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Solution-Focused versus Problem-Focused Questions: Differential Effects of Miracles, Exceptions and Scales

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The differential impact of solution-focused brief therapy questions was tested. A total of 246 subjects described a personal problem they wanted to solve and were randomly assigned to one of four interventions that involved answering problem-focused versus solution-focused questions: a problem-focused condition, a miracle condition, a scaling condition or an exception condition. Before and after answering the questions, participants completed measures of positive and negative affect, self-efficacy, goal attainment, action steps and solution-focused thinking. The miracle and exception conditions were more effective than the problem-focused condition in reducing negative affect. The scaling condition generated more action steps than the miracle question or the exception question. These findings support solution-focused ideas on the different effects of solution-focused questions, but also suggest that solution-focused and problem-focused questions might be more similar than different in their immediate impact on clients.

Practitioner points

- Solution-focused and problem-focused questions are more similar than different in their immediate impact on clients.
- Among solution-focused questions, the miracle question and the exception question are more effective in reducing negative affect, and scaling questions in generating specific action steps.
- Integrative therapists could use solution-focused questions not only with clients who seem more optimistic but also with less solution-minded ones.

Keywords: outcome research; Solution-focused brief therapy; solution-focused questions; therapeutic questions

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Introduction

Solution-Focused Brief Therapy (SFBT) is a post-modern, constructivist and dialogical therapy approach developed at the Brief Family Therapy Center in Milwaukee (de Shazer *et al.*, 1986) as an alternative to traditional problem-focused family therapy. In SFBT, practitioners co-construct solutions in dialogue with their clients by focusing on their desired futures and capitalising on their strengths and past successes instead of analysing problems and their causes. SFBT is widely used in family therapy (Trepper, 2012), in couple therapy (Connie, 2013), mediation (Bannink, 2007) and child protection work (Berg & Kelly, 2000), to cite a few. Solution-focused techniques have been incorporated into integrative therapy models, such as Solution-Focused Strategic Therapy (Quick, 2008), Collaborative Strengths-based Brief Family Therapy (Selekman, 2005) and the Parent Plus parent training program (Carr *et al.*, 2017). Bradley *et al.* (2010) found SFBT to be one of the three theoretical perspectives (together with cognitive-behavioural and Bowen family systems theory) that a majority of North American marriage and family therapists list among the top five approaches 'most valuable to their work'.

SFBT is based on asking and following up on a limited number of questions and their variations. These solution-focused questions are not understood as mere information-gathering tools, but as interventions in their own right. It is understood that they have a therapeutic impact on clients because of the presuppositions they convey (McGee *et al.*, 2005). The three most important types of questions in the SFBT literature are miracle questions, questions on exceptions, and scaling questions (de Shazer, 1991, 1994; de Shazer *et al.*, 2007). The miracle question was developed as a way to prompt the detailed description of clients' goals (de Shazer, 1991) by inviting clients to describe their preferred future (Bavelas *et al.*, 2013). Exceptions are those occasions when a problem could have happened, but something else happened instead (de Shazer *et al.*, 1986); exception questions are intended to identify possible solutions the clients are already using. Scaling questions were originally described by de Shazer (1994) as questions that allow therapists to concretise client statements. Progress scales, for instance, invite clients to rate, typically on a 0-to-10 scale, how far they have advanced in the direction of their goals; this allows them to rate previous improvements and to describe small next steps.

In solution-focused interviews, each of these solution-focused questions is therefore supposed to serve a specific purpose (DeJong

& Berg, 2013; Shazer *et al.*, 2007), and in fact, the 'Solution Focused Therapy Treatment Manual' developed by the Solution Focused Brief Therapy Association describes them as three of the 'specific active ingredients' of SFBT (Bavelas *et al.*, 2013, p. 10). According to this description, in integrative therapeutic practice, these questions could be incorporated to the technical repertoire of marriage and family therapists to accomplish a number of important therapeutic tasks such as describing final goals and generating positive affect (miracle question), capitalising on existing client strengths and successes (exceptions) and negotiating small next steps (scales).

However, the empirical evidence on the therapeutic effects of these three solution-focused questions is scarce. Some studies have analysed the impact of broad solution-focused versus problem-focused conditions (Braunstein & Grant, 2016; Grant, 2012; Grant & Gerrard, 2019; Neipp *et al.*, 2016; Richmond *et al.*, 2014; Wehr, 2010), and others have focused on the impact of single specific SFBT techniques, such as the miracle question (Lloyd & Dallos, 2008, Strong & Pile, 2009), the exploration of exceptions (Strong & Pile, 2012) and pre-treatment changes (Johnson *et al.*, 1998), and the use of scaling questions (Strong *et al.*, 2009). However, so far, no study has directly compared the differential impact of different types of solution-focused questions.

The present study aimed to expand upon Grant's (2012) pioneering study, in which solution-focused questions were found to achieve larger effects than problem-focused questions on a number of variables relevant to therapeutic change: positive and negative affect, self-efficacy, self-rated closeness to the desired goal and action plans to reach it. This study was later replicated on other university student samples by Braunstein and Grant (2016), Grant and Gerrard (2019), Neipp *et al.* (2016) and Theeboom *et al.* (2016). The present study used the same experimental design as the original Grant study, but expanded it by comparing the problem-focused condition with three different solution-focused conditions that represent the basic techniques of SFBT: the miracle question, questions on exceptions, and scaling questions (de Shazer, 1991, 1994). A new dependent variable, solution focused thinking, was included, and also a possible moderator variable, dispositional optimism. Solution-focused thinking (Grant, 2011), that is, participants' orientation towards solutions and explicit cognitive disengagement from problems, is a clinically relevant variable, as it has shown large positive correlations with well-being, resilience and satisfaction with life, and negative correlations with anxiety, stress and depression (Grant, 2012; Neipp *et al.*, 2017). Dispositional optimism is the tendency to have

positive expectations for the future (Scheier *et al.*, 1994). It increases the effort to achieve one's goals and has shown to be associated with the type of coping strategies used in facing stressors (Solberg & Segerstrom, 2006). Therefore, different levels of dispositional optimism could make a difference in how subjects react to solution-focused questions.

