

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

Óscar Sánchez Hernández¹, Xavier Méndez Carrillo², Judy Garber³.

¹*Doctoral candidates in Clinical and Health Psychology. University teacher training scholar Department of Personality, Psychological Assessment and Treatment. University of Murcia.*

²*Professor of Psychology. Department of Personality, Psychological Assessment and Treatment. University of Murcia.*

³*Professor of Psychology. Department of Psychology and Human Development. Vanderbilt University. Nashville (USA).*

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 interview 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

Received: 4 November 2009

Accepted: 20 January 2010

INTRODUCTION

One challenge for health professionals, parents, teachers and coaches is how to motivate their patients, children, students or sportspeople 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 fulfilment, 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

Corresponding author: Óscar Sánchez. Department of Personality, Psychological Assessment and Treatment. University of Murcia, Spain. Telephone: 34 – 868 887 722. E-mail: oscarsh@um.es

personalization (internal versus external attributions), *permanence* (temporary versus permanent) and *pervasiveness*, 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 Winteler, 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, Grolnick 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 eudaimonia 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 Leahy (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, posttest) 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.

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 (Prochaska 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, Pato 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 timetable 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 ($r_{xy} = - 0,30$; $p = 0,010$), 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* ($r_{xy} = - 0,35$; $p = 0,002$), *permanence* ($r_{xy} = - 0,28$; $p = 0,017$), *self* ($r_{xy} = - 0,29$; $p = 0,013$), *hope* ($r_{xy} = - 0,31$; $p = 0,007$), *reasons* ($r_{xy} = - 0,40$; $p = 0,001$) and *universal optimism* ($r_{xy} = - 0,34$; $p = 0,004$). In *pervasiveness* ($r_{xy} = - 0,21$; $p = 0,076$) and *consequences* ($r_{xy} = - 0,15$; $p = 0,196$) 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 (temporary 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 ($r_{xy} = 0,215$) and in hope ($r_{xy} = 0,230$). The effect size of the remaining correlations, around $r_{xy} = 0,150$, 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 ($r_{xy} = 0,25$; $p = 0,026$), particularly in *restlessness / hypersensitivity* ($r_{xy} = 0,27$; $p = 0,018$) 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.

	Control group		Experimental group	
	Pre-test	Post-test	Pre-test	Post-test
ACSQ:	3,33 (0,80)	-	3,12 (0,84)	-
total score				
CMAS-R:	13,50 (5,20)	-	14,44 (5,10)	-
total score				
DBS:	31,57 (5,23)	29,87 (7,12)	30,71 (6,93)	28,29 (5,91)
pros				
DBS:	24,60 (5,37)	22,81 (4,90)	23,14 (5,42)	23,57 (4,26)
cons				
DBS: Decisional balance	6,98 (6,89)	7,06 (6,61)	7,57 (6,81)	5,80 (4,67)

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 ($r_{xy} = 0.288$). 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 Dozois (2006). However, it would be wise to be cautious 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 Cozois

(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 aimed to work on in 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

Abramson, L. Y., Seligman, M. E. P. y Teasdale, J. (1978). Learned helplessness in humans: Critique and reformulation. *Journal of Abnormal Psychology*, 87, 49-74.

Abramson, L. Y., Metalsky, G. I. y Alloy, L. B. (1989). Hopelessness depression: A theory-based subtype of depression. *Psychological Review*, 96, 358-372.

Ainley, M., Hidi, S. y Berndorff, D. (2002). Interest, learning and the psychological processes that mediate their relationship. *Journal of Educational Psychology*, 94, 545-561.

Allart, E., Hosman, C. M. H. y Keijsers, G. P. J. (2004). A new instrument to assess participant

motivation for involvement in preventive interventions. *Journal of Clinical Psychology*, 60, 555-565.

Arkowitz, H., Westra, H. A., Miller, W.R. y Rollnick, S. (2008). *Motivational interviewing in the treatment of psychological problems*. Nueva York: Guilford Press.

Arnkoff, D. B., Glass, C. R. y Shapiro, S. J. (2002). Expectations and preferences. En J. C. Norcross (Ed.), *Psychotherapy relationships that work: Therapist contributions and responsiveness to patients* (pp. 325-346). Nueva York: Oxford University Press.

