores y editores de software de entretenimiento) (The Spanish association of distributors and editors of entertainment software), points out that videogames take up 54% of the total audiovisual leisure time in young people and teenagers, ahead of the cinema, music and video films. It also states that these types of games are a more frequent activity for males than for females (85% versus 52%).

The data available from the 2005 *Protégeles* (Protect them) study for the *Defensor del Menor* (The Commissioner for Juvenes) about the young (10-17 year olds) and videogames points out

<table>
<thead>
<tr>
<th>Penetration of games by age in 2006</th>
<th>Total population n= 44,108,53</th>
<th>Total players n= 8,821,706</th>
<th>PC players</th>
<th>Videogame console players</th>
<th>Mobile phone players</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-13 year olds</td>
<td>1,303,283</td>
<td>77.0%</td>
<td>53.7%</td>
<td>60.3%</td>
<td>31.0%</td>
</tr>
<tr>
<td>14-16 year olds</td>
<td>1,358,606</td>
<td>79.4%</td>
<td>59.3%</td>
<td>58.8%</td>
<td>37.1%</td>
</tr>
<tr>
<td>17-19 year olds</td>
<td>1,458,122</td>
<td>54.9%</td>
<td>37.9%</td>
<td>37.4%</td>
<td>26.6%</td>
</tr>
</tbody>
</table>

*Table 1: Players by age, according to the Estudio de Hábitos y Usos de los Videojuegos (Study on habits and uses of videogames) (ADESE, 2006).*
the following:

a) Even though the use of videogames decreases with age, 69% of young people habitually play with them, ranging from 78% in primary education (grades 1 to 6), to 73% in the first cycle of compulsory secondary education (grades 7 and 8), 65% in the second cycle of compulsory secondary education (grades 9 and 10) and 52% in post-obligatory secondary education (grades 11 and 12).

b) The young people admit that this type of leisure takes time away from other activities. Thus, 28% admit to a decrease in the time to study, 21% to be with the family, and 15% to be with friends.

c) 14% of those surveyed admitted to being ‘hooked’ on some videogame but with important gender differences: 7% of girls versus 21% of boys.

Television
There is no doubt that the deep rootedness of TV in the lives of juveniles is very important. Audience surveys (Sofres, Estudio General de Medios) point out that Spanish young people watch TV an average of 218 minutes a day, only exceeded in Europe by British youth with 228 minutes.

But not only is the very frequent viewing of TV high, but also the conditions in which the youth watch it are striking. The 2004 Sondeo sobre los hábitos de consumo de televisión y de nuevas tecnologías de la infancia y juventud (a survey on television and the new information technologies user habits in childhood and youth), which was conducted by the Confederación española de organizaciones de amas de casa, consumidores y usuarios (CEACCU) (The Spanish Confederation of organisations of housewives, consumers and users) with a sample population of 900 Spanish families, found that 4 to 12 year old children spend 960 hours at school, practically the same number of hours that they spend in front of the TV; that 32.3% of them have a TV in their bedrooms; and that 750,000 children watch TV an average of 218 minutes a day, only exceeded in Europe by British youth with 228 minutes.

As emerges from this report, the available data is scarce; however, it all coincides in pointing out that the use of IT is high among juveniles and that associated with its use, problems have been detected, even by the users themselves. Also, in some of these studies important differences in the use of IT, which are associated to age and gender, have been found. Finally, it is important to highlight that data changes quickly with the passage of time, owing no doubt, to the progressive and quick introduction of IT. All in all, often even aside from the data available, there is already some alarm about the problems derived from the use of these devices, especially when used by the very youngest. For example, in the national health survey carried out in Mexico in 2004, it was shown that Mexican juveniles spent an average of 4 hours in front of the television, which is, after sleeping, the activity they spent the longest time on. However, in spite of the important differences in the available data, it is not recommendable to extrapolate from them.

According to the state of the issue in question, it seems important to accurately identify how young people use IT and what behaviour can be regarded as ‘normal’, or, at least, as habitual. Furthermore, it seems important to establish differences in the use of these devices in function of age and gender. This is the objective of this study, namely analyse the behaviour of young people in relation to IT.

OBJECTIVES AND HYPOTHESES

On the basis of the above, we decided to conduct a study with the aim of analysing the frequency of use by juveniles of the new technologies of information and communication by focusing on Internet, the mobile phone, videogames and television. These four devices were selected because they are the ones most frequently used by young people and the ones that have created most impact on them.

The initial hypothesis is that juveniles often use these devices, but in a different way, depending on age, gender and the type of school they go to.

METHOD

Participants
The study was carried out with a sample of 1,710 juveniles going to school in the Community of Madrid, 40.88% of them females and 59.12% males. The age of the participants ranged between 12 and 17 years, with a mean of 14.03 (see Table 2).

By means of the Protégeles Association six schools of different types, namely state run, private and state assisted private schools and from various areas of the Community. One of the schools was public (11.7% of the total sample), 2 were private (37.1%) and the 3 remaining were state assisted private schools.
The sample selection was carried out by expediency. The Protégeles Association asked some schools in the Community of Madrid to participate in the study. The Association contacted some schools in which they were going to lecture in January and February 2008, the time when the researchers had decided to carry out the test. In addition to asking for their collaboration, the school’s headmaster/mistress had the objectives of the study explained to him/her.

Assessment instruments

A specific assessment instrument was designed, the Cuestionario de Detección de Nuevas Adicciones (DENA) (The new addiction detection questionnaire) (NADQ) (Labrador, Becoña and Villadangos, 2008). After having collected data on age, gender and school, the questionnaire was divided into 6 sections. The first two sections provide information about frequency of use of IT and about subjective perception of the problems likely to follow their use. The four following sections refer, specifically, to each one of the technological devices under study, namely the Internet, the mobile phone, videogames and the television.

<table>
<thead>
<tr>
<th>Age</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 years</td>
<td>290</td>
<td>16,9</td>
</tr>
<tr>
<td>13 years</td>
<td>350</td>
<td>20,5</td>
</tr>
<tr>
<td>14 years</td>
<td>370</td>
<td>21,6</td>
</tr>
<tr>
<td>15 years</td>
<td>471</td>
<td>27,5</td>
</tr>
<tr>
<td>16 years</td>
<td>169</td>
<td>9,9</td>
</tr>
<tr>
<td>17 years</td>
<td>60</td>
<td>3,5</td>
</tr>
<tr>
<td>Total</td>
<td>1710</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 2: Percentage of juveniles in the sample by age.

When the gender variable is considered, the following significant differences appear: Females show significantly higher rates than males in Internet and the mobile phone, but lower in the use of videogames. No differences are found in the frequency of use of television (see Table 4).

### Procedure

First of all, after the questionnaire had been devised by a group of experts, a pilot test was made. The questionnaire was given to a population sample of 140 male and female subjects of different ages. The analysis of results did not make it necessary to modify the items, but it did necessitate the inclusion of a series of guidelines that facilitated the administration of the test.

The questionnaire was later administered in the schools selected by three psychologists who had previously been trained to do this. The administration was collective, but each of the students responded individually to their questionnaire.

### FINDINGS

The data was analysed by means of the Statistics Package for Social Sciences (SPSS-15). Firstly, a descriptive analysis of the sociodemographic variables was carried out to identify the general characteristics of the sample studied. Later, the questionnaire scores were analysed, which led to the following conclusions:

**Frequency of use of IT.** All the IT observed show a highly frequent use by juveniles, surpassing 55% when the ‘often’ and ‘always’ categories are studied together. Out of all the devices, the one most frequently used is the TV, as 97.23% report ‘often’ or ‘always’ using it. Next follow the Internet (87.43%) and the mobile phone (80.81%). Much farther behind them is the use of videogames (55.26%). These differences increase if only the maximum score in the maximum category (‘always’) is observed (see Table 3).

#### Table 3: Frequency of use of the Information Technologies

<table>
<thead>
<tr>
<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Internet</td>
<td>51</td>
<td>2.98</td>
<td>164</td>
</tr>
<tr>
<td>Videogames</td>
<td>271</td>
<td>15.85</td>
<td>494</td>
</tr>
<tr>
<td>Mobile phone</td>
<td>162</td>
<td>9.47</td>
<td>166</td>
</tr>
<tr>
<td>Television</td>
<td>10</td>
<td>0.58</td>
<td>37</td>
</tr>
</tbody>
</table>

When the gender variable is considered, the following significant differences appear: Females show significantly higher rates than males in Internet and the mobile phone, but lower in the use of videogames. No differences are found in the frequency of use of television (see Table 4).

<table>
<thead>
<tr>
<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Internet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td>9</td>
<td>1.29</td>
<td>53</td>
</tr>
<tr>
<td>Males</td>
<td>42</td>
<td>4.15</td>
<td>111</td>
</tr>
<tr>
<td>Videogames</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td>220</td>
<td>31.47</td>
<td>294</td>
</tr>
<tr>
<td>Males</td>
<td>51</td>
<td>5.04</td>
<td>201</td>
</tr>
<tr>
<td>Mobile phone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td>44</td>
<td>6.29</td>
<td>46</td>
</tr>
<tr>
<td>Males</td>
<td>118</td>
<td>11.67</td>
<td>120</td>
</tr>
<tr>
<td>Television</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td>3</td>
<td>0.43</td>
<td>9</td>
</tr>
<tr>
<td>Males</td>
<td>7</td>
<td>0.69</td>
<td>28</td>
</tr>
</tbody>
</table>

Table 4: Frequency of use of the IT by gender

Appendix I includes a copy of the questionnaire.
hours continues been high (4.91 total, 4.78 females times be dedicated to school work, the number of the time spent on Internet is excepted, which may at (6.40 hours the females and 6.52 hours the males). If daily on them with little gender related differences 17 year old juveniles spend an average of 6.51 hours spent on IT is high (see Table 6). In total, 12 to Males Females Total Length of time of use of IT.

<table>
<thead>
<tr>
<th>Ages</th>
<th>Television</th>
<th>Mobile phone</th>
<th>Videogames</th>
<th>Internet</th>
</tr>
</thead>
<tbody>
<tr>
<td>12yrs</td>
<td>17yrs</td>
<td>16yrs</td>
<td>15yrs</td>
<td>14yrs</td>
</tr>
<tr>
<td>17 yrs</td>
<td>16 yrs</td>
<td>15 yrs</td>
<td>14 yrs</td>
<td>13 yrs</td>
</tr>
<tr>
<td>17 yrs</td>
<td>16 yrs</td>
<td>15 yrs</td>
<td>14 yrs</td>
<td>13 yrs</td>
</tr>
<tr>
<td>17 yrs</td>
<td>16 yrs</td>
<td>15 yrs</td>
<td>14 yrs</td>
<td>13 yrs</td>
</tr>
<tr>
<td>17 yrs</td>
<td>16 yrs</td>
<td>15 yrs</td>
<td>14 yrs</td>
<td>13 yrs</td>
</tr>
</tbody>
</table>

Differences also appear when the frequency of use is studied in relation to age. There is a positive correlation between age and the uses of the Internet and the mobile phone, and a negative one between age and videogames. No differences are found in the use of the TV (see Table 5).