Bowlby, J. (1979). *The making and breaking of affectional bonds*. Londres: Tavistock.

Brehm, S. S. y Brehm, J. W. (1981). *Psychological reactance: A theory of freedom and control*. Nueva York: Academic Press.

Calvete, E., Villardón, L., Estévez, A. y Espina, M. (2008). La desesperanza como vulnerabilidad cognitiva al estrés: Adaptación del Cuestionario de Estilo Cognitivo para Adolescentes. *Ansiedad y Estrés*, 14, 215-227.

Carr, A. (2007). *Psicología positiva: La ciencia de la felicidad*. Buenos Aires: Paidós.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2.ª ed). Hillsdale, Nueva Jersey: Erlbaum.

Csikszentmihalyi, M. y Rathunde, K. (1993). The measurement of flow in everyday life: Toward a theory of emergent motivation. En J. E. Jacobs (Ed.), *Developmental perspectives on motivation* (pp. 57-97). Lincoln: University of Nebraska Press.

Deci, E. L. (1975). *Intrinsic motivation*. Nueva York: Plenum.

Deci, E. L. y Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. Nueva York: Plenum Press.

Deci, E. L. y Ryan, R.M. (2000). The "what" and "why" of goal pursuits: human needs and the self-determination of behavior. *Psychological Inquiry*, 11, 227-68.

Deci, E. L. y Ryan, R. M. (2008). Facilitating optimal motivation and psychological well-being across life's domains. *Canadian Psychology*, 49, 14-23.

Depue, R. A. (1996). A neurobiological framework for the structure of personality and emotion: Implications for personality disorders. En J. F. Clarkin y M. F. Lenzenweger (Eds.), *Major theories of personality disorder* (pp. 347-391). Nueva York: Guilford Press.

Fredrickson, B. L. (1998). What good are positive emotions? *Review of General Psychology*, 2, 300-

319.

Gardner, H. (1993). *Frames of mind: The theory of multiples intelligences* (2.^a ed). Glasgow: Fontana.

Gillham, J. (2000). *The science of optimism and hope*. Filadelfia, PA: Templeton Foundation Press.

Gillham, J. E., Hamilton, J., Freres, D. R., Patton, K. y Gallop, R. (2006). Preventing depression among early adolescents in the primary care setting: A randomized controlled study of the Penn Resiliency Program. *Journal of Abnormal Child Psychology*, *34*, 195-211.

Hankin, B. L. y Abramson, L. Y. (2002). Measuring cognitive vulnerability to depression in adolescents: Reliability, validity, and gender differences. *Journal of Clinical Child and Adolescent Psychology*, *31*, 491-504.

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

Hidi, S. y Berndorff, D. (1998). Situational interest and learning. En L. Hoffman, A. Krapp, K. A. Renninger y J. Baumert (Eds.), *Interest and learning* (pp. 74-90). Kiel: IPN.

Horowitz, J. L. y Garber, J. (2006). The prevention of depressive symptoms in children and adolescents: A meta-analytic review. *Journal of Consulting and Clinical Psychology*, *74*, 401-415.

Huertas, J. A. (2008). Las teorías de la motivación desde el ámbito de lo cognitivo y lo social. En F. Palmero y F. M. Sánchez (Eds.). *Motivación y Emoción*. Madrid: McGraw-Hill.

Jaycox, L. H., Reivich, K. J., Gillham, J. y Seligman, M. E. P. (1994). Prevention of depressive symptoms in school children. *Behaviour Research and Therapy*, *32*, 801- 816.

Kashdan, T. B. (2004). Curiosity. En C. Peterson y M. E. P. Seligman (Eds.), *Character strengths and virtues: A handbook and classification* (pp. 125-141). Washington, DC: American Psychological Association and Oxford University Press.

Kashdan, T. B. y Breen, W. E. (2008). Social anxiety and positive emotions: A prospective examination of a self-regulatory model with tendencies to suppress or express emotions as a moderating variable. *Behavior Therapy*, *39*, 1-12.