<table>
<thead>
<tr>
<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Internet</td>
<td>12 yrs</td>
<td>13 yrs</td>
<td>14 yrs</td>
</tr>
<tr>
<td>12 yrs</td>
<td>10</td>
<td>4,78</td>
<td>2,22</td>
</tr>
<tr>
<td>13 yrs</td>
<td>10</td>
<td>4,77</td>
<td>2,21</td>
</tr>
<tr>
<td>14 yrs</td>
<td>10</td>
<td>4,76</td>
<td>2,20</td>
</tr>
<tr>
<td>15 yrs</td>
<td>10</td>
<td>4,74</td>
<td>2,19</td>
</tr>
<tr>
<td>16 yrs</td>
<td>10</td>
<td>4,73</td>
<td>2,18</td>
</tr>
<tr>
<td>17 yrs</td>
<td>10</td>
<td>4,72</td>
<td>2,17</td>
</tr>
</tbody>
</table>

Table 5: Frequency of use of the New Technologies by age

<table>
<thead>
<tr>
<th>Correlation</th>
<th>T value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet</td>
<td>0,23</td>
<td>9,77</td>
</tr>
<tr>
<td>Videogames</td>
<td>-0,11</td>
<td>-4,79</td>
</tr>
<tr>
<td>Mobile phone</td>
<td>0,28</td>
<td>12,13</td>
</tr>
<tr>
<td>Television</td>
<td>0,04</td>
<td>1,75</td>
</tr>
</tbody>
</table>

Length of time of use of IT. The average number of hours spent on IT is high (see Table 6). In total, 12 to 17 year old juveniles spend an average of 6.51 hours daily on them with little gender related differences (6.40 hours the females and 6.52 hours the males). If the time spent on Internet is excepted, which may at times be dedicated to school work, the number of hours continues been high (4.91 total, 4.78 females and 4.94 males). In all the cases, the television is the device that is used for the longest time per day.

There are significant differences in function of gender, the same as in the case of frequency, females use Internet and the mobile phone more than males, but less in the case of videogames. No differences are found in the use of the television.:

<table>
<thead>
<tr>
<th>Internet</th>
<th>Videogames</th>
<th>Mobile phone</th>
<th>Television</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media</td>
<td>Ds</td>
<td>Media</td>
<td>Ds</td>
</tr>
<tr>
<td>Total</td>
<td>1,60</td>
<td>0,95</td>
<td>1,30</td>
</tr>
<tr>
<td>Females</td>
<td>1,62</td>
<td>0,91</td>
<td>1,09</td>
</tr>
<tr>
<td>Males</td>
<td>1,58</td>
<td>0,97</td>
<td>1,14</td>
</tr>
</tbody>
</table>

Table 6: Average number of hours daily spent on IT
Most frequent place of use of IT. The home is the most frequent place of use of these devices. In all cases, the mean is higher than 90%: 92.38% for Internet, 95.93% for videogames, 98.28% for the mobile phone and 97.24 for television. If these high rates are taken into consideration, it is not really worthwhile contrasting them with other places in which IT is used, other than pointing out the little relevance of places alternative to homes. Nevertheless, it is worth highlighting that the greater the age the more frequent the use of Internet out of home (see Table 8).

<table>
<thead>
<tr>
<th>Home</th>
<th>Cybercentres</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>12 years</td>
<td>270</td>
<td>96.08</td>
</tr>
<tr>
<td>13 years</td>
<td>304</td>
<td>89.94</td>
</tr>
<tr>
<td>14 years</td>
<td>335</td>
<td>93.84</td>
</tr>
<tr>
<td>15 years</td>
<td>438</td>
<td>94.19</td>
</tr>
<tr>
<td>16 years</td>
<td>456</td>
<td>86.90</td>
</tr>
<tr>
<td>17 years</td>
<td>48</td>
<td>81.36</td>
</tr>
</tbody>
</table>

Table 8: Most frequent Internet connection place by age

**DISCUSSION**

Even though the data is taken from a wide sample, its selection limits the generalisation of the findings. Nevertheless, they permit a relatively complete view of the use of IT by 12 to 17 year old juveniles going to school in the Community of Madrid.

The first fact to stand out is that the use of IT is very high. Over 80% report ‘often’ or ‘always’ using the Internet and the mobile phone and to a lesser degree videogames. However, the most often used IT is the television, as 97.25% report ‘often’ or ‘always’ watching it. Almost 80% (79.06%) report ‘always’ watching TV, a figure that almost doubles, in this category, the use of the telephone mobile and Internet. On the contrary are videogames, the least frequently used IT, in spite of the fact that 55.26% report their use in these two maximum categories. The percentage of participants who never use IT is really low, especially in relation to the Internet (3%) and television (0.5%).

In comparison to data previous to this research, the percentage of IT users is especially high. This can be due, first, to the fact that the data in this study is more recent and, therefore, reflects the current trend of a higher use of these devices in general terms. The second reason for the high number of IT users in this study may be their social status, as the level of these participants is somehow higher than the average.

Differences are found in relation to gender (more use of the Internet and the mobile phone and less use of videogames by females), but they are not especially significant. The data from previous studies (Protégéles, 2002, 2005; Aftab, 2005), although similar, pointed to greater gender differences. The fact might be that, as the rates of use of the IT increase, these differences are decreasing due to the ceiling effect.

There are also age related differences. The use of the Internet and the mobile phone increases at least 2.5 times in proportion to increase in age. The most important change in the use of these two technological devices happens around age 14-15.

The frequency of use of television does not show any differences in relation to gender or age. This may be due to the everyday use of this device at all ages and, as a consequence, to the presence of important ceiling effects. In all the cases the rates are

<table>
<thead>
<tr>
<th>Internet</th>
<th>Videojuegos</th>
<th>T. móvil</th>
<th>Televisión</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>Mean</td>
<td>Mean</td>
<td>Mean</td>
</tr>
<tr>
<td>SD</td>
<td>SD</td>
<td>SD</td>
<td>SD</td>
</tr>
<tr>
<td>12 years</td>
<td>1,31</td>
<td>1,28</td>
<td>1,22</td>
</tr>
<tr>
<td>13 years</td>
<td>1,44</td>
<td>1,28</td>
<td>1,22</td>
</tr>
<tr>
<td>14 years</td>
<td>1,62</td>
<td>1,24</td>
<td>1,22</td>
</tr>
<tr>
<td>15 years</td>
<td>1,75</td>
<td>1,35</td>
<td>1,22</td>
</tr>
<tr>
<td>16 years</td>
<td>1,78</td>
<td>1,31</td>
<td>1,22</td>
</tr>
<tr>
<td>17 years</td>
<td>2,03</td>
<td>1,28</td>
<td>1,22</td>
</tr>
</tbody>
</table>

Table 7: Average number of hours daily spent on IT by age
almost the maximum, so there is little margin for the differences, which coincides with the idea stated in the Introduction of this study that the television has become something so common that it is taken for granted that it will be used for several hours every day.

The average time spent on using IT is high too, on average 6.51 hours a day, so more than one fourth of a day. Even though television is what people spend the longest time on (1.96 hours daily), the times spent on the mobile phone (1.65 hours), on the Internet (1.60 hours) and on videogames (1.30 hours) are important too. The data obtained is similar to that from recent studies carried out elsewhere in Spain (ADESE, 2006; Nueva Economía, 2007), which may indicate that the growth-rate is decreasing and the figures on use are approaching the maximum rates expected.

Young people use IT in their own homes, even in the case of mobile phones, which seems like a contradiction in terms. This means that they are going to spend more time at home and, for example, reduce their social and interpersonal activities. When IT is used at home, it is taking up periods time dedicated to social interaction outside it. In fact, the data seems to point in that direction. In the study by the Protegéles Association (2002), 84% of the young people who surfed the net did so at home. The percentage in this study has increased to 92.3%.

It is expected that, as the number of homes with connection to Internet increases, these figures will also keep increasing. In addition to this, an important part of the time used on IT is spent on contacting other people. This indicates that ‘virtual’ interpersonal connection, that is, the one mediated by IT, will be more frequent than the real face to face one, given that the distance between interlocutors is no longer a barrier to communication.

The fact that the mobile phone is used mainly at home may mean that either it is fundamentally used for activities other than communication, such as listening to music, playing games and having access to a diary, or that, as pointed out above, it is changing personal communication through the mediation of IT.

One more twist in this direction of individual isolation can be reflected in the fact that TV is losing strength as a way of the family being together. Having more than one TV set at home is something common, as is watching different programmes at the same time and so the members of the family divide up instead of staying together. The increasingly common fact that there is a TV in juveniles’ bedrooms seems to verify this idea. In fact, the data points in that direction. In the year 2004 12% of juveniles watched TV in their rooms (CEACCU, 2004). The figure has increased to 21.67% in this study. In short, IT does seem to contribute to higher social isolation or to greater personal independence. The data confirms that the alarm generated in this respect is well founded, but the question is far from being answered. Is this positive or negative?

CONCLUSIONS

1. Young people frequently and regularly use the new information technologies. They connect to Internet for an average of 1.60 hours a day, play videogames for 1.30 hours a day and watch television on average 1.96 hours a day. This makes an average of 1.63 hours daily spent on the use of the new technologies.
2. Television is the device most frequently used by young people, followed by Internet, the mobile phone and, finally, videogames.
3. Youngsters use the New Technologies mainly in their own homes, as 92.38% get connected to Internet from their homes and only 4.20% use cybercentres to do so.
4. The trend to make use of these devices at home increases with time, which shows that the New Technologies are increasingly present in households.
5. The use of the new technologies varies in relation to gender. Female youngsters use Internet and the mobile phone more than males, who spend the longest time on videogames.
6. Significant differences have also been found in relation to the frequency of use of the New Technologies in relation to age. Videogames are more often used by the youngest, whereas the time spent on Internet and the mobile phone increases with age.
7. Young people studying at state schools use the mobile phone with greater frequency. Videogames are used especially by youngsters from state assisted private schools, who make less use of Internet in comparison to other groups.

REFERENCES


CIS: Centro de Investigaciones Sociológicas: (2007). Estudio CIS nº 2472: Jóvenes, sociedad de la información y relaciones familiares. Recuperado el
12 de junio de 2008 de:


Appendix 1

QUESTIONNAIRE FOR DETECTION OF NEW ADDICTIONS (DENA), Labrador, Becoña and Villadangos

GUIDELINES FOR COMPLETING THE QUESTIONNAIRE

1. Read each question carefully and answer each of them by ticking the box that best defines your behaviour.
2. This questionnaire is anonymous. In the personal information data only put your age and gender (m for male and f for female).
3. Questions 1 and 2 require responses to each one of the sections.
4. Questions 3, 4, 5 and 6 are to be answered only if they are applicable, that is to say, if the technological devices are used. (For example, if someone never plays videogames, all the sections in Question 4 should be left black.)
5. The first section of questions 3, 4, 5 and 6, referring to the place where these devices are used, require only one answer—the place where they are most frequently used. (For example, if someone watches TV in different rooms at home, only tick the place where you spend the longest time watching it.)
6. It should be borne in mind that in the third section of questions 3, 4, 5 and 6, referring to time spent, number 1 encompasses time between nothing and 1 hour; number 2, time between 1 and 2 hours, and so on.
7. The questions referring to time mean ticking the normal time. Please ignore exceptional situations or some given days.
8. The time of use of the mobile phone refers not only to the time during which you are speaking but also to the time used for sending SMS messages, the time while you are attentive to receiving SMS responses, while you are playing games or the time spent on connecting to the Internet.
9. The time spent is asking for the total time, including even the time that passes while you are using the device and doing another activity; for example, if you are having dinner while you are watching TV, the dinner time needs to be included in the time spent on using this device.
10. Question 5.2., referring to the person in charge the costs of the mobile, refers to the person who usually pays for the bills and pays the largest amount of money irrespective of exceptional surcharges.

Gender: M…… F……… Age: ………

1. Tick the box that best shows how frequently you do these activities:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Never</th>
<th>Sometimes per month</th>
<th>Sometimes per week</th>
<th>Every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use the Internet</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Play videogames</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Go to a cybercafé</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use the mobile phone</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watch television</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Tick the box that best shows if any of these activities gives you problems because you spend too much time on it, because you argue with your parents about it, because you spend too much money on it, or because you feel you are hooked on it.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using the Internet</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Playing videogames</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Going to a cybercafé</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using your mobile phone</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watching television</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. USING THE INTERNET

3.1. Where do you use the Internet? Home…… Cybercafé…… Other……
3.2. How many hours per week do you spend on the Internet?
   Between 1-2… Between 2-5… Between 5-10… More than 10…
3.3. How many hours do you spend on the Internet every day? 1…… 2…… 3……4…… 5……6……

<table>
<thead>
<tr>
<th>Activity</th>
<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.4. Do you think you spend more time than necessary on the Internet?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.5. Do you feel badly when, for any reason, you cannot use the Internet although you want to?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.6. Do you think of the Internet for hours before getting connected to it?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.7. Do you ever argue with your friends because of the Internet?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.8. Do you ever lie to your family or friends about the hours you spend on using the Internet?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.9. Have you ever stopped doing an activity—going to the cinema, going out with friends—for the sake of the Internet?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.10. Have you ever tried to distance yourself from the Internet but you have not been able to?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.11. Does surfing the net relax you?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.12. Do you ever feel anxious if you have not been connected to the Internet for a long time?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4. PLAYING VIDEOGAMES

4.1. Where do you use play videogames?  Home…… Cybercafé…… Other……

4.2. How many hours per week do you play videogames?
   Between 1-2… Between 2-5… Between 5-10… More than 10…

4.3. How many hours do you play videogames every day?  1…… 2…… 3……4…… 5…… 6……

4.4. Do you think you spend more time than necessary on videogames?

4.5. Do you feel badly when, for any reason, you cannot play videogames although you want to?

4.6. Do you think of videogames for hours before playing them?

4.7. Do you ever argue with your friends because of videogames?

4.8. Do you ever lie to your family or friends about the hours you spend on playing videogames?

4.9. Have you ever stopped doing an activity—going to the cinema, going out with friends—for the sake of the videogames?

4.10. Have you ever tried to distance yourself from videogames but you have not been able to?

4.11. Does playing videogames relax you?

4.12. Do you ever feel anxious if you have not been played videogames for a long time?

5. USING YOUR MOBILE PHONE

5.1. Where do you use your mobile phone?  Home…… Cybercafé…… Other……

5.2. How many hours per week do you use your mobile phone?
   Between 1-2… Between 2-5… Between 5-10… More than 10…

5.3. How many hours do you use your mobile phone every day?  1…… 2…… 3……4…… 5…… 6……

5.4. Do you think you spend more time than necessary on your mobile phone?

5.5. Do you feel badly when, for any reason, you cannot use your mobile phone although you want to?

5.6. Do you think of your mobile phone for hours before getting connected to it?

5.7. Do you ever argue with your friends because of your mobile phone?

5.8. Do you ever lie to your family or friends about the hours you spend on using your mobile phone?

5.9. Have you ever stopped doing an activity—going to the cinema, going out with friends—for the sake of your mobile phone?

5.10. Have you ever tried to distance yourself from your mobile phone but you have not been able to?

5.11. Does using your mobile phone relax you?

5.12. Do you ever feel anxious if you have not been used your mobile phone for a long time?

5.13. Do you ever feel badly when, for any reason, you cannot use your mobile phone although you want to?

6. WATCHING TV

7.1. Where do you use watch TV?  Home…… Cybercafé…… Other……

7.2. How many hours per week do you watch TV?
   Between 1-2… Between 2-5… Between 5-10… More than 10…

7.3. How many hours do you watch TV every day?  1…… 2…… 3……4…… 5…… 6……

7.4. Do you think you spend more time than necessary watching TV?

7.5. Do you feel badly when, for any reason, you cannot watch TV although you want to?

7.6. Do you think of the TV for hours before watching it

7.7. Do you ever argue with your friends because of TV?

7.8. Do you ever lie to your family or friends about the hours you spend watching TV?

7.9. Have you ever stopped doing an activity—going to the cinema, going out with friends—for the sake of the TV?

7.10. Have you ever tried to distance yourself from the TV but you have not been able to?

7.11. Does watching TV relax you?

7.12. Do you ever feel anxious if you have not been watched TV for a long time?
A review and analysis of programmes promoting changes in attitudes towards people with disabilities

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1PhD in Psychology. Expert on disabilities.
2PhD in Psychology. University Lecturer. School of Psychology. University of Oviedo, Spain.

ABSTRACT

This paper reviews some programmes promoting changes in attitudes towards people with disabilities and the techniques used in order to implement them. The study collects projects carried out in the educational setting between the years 1972 and 2009 and which are written up in the following documentary sources: Web of Knowledge, an integrated scholarly information system, and the CSIC databases and electronic journals, Dialnet, Eric, Psycinfo, Psycodoc and Scopus. Most of these programmes use a variety of either isolated or combined strategies. The ones most frequently used are establishing contact with people with disabilities, collecting information about issues related to this population, discussing non-academic experiences in small groups, working in cooperative groups, carrying out interpersonal ability training, simulating disabilities and carrying out tutorial programmes. The findings of the review show that contact, information and cooperative teamwork are the most efficient resources for achieving more positive attitudes. On the other hand, important methodological limitations reduce the significance of the conclusions and findings obtained by many of the programmes reviewed. These limitations mainly make reference to: a) lack of follow up, as only 12 out of the 63 reviewed programmes promoting attitudinal changes have carried out some type of follow up; b) the use of measurement techniques with no previous psychometric studies, and c) inadequate experimental designs.

Key words: Attitudes, attitudes to disabilities, change of attitude, disability, assessment, intervention

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INTRODUCTION

The interest in modifying the general population’s attitudes towards people with disabilities and the research seeking to provide efficient methods to achieve this, emerge in the 1970s in Anglo-Saxon countries within the context that Aguado (1995) calls the prodigious decades. The growth of community psychology and the principle of the philosophy of normalisation fostered this interest. Only in the 1980s does the Spanish context start to work in the areas of assessment and change of attitudes. The importance of the issue lies in the fact that the attitudes of partners and peers have an important effect not only in the development of the actual disabled person’s self-concept but also in their own socialisation process. What is more, when the attitudes are negative, they make up one of the main barriers against this group’s social integration. Most of the studies, which mainly focus on the analysis of attitudes in the school context, verify that even though the attitudes do improve little by little, there are still many prejudices and stereotypes which give rise to attitudes of rejection and discrimination against children with disabilities (Aguado, Flórez and Alcedo, 2003, 2004; Almazán, 2003; González, 2008; Hughes et al. 2001; Krahé y Altwasser, 2006; Manetti, Schneider and Siperstein, 2001; Piercy, Wilton and Townsend, 2002; Shevlin and O’Moore, 2000). We should not forget about the decisive importance of these negative attitudes in these children’s process of school integration. It has been often argued and repeated that the success of the educational inclusion of children with disabilities depends as much, if not more, on the attitudes of peers and teachers than on the design of a well adapted curriculum (Garaigordóbil and García de Galdeano, 2006; Navas, Torregrosa and Mula, 2004; Rillota and Nettelbeck, 2007). The persistence of such negative attitudes might partly account for the verified information that the educational inclusion of children with disabilities is not achieving the expected positive results, both in relation to curricular competence and in participation, the latter viewed from a social relations and personal self-esteem point of view (Hogan, McLeEllan and Bauman, 2000; Llewellyn, 2000; Piel, 2007).
Disabled students within the scope of educational inclusion face a higher risk of rejection, state not being happy about their experiences in their schools and perceive attitudes charged with stereotypes and prejudices (Echetta, 2009). Furthermore, the success of educational inclusion is also questioned in the light of the data collected in the Libro blanco sobre universidad y discapacidad (The White Bosom on University and Disabilities) (Peralta, 2007), since only 1% of the students with disabilities reach the academic level expected just prior to university studies.

It is argued that mistaken conceptualisations and attitudes are responsible for the slow changes, resistance and occasional backward steps in the process of inclusive education. This process, pervaded mainly by principles and values, requires society to understand how important this attitudinal change is, a change which will be achieved by increasing the space and opportunities for coexistence at school and in the community (Giné, 2004; Nikolaraiz et al. 2005).

The possibility to modify and achieve this change to positive attitudes through programmes and specific intervention already has empirical support. Modification and change are more feasible when the negative and pitying side of disability are not focused on but rather the positive one of adjustment together with the potential of people with disabilities. There are a number of techniques outlined in the specialist bibliography that show useful and efficient ways to achieve such changes, but not all of them count on the same degree of empirical support. In spite of the relevance of the issue, given its decisive role in the consolidation of the principles of equality of opportunities and integration, the implementation of this type of programme and the assessment of results is still an unresolved matter. In fact, the objective of this study focuses on the review of these programmes promoting changes in attitudes in order to find about the contexts where they develop, the population they are addressed to, the most efficient strategies and techniques, and the data analysis carried out, etc. This information is necessary for planning actions and intervention aimed at the full integration and consolidation of the principles of equality of opportunities and integration, except for differences in tolerance in the school/education environment.

In order to carry out this review, the following sources of information have been consulted: the Web of Knowledge, an integrated scholarly information system, and the CSIC databases and electronic journals, Dialnet, Eric, PsycINFO, Psycodoc and Scopus. The descriptive words used, either in isolation or in combination, are the terms of disability, attitudes, change, modification, programme, school/education as adjectives, school/education as nouns, assessment and intervention. A total number of 63 programmes implemented between the years 1972 and 2009 have been reviewed. The choice for this time period responds to the fact that the first publications on the issue appeared in the 1970s. Even though the period of time reviewed is long, the selection of research to review has not been complicated, since there are only a few studies available. Only ten programmes have been ruled out, since their methodological limitations of the study sample or the instruments for assessment used, among other facts, restricted the range and significance of the findings.