Kashdan, T. B. y Fincham, F. D. (2004). Facilitating curiosity: A social and self-regulatory perspective for scientifically based interventions. En P. A. Linley y S. Joseph (Eds.), *Positive psychology in practice* (pp. 482-503). Nueva York: Wiley.

Kashdan, T. B., Rose, P. y Fincham, F. D. (2004). Curiosity and exploration: Facilitating positive subjective experiences and personal growth opportunities. *Journal of Personality Assessment*, *82*, 291-305.

Kashdan, T. B. y Silvia, P. (2009). Curiosity and interest: The benefits of thriving on novelty and challenge. En S. J. López y C. R. Snyder (Eds.), *Oxford handbook of positive psychology* (2.^a ed., pp. 367-374). Nueva York: Oxford Press.

Kashdan, T. B. y Steger, M. F. (2007). Curiosity and pathways to well-being and meaning in life: Traits, states, and everyday behaviors. *Motivation and Emotion*, *31*, 159-173.

Kashdan, T. B. y Yuen, M. (2007). Whether highly curious students thrive academically depends on the learning environment of their school: A study of Hong Kong adolescents. *Motivation and Emotion*, *31*, 260-270.

Krapp, A. (1999). Interest, motivation, and learning: An educational-psychological perspective. *European Journal of Psychology in Education*, *14*, 23-40.

Leahy, R. L. (2002). *Overcoming resistance in cognitive therapy*. Nueva York: Guilford.

Liedekerken, P., Jonkers, R., Haes, W., Kok, G. y Saan, J. (1990). *Effectiveness of health education*. Assen: Van Gorcum.

Lowry-Webster, H. M., Barrett, P. M. y Lock, S. (2003). A universal prevention trial of anxiety symptomatology during childhood: Results at 1-year follow-up. *Behaviour Change*, *20*, 25-43.

Méndez, F. X., Espada, J. P. y Orgilés, M. (2008). *¿Depresión o felicidad?* Vigo: Nova Galicia.

Méndez, F. X., Rosa, A. I., Montoya, M., Espada, J. P., Olivares, J. y Sánchez, J. (2002). Tratamiento psicológico de la depresión infantil y adolescente: ¿Evidencia o promesa? *Psicología Conductual*, *10*, 563-580.

Miller, W. R. (1983). Motivational interviewing with problem drinkers. *Behavioural Psychotherapy*, *11*, 147-172.

Miller, W. R., Benefield, R. G. y Tonigan, J.S. (1993). Enhancing motivation for change in problem drinking: A controlled comparison of two therapist style. *Journal of Consulting and Clinical Psychology*, *61*, 455-461.

Miller, W. y Rollnick, S. (1991). *Motivational interviewing: Preparing people to change addictive behaviour*. Nueva York: Guilford Press.

Miller, W. y Rollnick, S. (2002). *Motivational interviewing: Preparing people for change*. Nueva York: Guilford Press.

Patterson, G. y Chamberlain, P. (1994). A functional analysis of resistance during parent training. *Clinical Psychology: Research and Practice*, *1*, 53-70.