INTERVENTION TECHNIQUES

The reviewed programmes of change of attitudes towards people with disabilities use a number of methods to achieve a change to positive attitudes. To be specific, eight types of techniques, some of them sometimes combined, are collected in the programmes that are explained below. The tables summarise these programmes providing information about the type of study, that is, about authors, year and sample size; about the change technique used as a strategy to modify attitudes; about the ages or school levels of the participating subjects; about the assessment procedures used to measure change and type of design; about the data analyses carried out, and, finally, about the main conclusions and findings. It is worth pointing out that the data shown in the ‘conclusions’ column make reference to statistically significant data, unless the opposite is specified in those which need this comment.

1. Contact with people with disabilities

This method provides the opportunity by means of programmed contacts, the interchange of personal experiences and also planned events, such as game sessions, lectures and discussions, and outings or trips, etc, the direct contact with the object of a negative attitude, that is to say, the disabled person. The reviews show (see Table 1) that, in general, personal contact is a powerful technique to provoke a change to more positive attitudes. The scores in the experimental group improve and acquire statistical significance in the inter and intragroup analyses. To this fact there are some authors who add some clarifications. Thus, Evans (1976) argues that such contact needs to be very well structured, that is to say, the type of activity and the time and place of the contact need to be planned, and the interaction needs to be exhaustively controlled. In addition to this, Manetti, Schneider and Siperstein (2001) conclude that it is not the type of contact that achieves positive attitudes but it is the social behaviour of the partners with disabilities that determines the type of attitudes from their partners without disabilities. There are also studies in which this technique does not achieve the expected results. In a programme in which 87 children aged 13-17 participated, Armstrong, Rosenbaum and King (1987) achieved positive changes in a great part of the sample population, whereas another part their attitudes worsened. In the same line of thought Diamond, Hestenes, Carpenter or Innes (1997) don’t find significant differences among pre-school children with and without integration, except for differences in tolerance in the case of children attending inclusive lessons.
<table>
<thead>
<tr>
<th>STUDY</th>
<th>CHANGE TECHNIQUE</th>
<th>ASSESSMENT</th>
<th>DATA ANALYSIS</th>
<th>CONCLUSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rapier, Adelson, Carey and Croke (1972)</td>
<td>Contact with primary education students (3rd, 4th and 5th</td>
<td>Semantic differential scales.</td>
<td>Chi square test</td>
<td>Improvement in attitudes to disabilities.</td>
</tr>
<tr>
<td>(n = 152)</td>
<td>graders with physical disability</td>
<td>Pre-posttest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evans (1976)</td>
<td>Structured / non structured contact among people with</td>
<td>Likert type scale.</td>
<td>Analysis of covariance.</td>
<td>Positive changes in the structured contact group.</td>
</tr>
<tr>
<td>(n = 60)</td>
<td>visual impairment and university students</td>
<td>Pre-posttest.</td>
<td></td>
<td>No changes shown in non structured contact group.</td>
</tr>
<tr>
<td>Blackburn, Candler y Sowell (1980)</td>
<td>Contact among university students doing their practice and</td>
<td>Attitude observation scale.</td>
<td>Pearson’s Correlation.</td>
<td>No change. The study started from very positive</td>
</tr>
<tr>
<td>(n = 30)</td>
<td>people with disabilities.</td>
<td>Pre-posttest.</td>
<td></td>
<td>attitudes.</td>
</tr>
<tr>
<td>Voeltz (1980)</td>
<td>Contact among 2nd graders and 7th graders with and without</td>
<td>Likert type scale.</td>
<td>Single and multivariate</td>
<td>The more often the contact the better the attitudes.</td>
</tr>
<tr>
<td>(n = 817)</td>
<td>disabilities</td>
<td>Pre-posttest.</td>
<td>analyses .</td>
<td></td>
</tr>
<tr>
<td>Voeltz (1982)</td>
<td>Contact among children with and without disabilities in</td>
<td>Likert type scale.</td>
<td>Analysis of covariance.</td>
<td>The more often the contact the better the attitudes.</td>
</tr>
<tr>
<td>(n = 817)</td>
<td>primary school (4th, 5th and 6th grades)</td>
<td>Pre-posttest.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Esposito and Peach (1983)</td>
<td>Contact among 4-5 year old preschool children with and</td>
<td>Likert type test and</td>
<td>Unspecified, may</td>
<td>Improvement in social skills of children with</td>
</tr>
<tr>
<td>(n = 9)</td>
<td>without disabilities</td>
<td>observación.</td>
<td>be mean differences .</td>
<td>disabilities and more favorable attitudes in partners.</td>
</tr>
<tr>
<td>Jenkins, Speltz and Odom (1985)</td>
<td>Contact among 3-6 year old preschool children with and</td>
<td>Psychometric scales for</td>
<td>Analysis of covariance and</td>
<td>Improvement in gross motor abilities and in</td>
</tr>
<tr>
<td>(n = 43)</td>
<td>without disabilities</td>
<td>measuring various skills, and</td>
<td>frequency distribution.</td>
<td>cooperative games of children with disabilities.</td>
</tr>
<tr>
<td>Armstrong, Rosenbaum and King (1987)</td>
<td>Contact among 9-13 year old children without disabilities</td>
<td>Likert type scale.</td>
<td>Analysis of covariance and</td>
<td></td>
</tr>
<tr>
<td>(n = 87)</td>
<td>and 6-16 year old children with disabilities.</td>
<td>Pre-posttest.</td>
<td>chi square test .</td>
<td></td>
</tr>
<tr>
<td>(n = 34)</td>
<td>children.</td>
<td>Pre-posttest.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n = 563)</td>
<td>intellectual disabilities.</td>
<td>semantic differential scale.</td>
<td></td>
<td>disabilities if the integration is structured.</td>
</tr>
<tr>
<td>Maras and Brown (1996)</td>
<td>Contact among 8-10 year old children with and without</td>
<td>Classifications and</td>
<td>Multidimensional</td>
<td>Rather nuclear findings, although the authors report</td>
</tr>
<tr>
<td>(n = 50)</td>
<td>intellectual disabilities.</td>
<td>psychometric scales.</td>
<td>scaling. Anova and</td>
<td>more positive attitudes.</td>
</tr>
<tr>
<td>Diamond, Hestenes, Carpenter e Innes (1997)</td>
<td>Contact by integration among 3-6 year old preschool</td>
<td>Interviews of participating</td>
<td>Covariance test.</td>
<td>No more differences are found between children with</td>
</tr>
<tr>
<td>(n = 60)</td>
<td>children with physical and sensory disabilities</td>
<td>students in integration</td>
<td></td>
<td>and without integration. Except small changes such as</td>
</tr>
<tr>
<td>Wilhite, Adams, Goldenberg and Trader (1997)</td>
<td>The Paralympic Day with people with visual impairment and</td>
<td>Ad hoc questionnaire based on</td>
<td>Mean Differences test (t-test).</td>
<td>being more tolerant.</td>
</tr>
<tr>
<td>(n = 704)</td>
<td>other physical disabilities in middle and higher</td>
<td>other instruments.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burns, Storey and Certo (1999)</td>
<td>2 experimental groups: 1) Gardening students aged 15-17</td>
<td>Likert type scale and</td>
<td>Mean Differences test</td>
<td>The first experimental group achieves change to more</td>
</tr>
<tr>
<td>(n = 24)</td>
<td>with physical and mental disabilities and without</td>
<td>semantic differential scale.</td>
<td>(t-test) and MANOVA.</td>
<td>positive attitudes, but the participants in this group</td>
</tr>
<tr>
<td>Maras and Brown (2000)</td>
<td>A comparison of schools with various types of contact</td>
<td>Classifications and</td>
<td>ANOVA.</td>
<td>were volunteers and the contact was more continuous.</td>
</tr>
<tr>
<td>(n = 256)</td>
<td>among 5-11 year old peers with and without disabilities.</td>
<td>psychometric scales.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
So it seems that the programmes based on personal contact achieve positive results when the contact, developed in well structured environments, is continuous and intense, in a way that allows for knowing about all the potentialities of the disabled person and finding out whether the activities carried out have been non segregating. Thus, in the line with what has been argued by some authors, it is the type of interaction or contact and the conditions in which they take place that conditions the change, the maintenance or the worsening of attitudes. (Ammerman, 1997; Díaz-Aguado, Royo and Baraja, 1994; Donaldson, 1987; Evans, 1976; Horne, 1988; Pelechano and García de la Banda, 1996; Verdugo, Arias and Jenaro, 1994).

2. Information

This technique provides a variety of information about issues related to the area of disability. The information may be given to the receiving group in a direct way, by the people with disabilities themselves or by experts on the subject matter, or in an indirect way, that is, by means of various types of materials, such as general films, documentary films, reference books, tales, and so on. This technique is usually implemented in such a way that the discussion, guided by the expert who has provided the information, is present throughout the programme.:

<table>
<thead>
<tr>
<th>STUDY</th>
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<th>DATA ANALYSIS</th>
<th>CONCLUSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lazar, Orpet and Demos (1976) (n = 20)</td>
<td>Information: Lectures and reading students in a Masters programme.</td>
<td>Likert type scale and one other unspecified scale. Pre-post test.</td>
<td>Unspecified</td>
<td>Improvement of attitudes to people with disabilities.</td>
</tr>
<tr>
<td>Kierscht and DuHoux (1980) (n = 150)</td>
<td>Direct information from people with physical disabilities to 3rd grade students.</td>
<td>Likert type scale. Pre-post test.</td>
<td>Analysis of variance and Tukey’s test</td>
<td>Only the experimental group achieved significant improvement after the participation.</td>
</tr>
<tr>
<td>Westervelt and Mckinney (1980) (n= 46)</td>
<td>Information to children about 10 years old by means of a film about a boy in a wheel chair.</td>
<td>Ad hoc scales. Unspecified endorsing studies or types, only description of them. Pre-post test, follow up nine days later.</td>
<td>Analysis of variance</td>
<td>Some significant change in first pre-test, which is not observed in post-test.</td>
</tr>
<tr>
<td>Miller, Armstrong and Hagan (1981) (n= 71)</td>
<td>Information, discussions and simulation with 3rd to 5th grade students.</td>
<td>One supposes that an opinion survey is used as the scale Pre-post test.</td>
<td>Analysis of variance</td>
<td>No changes registered in the overall experimental group. Changes only observed in younger children.</td>
</tr>
<tr>
<td>Hazzard and Baker (1982) (n= 325)</td>
<td>Film, book discussion and other activities with 3rd to 6th grade children.</td>
<td>Likert type scales, Observation and opinion Survey. Pre-post test and follow up one month later.</td>
<td>Analysis of variance and covariance or Chi square</td>
<td>More positive perception and greater knowledge about people with disabilities and greater knowledge. Higher rates in the experimental group one month later, but not significant.</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Bauer, Campbell and Troxel (1985) (n= 155)</td>
<td>Information by means of a book, a film, or both in combination to 4th and 6th grade students.</td>
<td>Likert type scale Post test.</td>
<td>Analysis of variance and Tukey’s test</td>
<td>Changes only in younger children (4th graders). Improvement with the group who used only the book.</td>
</tr>
<tr>
<td>Fiedler and Simpson (1987) (n= 90)</td>
<td>Generic information or basic concepts about disabilities to high school students.</td>
<td>Likert type scales. Two control groups and two experimental groups. Pre-post test all groups except one control group.</td>
<td>ANOVA</td>
<td>Positive differences in favour of both experimental groups. Better results in the experimental ‘categorization’ group.</td>
</tr>
<tr>
<td>Fisher- Polites (2004). (n= The number of participants is not mentioned. Only the fact that it was a small group of children)</td>
<td>Information about skills and behaviour appropriate to support a companion with autism.</td>
<td>Class-room observation. Qualitative. Subjective impressions</td>
<td>Improvement in group attitudes, as they were great support to the companion with disability.</td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Studies that use ‘information’.

Most of the reviews report changes towards positive attitudes after participation (see Table 2), although it is a fact that the positive effects are sometimes only partial, especially in younger children (Bauer, Campbell and Troxel, 1985; Miller, Armstrong and Hagan, 1981). In other cases, either the effects of the participation are not maintained during the follow up (Westervelt and Mckinney, 1980) or the scores in the experimental group although high do not reach statistical significance.

3. Information plus contact.

The two techniques explained above are often combined in the change of attitude programmes in such a way that, as pointed out by previous reviews (Donaldson, 1987; Flórez, 1999; Horne, 1988; Yuker, 1988), information plus contact is the most effective technique for change. The findings of this review also support these conclusions (see Table 3).

<table>
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<th>CONCLUSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lazar, Gensley and Orpet (1971) (n= 44)</td>
<td>Information and contact with people with various disabilities.</td>
<td>Likert type scale. Pre-post test.</td>
<td>t student test.</td>
<td>Positive findings according to the authors, but possible methodological problems.</td>
</tr>
<tr>
<td>Jones, Sowell, Jones and Butler (1981) (n= 74)</td>
<td>Information, group discussions, contact with people with various disabilities, experience with technical aids and simulation of disabilities. Children aged 7-9.</td>
<td>Semantic differential scale. Pre-post test.</td>
<td>Mean differences</td>
<td>Change in the perception of people with disabilities.</td>
</tr>
<tr>
<td>Skrtic, Clark and White (1982) (n= 109)</td>
<td>Information and information plus contact between trainee teachers and people with visual impairment.</td>
<td>Likert type scale. Pre-post test.</td>
<td>Analysis of variance and covariance.</td>
<td>Improvement in attitudes to disabled people in both groups. More improvement in the information plus contact group.</td>
</tr>
<tr>
<td>Leyser and Price (1985) (n= 60)</td>
<td>Direct and indirect information, contact with people with various disabilities and tutorials with a section of the sample. Children in grades 4-6.</td>
<td>Likert type scale. Pre-post test.</td>
<td>Analysis of variance.</td>
<td>No differences between the experimental group and the control group.</td>
</tr>
</tbody>
</table>
The findings provided by the programmes combining both techniques are generally very positive. What is more, those studies that carry out follow up, a control that is infrequent in this type of study, confirm that the advantages gained by the control group are not only maintained in the short term (Krahé and Altwasser, 2006), but even two and three years after participation (Aguado, Flórez and Alcedo, 2003 y 2004; Aguado, Alcedo and Arias, 2008), which gives strong empirical support to the term (Krahé and Altwasser, 2006), but even two and control group are not only maintained in the short study, confirm that the advantages gained by the techniques are generally very effective when the contact is carried out in isolation. For his part, Blanchard (1990) concludes combining both techniques is not effective when the contact is carried out in isolation. On the other hand, Rosenbaum, Armstrong and King (1986) argue that significant changes only appear in the group with contact programmes, and not when the contact technique is combined with the information technique. For his part, Blanchard (1990) concludes that attitudes worsen after having used the contact technique and do not differ from the initial ones when using the information technique or information combined with contact.

### Table 3. Studies that use “information plus contact.”

<table>
<thead>
<tr>
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<th>CONCLUSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rosenbaum, Armstrong and King (1986) (n= 99)</td>
<td>Contact group, information group and information group plus contact among 4-7 grade students and people with various disabilities.</td>
<td>Likert type scales and measurement of demographic issues and knowledge about disabilities. Pre-post test.</td>
<td>Analysis of variance and chi square</td>
<td>Significant changes only in the group with the contact programme.</td>
</tr>
<tr>
<td>Blanchard (1990) (n= 105)</td>
<td>Contact group, information and information plus contact among 5-7 grade students and people with various disabilities.</td>
<td>Likert type scale and observation. Pre-post test.</td>
<td>Analysis of covariance and percentages</td>
<td>This study finds worse attitudes after applying the contact technique, and do not differ when using information or information plus contact.</td>
</tr>
<tr>
<td>Durán and Giner (1999) (no especificado)</td>
<td>Information plus contact, simulations and group discussions among 7-8 grade students and people with various disabilities.</td>
<td>Not described.</td>
<td>Not applied</td>
<td>Start from the idea that the programme will achieve changes, but the changes are not analysed.</td>
</tr>
<tr>
<td>Aguado, Flórez and Alcedo (2003) (n= 234)</td>
<td>Direct and indirect information and contact among people with various disabilities and 13-16 year old students.</td>
<td>Likert type scales. Pre- post test and two year long follow up of control group and experimental group.</td>
<td>ANOVA and ANCOVA</td>
<td>Positive change of attitudes to people with disabilities, which continues with a few fluctuations.</td>
</tr>
<tr>
<td>Aguado, Flórez and Alcedo (2004) (n= 83)</td>
<td>Direct and indirect information and contact among people with various disabilities and 12-15 year old students.</td>
<td>Likert type scales. Pre- post test and three year long follow up of control group and experimental group.</td>
<td>Mann-Whitney U test, t student test.</td>
<td>Effective programme which achieves changes that last over time with some variations.</td>
</tr>
<tr>
<td>Krahé and Altwasser (2006) (n= 70)</td>
<td>Cognitive intervention versus cognitive-behavioural intervention to promote change in around 14 year old children, of attitudes to people with physical disabilities.</td>
<td>Standardized Likert type scale with test-controlled slight modifications. Pre-post test and three month long follow up.</td>
<td>ANOVA.</td>
<td>Reduction of negative attitudes to peers with disabilities is only achieved by combining techniques. These attitudes continue during follow up.</td>
</tr>
<tr>
<td>Aguado, Alcedo and Arias (2008) (n= 128)</td>
<td>Direct and indirect information and contact among people with various disabilities and 8-10 year old students.</td>
<td>Likert type scale. Pre- post test and follow up of control group and experimental group three years later.</td>
<td>Univariate and multivariate analyses of repeated measures</td>
<td>Significant improvement in the experimental group. Scores continue three years after the participation.</td>
</tr>
</tbody>
</table>

4. **Non academic experiences in small groups**

Two decades ago Horne (1988) stated that outings, games, trips or other experiences in which people with and without disabilities work together or interact can achieve a positive change of attitudes and improve the prestige and social appraisal of the social role of disabled people. The bibliography reviewed only reports two programmes (see Table 4) whose findings show a change to more positive attitudes that can be achieved from other contexts which are not strictly school based, such as the ‘scout’ groups (Newberry and Parish, 1987) or from play and leisure activities in which the children usually participate (Schleien et al., 1987).**

5. **Cooperative teamwork**

Another of the reviewed techniques is participation in cooperative teamwork, which share objectives and aims. The team, consisting of people with and without disabilities, works together and the rewards are to the benefit of the whole group.

The cooperative structure of these groups, carried out basically in school contexts, allows for a great deal of interaction and generally brings about very positive results (see Table 5).
This group of studies shows the effectiveness of cooperative teamwork in promoting positive attitudes. The students improve their perceptions on school integration and value the abilities and potential of their disabled peers. Furthermore, although with slight variations, these findings are consistent over time (Shevlin and O’Moore, 2000).

### Table 4. Studies that use “non academic experiences in small groups.”

<table>
<thead>
<tr>
<th>STUDY</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Schleien, Ray, Soderman-Olson and McMahon (1987) (n= 27)</td>
<td>Visit to and various cooperative activities in a museum among 7-10 year old children with intellectual disability and without any disability.</td>
<td>Likert type scale and observation. Pre-post test.</td>
<td>Analysis of variance and t student test.</td>
<td>Statistically significant differences between pre-test and post-test, which supposes improvement in the attitudes to people with disabilities.</td>
</tr>
</tbody>
</table>

This group of studies shows the effectiveness of cooperative teamwork in promoting positive attitudes. The students improve their perceptions on school integration and value the abilities and potential of their disabled peers. Furthermore, although with slight variations, these findings are consistent over time (Shevlin and O’Moore, 2000).