- Pérez-Sales, P. (2008). Psicoterapia positiva en situaciones adversas. En C. Vázquez y G. Hervás, (Eds.) *Psicología positiva aplicada* (pp. 155-190). Bilbao: Desclée de Brouwer.
- Prochaska, J. (1999). How do people change and how can we change to help many more people? En M. Hubble, B. Duncan y S. Miller (Ed.), *The heart and soul of change* (págs. 227-255). Washington, DC: American Psychological Association
- Prochaska, J. y Norcross, J. (2004). *Systems of psychotherapy: A transtheoretical analysis* (5.ª ed). Nueva York: Wadsworth.
- Prochaska, J., Norcross, J. y DiClemente, C. (1994). *Changing for good*. Nueva York: William Morrow.
- Reio, T. G. y Wiswell, A. (2000). Field investigation of the relationship among adult curiosity, workplace learning, and job performance. *Human Resource Development Quarterly*, 11, 5-30.
- Reynolds, C. R. y Richmond, B. O. (1985). *Escala de Ansiedad Manifiesta en Niños (Revisada) CMAS-R*. México: El Manual Moderno.
- Rogers, C. R. (1951). *Client-centered therapy*. Boston: Houghton.
- Rogers, C. R. (1959). A theory of therapy, personality, and interpersonal relationships as developed in the client-centered framework. En S. Koch (Ed.), *Psychology: The study of a science: Vol. 3. Formulations of the person and the social context* (pp. 184-256). Nueva York: McGraw-Hill.
- Ryan, R. M. y Connell, J. P. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. *Journal of Personality and Social Psychology*, 57, 749-761.
- Ryan, R. M. y Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and wellbeing. *American Psychologist*, 55, 68-78.
- Ryan, R. M., Deci, E. L. y Grolnick, W. S. (1995). Autonomy, relatedness, and the self: Their relation to development and psychopathology. En D. Cicchetti y D. J. Cohen (Eds.), *Developmental psychopathology: Theory and methods* (pp. 618-655). Nueva York: Wiley.
- Ryan, R. M. y Grolnick, W. S. (1986). Origins and pawns in the classroom: Self-report and projective assessments of individual differences in children's perceptions. *Journal of Personality and Social Psychology*, 50, 550-558.
- Sánchez, O. y Méndez, F. X. (2009). Prevención de la depresión infantil mediante el fomento del optimismo. *Revista de Psicoterapia*, 18, 77-89.
- Schiefele, U., Krapp, A. y Winteler, A. (1992). Interest as a predictor of academic achievement: A meta-analysis of research. En K. A. Renninger, S. Hidi y A. Krapp (Eds.), *The role of interest in learning and development* (pp. 183-212). Hillsdale, NJ: Erlbaum.
- Seligman, M. E. P. (1998). *Aprenda optimismo: Haga de la vida una experiencia maravillosa*. Barcelona: Grijalbo.
- Seligman, M. E. P., Reivich, K., Jaycox, L. y Gillham, J. (2005). *Niños optimistas*. Barcelona: Random House Mondadori.
- Torres Jiménez, A., Robert, A., Tejero, A., Boget, T. y Pérez de los Cobos, J. (2006). Indefensión aprendida y dependencia de sustancias. *Trastornos Adictivos*, 8(3), 168-75
- Veen, C. (1995). *Evaluation of the IUHPE Project on the effectiveness of health promotion and health education* (12 vols). Utrecht: Dutch Health Education Center.
- Wall, T. D. y Clegg, C. W. (1981). A longitudinal field study of group work redesign. *Journal of Occupational Behavioural*, 2, 31-49.
- Wanberg, C. R. y Banas, J. T. (2000). Predictors and outcomes of openness to changes in a reorganizing workplace. *Journal of Applied Psychology*, 85, 132-142.
- Wanberg, C. R. y Kammeyer-Mueller, J. D. (2000). Predictors and outcomes of proactivity in the socialization process. *Journal of Applied Psychology*, 85, 373-385.
- Weare, K. (2000). *Promoting mental, emotional and social health: A whole school approach*. Nueva York: Routledge.
- Weiner, B. (1974). *Achievement motivation and attributional theory*. Morristown, NJ: General Learning Press.
- Westra, H. A. y Dozois, D. J. A. (2006). Preparing clients for cognitive behavioural therapy: A randomized pilot study of motivational interviewing for anxiety. *Cognitive Therapy and Research*, 30, 481-498.
- Williams, R. (1989). *The trusting heart*. Nueva York: Random House.
- Williams, G. C., Gagné, M., Ryan, R. M. y Deci, E. L. (2002). Facilitating autonomous motivation for smoking cessation. *Health Psychology*, 21, 40-50.
- Williams, G. C., Rodin, G. C., Ryan, R. M., Grolnick, W. S. y Deci E. L. (1998). Autonomous regulation and long-term medication adherence in adult outpatients. *Health Psychology*, 17, 269-276.
- Zuroff, D. C., Koestner, R., Moskowitz, D. S., McBride, C., Bagby, M. y Marshall, M. (2007). Autonomous motivation for therapy: A new nonspecific predictor of outcome in brief treatments of depression. *Psychotherapy Research*, 17, 137-148.