### Table 4. Studies that use “non academic experiences in small groups.”

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</tr>
</thead>
<tbody>
<tr>
<td>Ballard, Gottlieb, Corman and Kaufman (1977) (n= 659, aproximadamente)</td>
<td>Twenty-five 3rd, 4th and 5th grade groups integrating children with intellectual disabilities as experimental groups doing cooperative work with companions with intellectual disability.</td>
<td>Sociometric test. Pre-post test.</td>
<td>Analysis of covariance.</td>
<td>Statistically significant increase of acceptance and decrease of rejection in experimental groups. The opposite happened in the control groups.</td>
</tr>
<tr>
<td>Acton and Zarbatany (1988) (n = 80)</td>
<td>Cooperative game with high or low interaction and good and bad results among 7-12 year old children with or without intellectual disabilities.</td>
<td>Pre test and observation during treatment and sociometric test. Pre-posttest and follow up 3-4 months later.</td>
<td>Analysis of variance, univariate analysis and student’s t test.</td>
<td>Less negative appraisal and more positive perception of companions with disabilities when the interaction was high.</td>
</tr>
<tr>
<td>Diaz-Aguado, Rojo and Baraja (1994) (n=457)</td>
<td>Cooperative learning with 3rd and 5th graders with and without visual impairment plus two tales for reflection and discussion.</td>
<td>Mainly sociometric tests and interview. Pre-post test.</td>
<td>Non parametric test (Mann Whitney’s Test).</td>
<td>Both sighted and visually impaired student improve their attitude and perception of integration.</td>
</tr>
<tr>
<td>Patman, Markovich, Johnson and Johnson (1996) (n=417)</td>
<td>Cooperative learning of approx. 13 year old children with learning difficulties in two 45 minute weekly sessions from October to May.</td>
<td>Sociometric test and structured interview. Pre-post test.</td>
<td>Analysis of covariance.</td>
<td>Positive change in the perception of students with disabilities and in the disposition to work cooperatively with them.</td>
</tr>
<tr>
<td>Shevlin and O’Moore (2000) (n=302)</td>
<td>13-17 year olds share cooperative learning with children with intellectual disability for 60-90 minutes a week during the school year.</td>
<td>School questionnaire on attitudes. Pre-post test and follow up six and twelve months later.</td>
<td>Mean Difference Chi square.</td>
<td>The experimental group shows a positive long lasting attitude with slight variations.</td>
</tr>
<tr>
<td>Pierce, Wilton and Townsend (2002) (n=51)</td>
<td>Six year old children work cooperatively with children with severe intellectual disability in two experimental groups or individually plus a control group.</td>
<td>Sociometric measurement. Ad hoc adapted standardized scales and behaviour observation. Pre-post test.</td>
<td>Analysis of variance.</td>
<td>Acceptance, social interaction and popularity ratings improve in the cooperative learning group and there are no differences in the other groups.</td>
</tr>
</tbody>
</table>
Donaldson, 1987; Horne, 1988). Disabilities towards themselves as simulators, they also observe the reactions of people without disabilities for three weekly hours during three months in grades 7-8 with a control group. Above all, if the subjects, in addition to experiencing a positive change of attitudes (see Table 7), have developed and implemented various programmes promoting change of attitudes by using training in interpersonal skills as a technique of change (see Table 6). These programmes are addressed to children in the first cycle of Compulsory Secondary Education, grades 7 and 8) with the objective of helping towards the educational inclusion of children with visual impairment. They report very positive results and confirm that these results are maintained over time. A wide and detailed description of them can be consulted in the trilogy published by Pelechano (1996).

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Almazán (2003) (n=146)</td>
<td>Role-playing, cooperation, information and tutorial action about different disabilities for three weekly hours during three months in grades 7-8 with a control group.</td>
<td>Ad hoc questionnaire. Pre-post test.</td>
<td>Chi square.</td>
<td>Differences are reported by schools and in some items showing more positive attitudes of the experimental group. The differences are not very high after the participation.</td>
</tr>
<tr>
<td>Pelechano, García and Hernández (1994) (n= 68 68 in grades 1-2 and n = 118 in grades 5-6)</td>
<td>Training in interpersonal skills in the first and second cycles of primary education, grades 1-2 and 5-6.</td>
<td>Likert type scale and scale to assess interpersonal abilities. Pre-post test.</td>
<td>Mean Difference before and after the test in inter-group and intra-group.</td>
<td>Positive change towards the integration of blind children and their personal and social acceptance, and improvement in interpersonal abilities.</td>
</tr>
<tr>
<td>Fumero (1997) (n= 68)</td>
<td>Training in interpersonal abilities in grades 1-2.</td>
<td>Likert type scale and scale to assess interpersonal abilities. Pre-post test and follow up 9 months later.</td>
<td>Bivariate and multivariate analyses.</td>
<td>The experimental group’s rejection of integration decreases and the personal and social acceptance increase, but not too significantly. The findings remain in the post-test nine months later.</td>
</tr>
<tr>
<td>García (1997) (n=118)</td>
<td>Training in interpersonal abilities in secondary education, grades 7-10.</td>
<td>Likert type scale and scale to assess interpersonal skills. Pre-post test and follow up 6 months later.</td>
<td>Mean Difference.</td>
<td>Significant increase of some factors related to interpersonal skills. Acceptance of integration and decrease of rejection of school integration. The findings do not remain in the post-test.</td>
</tr>
</tbody>
</table>

Table 5. Studies that use “cooperative teamwork.”

6. Training in interpersonal skills
Training in interpersonal skills has proved effective as it gives ability to effectively act and interrelate with partners with disabilities (Horne, 1988). Furthermore, as argued by Strain and Odom (1986) after having reviewed previous studies, the school companions of disabled children can when directed teach them social abilities, which does not bring about any negative effect but improvement in the social competence of children with disabilities. Within our setting, Professor Pelechano and his team have developed and implemented various programmes promoting change of attitudes.

7. Simulation of disabilities
Both roleplaying or simulating some disability and the indirect experience of watching someone roleplaying or simulating it, can modify and provoke a positive change of attitudes (see Table 7), above all if the subjects, in addition to experiencing it, also observe the reactions of people without disabilities towards themselves as simulators (Donaldson, 1987; Horne, 1988).

Most of the simulation programmes, which are frequently combined with other techniques, especially the ‘information’ technique, modify attitudes to disabilities. However, if alternative solutions to potential difficulties are not provided, the results obtained can be negative, that is, prejudices and stereotypes are reinforced and emphasized in the face of experiences of many limitations and with problems difficult to solve (Grayson and Marini, 1996).

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</tr>
</thead>
<tbody>
<tr>
<td>Clore and Jeffery (1972) (n= 66)</td>
<td>Simulation of physical disability and vicarious learning by companions. University students.</td>
<td>Semantic differential scale, Likert type scale and description of the experience. Post test surveys four months later.</td>
<td>Analysis of content, Scheffé’s test, chi square and analysis of variance.</td>
<td>Change achieved in both experimental groups (simulation and vicarious) but, in general, no differences are reported between both experimental groups.</td>
</tr>
</tbody>
</table>

Table 6. Studies that use “training in interpersonal skills.”
8. Colleague guided tutorial programmes

Tutoring from a colleague without disabilities can be an effective method for the disabled student to develop social and academic abilities.

The studies reviewed (see Table 8) have shown the positive effect of tutorial programmes in the academic performance of tutoring and tutored students, as well as an increase in motivation, improvement in self-concept, of positive attitudes to the school and of interpersonal abilities (Donder and Nietupski, 1981; Fenrick and Petersen, 1984; Hughes et al., 2001). Nevertheless, the findings are not yet well defined and it seems that the performance of tutorial action may be affected by some variables which have not yet been controlled, such as age, gender, personality characteristics, or level of previous training to carry out the tutorial programme, etc.

<table>
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<tr>
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<th>CONCLUSIONS</th>
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</thead>
</table>
| Clunies-Ross and O’Meara (1989)  
(n= 60)                          | Structured information and discussion, simulation of physical disability and contact with 4th grade students. |
|                               | Likert type scale, pre-post test and three month follow up. |
|                               | Analysis of covariance.                                |
|                               | Significant attitudinal differences in the experimental group which remain three months later in the follow up. |
| Grayson and Marini (1996)  
(n= 38)                          | Simulation of physical disabilities with university students. |
|                               | Likert type scale. Post test administered to control group and experimental group. |
|                               | Student’s t test.                                       |
|                               | Awareness of difficulties and frustrations of using a wheelchair. |
| Pernice and Lys (1996)  
(n= 114)                          | Information, contact and simulation of physical disabilities with university students. |
|                               | Likert type scale. Pre-post test.                        |
|                               | Student’s t test.                                       |
|                               | Significant increase of means for the experimental group and the control group. Serious methodological problems, though. |
| Basic attention group of la Rioja region’s Delegation of the ONCE (Spanish Organization for people with visual impairment) (1995).  
Unspecified number of subjects. | Simulation of visual impairment and information. Sixth grade students. |
|                               | Qualitative information.                                |
|                               | Data analysis not described.                            |
|                               | Positive experience for the blind student, the teachers and the class mates who participated in the programme. |
| Conejero and Lopezzuazo (1999)  
(n: not specified) | One weekly hour information, simulation and discussion in a 14-16 year old school group. |
|                               | Qualitative or subjective information on students’ opinions or behaviours. |
|                               | Not described.                                          |
|                               | Encouragement of sympathetic, tolerant and respectful attitudes to people’s diversity. |

Table 7. Studies using “simulation of disabilities.”
DISCUSSION AND CONCLUSIONS

The bibliographical review about programmes promoting change of attitudes to people with disabilities has allowed us to locate 63 studies which use eight techniques as strategies of change, which are sometimes used in combination. In general terms, the state of this issue is characterized by:

- Predominance of programmes implemented in the school context, such as extracurricular activities carried out during normal class hours, but without any other relation to the curriculum.
- The programmes mainly address children in primary and secondary schools. Programmes focusing on younger students are less frequent.
- Disability programmes most frequently focus attention on physical disability
- Contact with people with disabilities is by far the most often used technique. It is present in 17 programmes and in another 12 in combination with the ‘information’ technique, which is the second most often used technique. Cooperative teamwork has been used in 9 programmes and simulation of disabilities in another 6.
- Personal contact is the technique with the greatest empirical support and which reports the greatest effectiveness on changes to promote positive attitudes. However, such contact needs to be structured, it has to enhance positive and stimulating interaction and permit the acknowledgement of the potential of people with disabilities. Combined contact plus information is equally effective. Furthermore, information as an isolated technique, and cooperative teamwork also result in modification and improvement of attitudes. In general terms, the studies show that most of the techniques used prove effective in promoting positive attitudes to disabilities.
- The assessment instruments which have most often been used are Likert type scales, sociometric tests, semistructured interviews and adjective listings.
- This review also notes important methodological limitations which restrict the findings and conclusions reached above. Namely:
  - Inadequate experimental design, made evident by the lack of assessment prior to intervention, the lack of control groups, the merely descriptive nature of studies and the shortage of multivariate techniques.
  - The use of measurement techniques without prior psychometric studies in some cases and in others, the assessment instruments are not mentioned.
  - Lack of follow up. Only 12 out of the 63 programmes reviewed which promote change of attitudes have carried out some kind of follow up measurement. As a consequence, the future effectiveness of these programmes, either in the short or in the long run is unknown.
  - In spite of these limitations, there is a a clear need for programmes promoting change of attitudes in order to continuously implement specific actions leading to the total integration of people with disabilities. These programmes generally obtain good results and their execution is not complex, bringing about a modification to negative and mistaken conceptions of diversity and difference. The mere personal contact with people with disabilities does not bring about a change of attitude. Rather, the improvement is associated with better knowledge about disabilities (Navas, Torregrosa and Mula, 2004; Nikolaraizi et al., 2005).

REFERENCES


Ammerman, R.T. (1997, marzo). Nuevas tendencias en investigación sobre discapacidad. Comunicación...
presentada en las II Jornadas Científicas de Investigación sobre Personas con Discapacidad, Salamanca, España.


Infertility related stressors in couples initiating in vitro fertilization (IVF)

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ABSTRACT
Infertility is serious life crisis bringing about psychological disturbance. This study deals with analyses on: a) stressors related to infertility according to sex and number of IVF attempts, b) the degree of infertility related stress, and c) the personal appraisal of experiencing infertility.

The types of stressors and their evaluation were assessed in 92 couples who were following IVF treatment. The CRI-Adult Form was adapted to the Spanish social and cultural context. The findings point out that couples, especially women, regard infertility as a personal problem. The stressor which is most often mentioned is the frustration of the desire to be a parent, followed by fear of the treatment failing and the psychological implications that this entails. The experience of infertility is similar for both members of the couple. Yet, a higher stress level is noticed in women, which increases as the IVF attempts succeed one another. These findings emphasise the importance of psychological support during IVF treatment, which needs to be gender oriented.

Key words: experience of infertility, IVF treatment, stress, primary assessment

INTRODUCTION

Over the last few years there has been an increase in studying the psychological impact that diagnosis of infertility conveys both on a couple and on each of its members (Antequera, Moreno-Rosset, Jenaro and Ávila, 2008; Bayo-Borràs, Cánovas and Sentís, 2005; Jordan and Revison, 1999; Moreno-Rosset, 2009). Infertility has been described as a serious life crisis. The nature of the menstrual cycle, the hope of pregnancy at the beginning of it and the hopelessness felt when menstruation comes turn infertility into a stressful situation (Llavona, 2008; Wright, Allard, Lecours and Sabourin, 1989). Monat, Averill and Lazarus (1972) argue that when the individual is certain about the transient nature of the stressful phenomenon, they start by experiencing only a small degree of tension, which later increases after more attempts have failed.

Even though assisted reproductive (ART) techniques give hope to those couples who wish to conceive, the fact is that many of these measures turn into a stress factor. To be specific, the process of IVF programmes distinguishes three psychologically significant times when stress rates and a variety of emotional responses may become activated. These moments coincide with the beginning of treatment, the transfer of embryos and the outcome of the pregnancy test (β - hCG) (Klock and Greenfield, 2000). Studies about gender differences in psychological reactions to infertility have shown that women show a higher rate of anxiety and depression as well as a higher loss of self esteem than men (Lee, Sun and Chao, 2001; Moreno et al., 1999; Wright et al., 1991). Nevertheless, it has also been suggested that the experience of infertility is as stressful for men as it is for women (Boivin et al., 1999; Callan and Hennessey, 1988) and that the failed result of an assisted reproductive treatment is frequently accompanied by anxiety, depression and anger in both members of the couple (Laffont and Edelmann, 1994; Newton, Hearn and Yuzpe, 1990). The appraisal of infertility carried out by the couple shows a variety of nuances according to gender (Collins, Freeman, Boxer and Tureck, 1992; Wirtberg, 1992; Wright et al., 1991). Whereas the most important aspect of infertility for women is their wish to have a baby, however, for men it is their...
accomplishment of the role of a man, the social pressure which exerts the obligation to create a family, and the ability to hold together a marriage (Cook, 1993).

A number of studies have shown that in women problems of infertility create feelings of loss of control of their bodily functions, which carries a high degree of stress, whereas men tend to exert better control over their feelings (Chatziandreou, Madianos and Farsaliotis, 2003; Facchinetti, Demyttenaere, Fioroni, Neri and Genazzani, 1992; Mahlstedt, MacDuff and Bernstein, 1987; Miranda, Larrazabal and Laban, 1996). These ideas bring together the thought that the experience of infertility shows differentiating nuances according to gender. A number of variables might be mediating the amount of stress experienced by couples undergoing IVF treatment. One of these variables is related to the number of IVF attempts. Berg and Wilson (1991) found an increase of emotional stress after the third year of infertility treatment. Verhaak, Smeenk, van Minnen, Kremer and Kraaimaat (2005) found that, after the first failed attempt, women’s stress increases, which may bring about a risk factor for the manifestation of a depressive disorder. In the same line of thought, Guerra, Llobera, Veiga and Barri (1998) argue that the number of IVF attempts may be related to depression and anxiety.

Another variable that may be involved in level of stress before initiating an IVF treatment is the couple’s appraisal of infertility. According to Lazarus and Folkman (1984), when a stressor has to be coped with, the individual carries out a primary assessment of such stressor and calibrates the way of how it may affect them. A number of studies have highlighted that how a patient appraises their infertility is related to stress level (Bolter, 1997; Hansell, Thorn, Prentice-Dunn and Floyd, 1998).

According to the bibliographical review that we have carried out, few studies have categorized the different types of stressors linked to the experience of infertility or analysed differences on the basis of gender. This study seeks to a) analyse the stressors related to infertility, according to gender and number of IVF attempts, b) find out the degree of stress linked to infertility, and c) investigate the appraisal of such experience. On the basis of the bibliography studied, we hypothesize that the level of stress of these couples is high, especially in women, and that there are differences according to the type of stressors and to the number of IVF attempts.

METHOD

Participants

The study consisted of 92 heterosexual couples undergoing IVF treatment at the Assisted Reproduction Unit at Barcelona’s Hospital Clinic, Spain from October 2004 to June 2005. The patients were selected by means of a non probability sampling of consecutive cases. The average age of males was 36.04 years (SD = 4.33; range: 24 – 56) and that of females was 34.07 years (SD = 2.82; range 25 – 41). The treatment was first undergone by 39% of the couples, the second time by 33% and the third or more times by the remaining 28%. As for the type of infertility, 37% was of unknown origin, 33% of male origin and 30% of female origin. In 95% of the cases the infertility was primary, and secondary in the 5% remaining cases. Ninety-five percent of the couples had never conceived, and 4% of the couples achieved pregnancy but it never came to a successful conclusion.

Instruments

The Adult Coping Responses Inventory Form (CRI-A) (Moos, 1993), which assesses coping responses in face of a given stressor, was adapted to the Spanish context (Kirchner, Forns, Muñoz and Pereda, 2008). The test consists of three sections, namely description of a problem, appraisal of it and strategies designed to cope with it. This study applied the first and second sections of the questionnaire. In the first section, the participants had to describe the most important problem related to their experience of infertility that had taken place over the last twelve months. The second section evaluated the assessment that the patients had made of their problem, namely the first confrontation with the problem (previous experience of the problem, awareness of its occurrence and time necessary to cope with it), its first assessment (regarding the problem as a threat or as a challenge) and attribution of responsibility for the problem to oneself or to others. The stress rate related to infertility was assessed by an ad hoc item which was measured in a number scale with a range of 1 (nothing) to 10 (a lot).

The problems reported by the patients were coded by adapting the system for encoding teenage problems by Forns et al. (2004) to the context of infertility. The problem set out was assessed by focusing on two axes, namely the nature of the problem and the content of the problem. The nature of the problem category identifies whether the type of problem was experienced as personal or happening to the subject, interpersonal or happening to the subject in interaction with one or more people, or external or happening to someone else. The content of the problem category shows the subject matter of the problem according to: the wish to become a parent, psychological implications, waiting time, financial or work implications, biological determining factors, medical procedures and tests, and failure of treatment (See Table 1).

<table>
<thead>
<tr>
<th>CATEGORIES</th>
<th>DESCRIPTION OF THE CATEGORIES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nature of the problem</strong></td>
<td></td>
</tr>
<tr>
<td>1 Personal</td>
<td>Problem that happens to the subject</td>
</tr>
<tr>
<td>2 Interpersonal</td>
<td>Problem linked to the relationship of the subject with other people</td>
</tr>
<tr>
<td>3 External</td>
<td>Problem that happens to someone else</td>
</tr>
<tr>
<td><strong>Content of the problem</strong></td>
<td></td>
</tr>
<tr>
<td>1 Wish for parenthood</td>
<td>Problem related to the wish of being a parent and creating a family</td>
</tr>
<tr>
<td>2 Psychological implications</td>
<td>Problem related to the psychological effect or impact of the stressor: uncertainty, recurrent thoughts about the reasons for infertility, frustration, defencelessness, self-blame, shame, sadness, anxiety, etc.</td>
</tr>
<tr>
<td>3 Waiting time</td>
<td>Problem related to the time to wait and be helped and/or to know the diagnosis</td>
</tr>
</tbody>
</table>
The inter-rate agreement between encoders (Cohen’s Kappa) for the category system presented is the following: nature of the problem ($k = .932$) and content of the problem ($k = .988$). According to Gardner (1995), these rates range between the almost perfect and the perfect.

**Procedure**

This study was integrated within the medical protocol for IVF treatment. All the couples who participated in the study were interviewed at the beginning of the treatment and were informed about the research that was being carried out. In order to meet the deontologic code of the Hospital Clinic in Barcelona, their informed consent was required. The patients were given questionnaires, which had to be filled in within the maximum period of two days in order for the responses to be adjusted to the specific time of the IVF treatment.

**Statistical analysis**

The data were analysed by means of non-parametric statistics. The percentages used quantified the problems reported by the patients. Chi square contrasts plus the Monte Carlo test of accuracy and corrected typified residuals were used to obtain significant differences between and among percentages. The Mann-Whitney U Test was applied to contrast stress differences between genders. Finally, Spearman’s rank correlation related the number of IVF attempts and stress rate.

**FINDINGS**

**Experience of infertility. Problems reported by the IVF population according to gender and number of IVF attempts**

Table 2 shows percentages of infertility related stressors according to gender.

<table>
<thead>
<tr>
<th>Nature of the problem</th>
<th>Total</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal</td>
<td>79</td>
<td>71.7</td>
<td>85.9**</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>14</td>
<td>15.2</td>
<td>13</td>
</tr>
<tr>
<td>External</td>
<td>7</td>
<td>13**</td>
<td>1.1</td>
</tr>
</tbody>
</table>

Most of the problems reported by the patients were personal ($\chi^2 = 10.627; df = 2; p = .004$, Monte Carlo test of accuracy applied). More women than men experienced the infertility problem as a personal problem (corrected typified residuals = 2.3), and more men experienced it as something external (corrected typified residuals = 3.2). Significantly different percentages related to the content of the problem ($\chi^2 = 72.793; df = 6; p < .001$) can be seen. The most often reported problem was the wish for parenthood, followed by the fear of treatment failure and the medical procedures and tests that the patients had to undergo. None of these problems ($\chi^2 = 6.92; df = 6; p = .328$) pointed out any difference in relation to gender except for the financial or work implications inherent to the treatment, which showed a higher percentage for men than for women (corrected typified residuals = 2.1).

The application of the Monte Carlo test of accuracy showed that neither women nor men associated the number of IVF attempts (1, 2, or more) to the nature of the problem but to the content of it ($\chi^2 = 25.54; df = 12; p = .010$). The waiting time (corrected typified residuals = 2.4) and the use of medical procedures and tests (corrected typified residuals = 2.5) concerned more those couples who were undergoing IVF for the first time, whereas the problems related to biological determining factors such as health state and age concerned more those couples in the second attempt (corrected typified residuals = 2.1).

**Degree of stress from infertility related problems according to gender and number of attempts**

The average level of stress reported by men (scale 1-10) was 6.29 ($SD = 2.34$) and by women it was 7.41 ($SD = 2.14$). These differences are significantly higher in women ($U = 2981.5; p < .001$). The maximum levels of intensity and stress (9 and 10) were reported by 15.2% of men and 32.6% of women. The male or female stress rate did not vary in relation to the nature or content of the problem ($p = .05$ in all the contrasts). The number of IVF attempts was related to an increase of the stress rate in women ($r_s = .283; p = .006$), but not in men.
Assessment of the problem according to gender and the number of failed IVF attempts

Most of the patients had never thought that they were ever going to experience an infertility related problem or had ever had to cope with a similar problem. Almost half the patients regarded it as a threat. Table 3 shows the percentages of affirmative responses to each of the items of the second section of the CRI-Adult Form. No significant differences can be seen between men and women ($p = .05$ in all the contrasts).

<table>
<thead>
<tr>
<th>Problem assessment items</th>
<th>Total (%)</th>
<th>Men (%)</th>
<th>Women (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Previously solving a similar problem</td>
<td>16</td>
<td>14</td>
<td>17</td>
</tr>
<tr>
<td>2. Knowing that the problem was going to happen</td>
<td>9</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>3. Preparation time to cope with the problem</td>
<td>36</td>
<td>39</td>
<td>33</td>
</tr>
<tr>
<td>4. Assessing the problem as a threat</td>
<td>47</td>
<td>45</td>
<td>48</td>
</tr>
<tr>
<td>5. Assessing the problem as a challenge</td>
<td>27</td>
<td>27</td>
<td>26</td>
</tr>
<tr>
<td>6. Self-attributing responsibility for the problem</td>
<td>8</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>7. Attributing to someone else responsibility for the problem</td>
<td>5</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>8. Obtaining something positive from coping with the problem</td>
<td>43</td>
<td>46</td>
<td>40</td>
</tr>
</tbody>
</table>

Table 3. Percentage of affirmative responses to the CRI-A items about the assessment of the problem

As the number of failed IVF attempts followed one another, the men stopped regarding the problem as a challenge ($\chi^2 = 11.195; df = 3; p = .011$; corrected typified residuals = 2.5) and the women tended to attribute the reason for the problem to themselves ($\chi^2 = 12.699; df = 3; p = .005$).

DISCUSSION

Few studies have categorised infertility related stressors, established their relationship with stress rate and with the first appraisal made of them, and differentiated the findings in relation to gender. The infertility problem is regarded by couples undergoing assisted reproduction as a personal problem and the experience is more frequent in women than in men. A low but significant percentage of men expresses the problem as something external to them. Women’s experience of infertility as something personal may be related to the fact that their participation in the IVF process is more active due to the medical tests and the IVF treatment proper, irrespective of the type of infertility. The different reaction to infertility according to gender has been repeatedly reported by the scientific bibliography (Lee et al., 2001). The most important infertility related problem for both genders is the difficulty to be able to satisfy their desire for parenthood, which is followed by stressors linked to various aspects of the treatment, such as medical procedures and tests, fear of the treatment, and the psychological implications inherent in it, such as feelings of hopelessness, frustrations, or self-blame, among others.

These findings are in the same line as the ones reported by Guerra (1988) and Jenaro, Moreno-Rosset, Antequera and Flores (2008). More men than women are concerned about the financial and work consequences that the IVF treatment entails. In general terms, the problems encountered by this sample population coincide with the ones found by Domar (1997), Brighenti, Martinelli, Ar denti and La Sala (1997), Fekkes et al. (2003) and Meyers et al. (1995), who argue that from the time when the couples receive the diagnosis of infertility until the time when the treatment is initiated, they, especially women, gradually go through invasive techniques, the spending of time and money, and many different procedures which end up being a source of stress and concern in themselves.

This research has found that a couple’s focus of concern varies in relation to the number of failed IVF attempts they have gone through. At the beginning of the treatment they are worried about issues related to medical procedures and tests and to waiting time. In the successive IVF attempts they show more concern about issues related to biological determining factors such as age and their health. These findings have also been remarked on by Antequera et al. (2008).

The conclusion that the IVF process is more stressful for women than for men coincides with the findings obtained by Berg and Wilson (1991), Bolter (1997), Hansell et al. (1998), Verhaak et al. (2005) and Wright et al. (1991). Nevertheless, this higher stress rate for women is a constant in the scientific literature and cannot be exclusively attributed to the effect of the IVF treatment, since this fact is also evident in the general population coping with problems other than infertility (Kirchner et al., 2008). The data presented by this study demonstrates that as successive IVF attempts fail, women show an increase of stress, which is not observed in the case of men. This information might indicate a higher implication and active participation of women in the treatment and, therefore, a higher degree of frustration when the treatment has failed.

The average degree of stress which the patients manifested at the beginning of the IVF treatment ranges between medium rates in men and somewhat higher rates in women, although an important dispersion can be seen in the findings. As a matter of fact, 15% of men and 33% of women report maximum stress scores. This data is in line with the previous findings (Domar, Broome and Zuttermeister, 1992; Meyers et al., 1995; Thiering, Beaurepaire, Jones, Saunders and Tennant, 1993) and differs from those provided by other studies (Bevilacqua, 1998; Edelmann, Connolly and Bartlett, 1994; Lord and Robertson, 2005) which have found that the stress rates of the patients who initiate an IVF treatment does not differ from those of the general population. Nevertheless, as Lord and Robertson (2005) point out, the findings obtained from average scores may be masking important percentages of patients with high levels of distress.

In relation to the first appraisal of the infertility problem, the great majority of couples show surprise at this fact and state never having
thought that it could happen to them. More than 50% of the couples regret the lack of time to cope with it.

The problem of infertility is experienced rather as a threat than as a challenge that may provide something positive. The man links the challenge to biological determining factors and to the challenge generated by the medical tests. The challenge for women consists in coping with uncertainty, frustration, defencelessness, self-blame, shame, sadness and anxiety, as well as with the uncertain outcome of the treatment.

As the IVF attempts continue, men stop looking at it as a challenge and women tend to attribute the reason for the problem to themselves, which may lead women to increase their negative feelings that are pointed out by some authors (Domar et al., 1992).

The conclusions of this research may be extrapolated to infertile couples who seek assistance in private assisted reproduction centres. In this sense, it would be desirable to retest the data with infertile couples going to public services in which the waiting time to be attended to is considerably higher and variables relative to economic factors and to the limitation on the number of treatments may influence the findings.

Among the strong points of this research is the detailed analysis of a variety of dimensions of the problems linked to infertility (nature and content), the degree of stress that they generate, and the assessment of these problems and their dimensions, which affect the couples throughout their successive IVF attempts. We also consider a strength of this research to have included both members of the couple in the study. These analyses make this a pioneer study in Catalonia.

To sum up, the tendency of patients diagnosed with infertility to personalize the problem, especially in the case of women, and the progressive increase in the degree of stress in the successive attempts make it advisable to strengthen and to establish psychological support programmes within the fertility health services (Moreno and Ávila, 2009). These programmes should have a general component taking both members of the couple into consideration, given the fact that our research has drawn attention to infertility in combination with the start of IVF treatment is a stressor affecting them both. Furthermore, it should be a specific component that fundamentally influences women’s feelings related to the self, sadness, shame and uncertainty. As for men, it should maintain their experience of the problem as a challenge, since this feeling decreases during the IVF treatment.

REFERENCES


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The fourth page is to again contain the title of the article, without the names of the authors, and the text is to be developed. The structure or sections to be included in the papers are specified in the specific norms for each type of publication: empirical (see paragraph 14), theoretical (see paragraphs 15 to 17) or clinical cases (see paragraphs 18 to 21). Tables and illustrations (graphics, figures, etc.) contained in papers are to be submitted separately, each one in a different page, correlative numbered and together with a header containing the number and title of the same allowing the clear identification of its content. The desired and approximate place for tables and / or illustrations is to be indicated in the text. Tables are to be simple and in accordance with the norms and styles of APA and are not to include vertical lines.

All quotations appearing in the paper are to be present in the list of references and all references are to be quoted in the text. Quotations are to be inserted in the text (never as footnote). Authors’ surnames are to be written in lower-case with the exception of the first letter. Initials of names are not to be specified unless necessary in order to distinguish two authors with the same surname (Example: J.M. Zarit y Zarit, 1982).

If the author’s surname is part of the narration, only the year of publication of the article is to be included between brackets (example: According to Olesen (1991) three different types of sensory afferents in migraines can be distinguished…). If the surname and publication date are not part of the narrative, both elements are to be included...
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If a paper has two authors, both surnames are to be quoted every time the reference appears in the text (ex: Folkman and Moskowitz (2004) reviewed the situation of the investigation of the confrontation strategies…). If a paper has three, four or five authors, all of them are to be quoted the first time the reference appears in the text, and, in the following quotations of the same paper, only the surname of the first author followed by the phrase "et al" and the year of publication are to be written (for ex: Rodríguez, Terol, López and Pastor (1992) adapted the questionnaire…As mentioned before, Rodríguez et al. (1992) adapted the questionnaire…). If a paper has six or more authors, then only the surname of the first author is to be mentioned followed by the phrase "et al" together with the date of publication, as from the first quotation in the text.

If two or more works by different authors are quoted in a same reference, they will be written alphabetically, surnames and respective publication dates separated by a semicolon within the same brackets (for example:…it is absurd to dissociate the confronting strategies from the personality of the person using them ((Bouchard, 2003; Bouchard, Guillaume and Landry-Léger, 2004; David and Suls, 1999; Ferguson, 2001; Vollrath and Torgersen, 2000)…). If there are several quotations of the same author, the surname and publication dates of the different works are to be written separated by commas and followed by a letter if being from the same year (for example:…as stated by McAdams (1995, 1997a, 1997b, 1997c)…).

The list of bibliographic references is to appear in a new page, at the end of the paper, in alphabetical order by the authors’ surnames and initials. The second line of each entry of the list is to be indented in five spaces (one indentation). The titles of books or journals are to be written in italics and, in the case of journals, the italics are to cover not only the title but up to the number of the issue (including the commas before and after the issue number). Only one space is to be left after every punctuation mark. For example:


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Discussion

Conclusions

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The structure is to be the following:
- Introduction and thesis (aspect to be expound or defended)
- Discussion
- Conclusions (short and clearly delimited)
- References

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In this section, the description of one or more clinical cases is to be collected, which presume a contribution and/or important repercussion to the knowledge of the analyzed process, due to their peculiarities.

Articles in this section, besides following a logical order and clear presentation, may follow these structures:
- Theoretical Background Or: a) Introduction
- Participants b) Description of the clinical case(s)
- Processes for Assessment c) Discussion
- Treatment d) References
- Results
- References

In the description of cases, no real name or initials of the patients with whom the research for publication has been performed are to be mentioned. Review and Publication of Works:

Works meeting the requirements mentioned above will be anonymously reviewed by experts on the subject, who will inform the direction of the journal of the valuation and possible modifications to be made to the same. Such valuation will be sent by the direction to the author within a maximum period of three months.

Once the article has been valuated, modified (if applicable), reviewed and definitely accepted, the publication of the article is to be determined by the direction and the main author is to be informed of the date and issue where the article is to be published. In any case, the final decision for publication of an article is responsibility of the direction of the journal.

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