The authors expected to support the superiority of the solution-focused conditions over the problem-focused condition in all dependent variables, and to find differential effects for each of the three solution-focused conditions. It was anticipated that the miracle question would have the largest effect on measures of affect, due to the positive emotions that describing a preferred future is supposed to promote (Connie, 2013). It was expected that exceptions would have the largest effect on goal approach appraisal, given that describing exceptions should make changes more salient for clients (de Shazer, 1994). Scales were expected to be most effective in generating action steps, as the invitation to describe what 'one point more' on the scale would look like also invites ideas on possible next steps to be taken (George *et al.*, 1999). The hypotheses were the following:

First, the three solution-focused conditions will result in larger increases in positive affect, larger decreases in negative affect and larger increases in self-efficacy than the problem condition; among the solution-focused conditions, the miracle condition will have the largest effects on positive and on negative affect. Second, the three solution-focused conditions will lead to larger increases in goal approach than the problem condition; among the solution-focused conditions, the exception condition will have the largest effect on goal approach. Third, the three solution-focused conditions will result in larger increases in solution-focused thinking than the problem condition, with no significant differences among the solution-focused conditions. Fourth, the three solution-focused conditions will generate significantly more action steps than the problem condition; among the solution-focused conditions, the scaling questions will have the largest effect.

Method

Participants

A convenience sample of psychology undergraduates was recruited. The sample included 246 students in the first and third year of their degree at two Spanish public universities who gave written informed consent, 43 men (17.5%) and 203 women (82.5%), with a mean age of

21.49 years (*SD* = 2.97; range: 18–50). Students were invited to participate as part of their standard course requirements, guaranteeing the confidentiality of their responses and giving the choice of an equitable alternative activity for those who preferred not to participate in the study.

Instruments

The same variables previously used by Grant (2012) and Neipp *et al.* (2016) were measured:

Affect was measured with the Spanish version of the Positive Affect and Negative Affect Scale (PANAS; Sandín *et al.*, 1999; Watson *et al.*, 1988). It is composed of twenty items with a 5-point response scale (1 = not at all; 5 = very much), from which ten items refer to positive affect (e.g. 'happy', 'positive', 'optimistic') and ten to negative affect (e.g. 'angry', 'frustrated', 'annoyed'). Participants were asked to respond, 'how you feel right now'. Internal consistency of both subscales was adequate with Cronbach's alpha.82 for positive affect and.86 for negative affect. The final scores of positive affect and negative affect were the sum of all items of each subscale.

Self-efficacy, defined as a person's perception of his or her ability to successfully complete a task or solve a problem, was measured by means of three items designed by Grant and translated into Spanish by Neipp *et al.* (2016), using a 6-point response scale (1 = totally disagree; 6 = totally agree): 'Right now I feel very confident that I know how to solve this problem,' 'Right now I feel very confident I can deal with this problem,' 'I am confident that I can find a solution to this problem right now.' Cronbach's alpha was.87. The self-efficacy score is the sum of the three items.

Goal approach was defined for this study as participants' perception of achieving their goals. It was measured by means of a question designed by Grant (2012), who asked participants to 'rate how close you feel right now to your goal of actually solving this problem'. The Spanish translation previously applied by Neipp *et al.* (2016) was used. Participants responded on an 11-point response scale (0 = not solved at all; 10 = completely solved).

As an addition to Grants' original study, the Solution-Focused Inventory (SFI; Grant, 2012) was used, a questionnaire composed of twelve items designed to evaluate *solution-focused thinking* on a 6-point response scale (1 = completely disagree; 6 = completely agree). Solution-focused scores correlate positively with measures of well-being,

resilience and perspective taking. Its adaptation to the Spanish population has showed satisfactory psychometric properties (Neipp *et al.*, 2017). In this adaptation, a factorial structure with one second-order factor and three first-order factors (SFI subscales: goal orientation, resource activation and problem activation) was found. Some example items of each subscale are: 'I always achieve my goals', 'There is always a solution to every problem', and 'I tend to get stuck in thinking about problems'. The three subscales showed adequate internal consistency ($\alpha > .71$). For the purpose of the present study, only the global SFI factor was considered ($\alpha = .81$), whose score is the sum of the twelve items, reversing the negatively worded items; the higher the score, the greater the level of solution-focused thinking.

The Life Orientation Test (LOT-R; Scheier *et al.*, 1994) was used to control for a possible moderator variable. The LOT-R is a ten-item scale composed of six items (example item: 'In uncertain times, I usually expect the best') designed to measure *dispositional optimism* on a 5-point response scale (1 = completely disagree; 5 = completely agree) and four 'fillers'. The LOT-R is a widely used measure for assessing optimism, and the psychometric properties of its Spanish version have been confirmed as acceptable (Ferrando *et al.*, 2002). After reversing the negatively worded items, the sum of the items was computed. Higher total scores indicate greater levels of optimism. Internal consistency was adequate ($\alpha = .76$).

Procedure

Participants were randomly assigned to either the problem condition, the miracle condition, the scaling condition or the exception condition. Each participant worked individually in a laboratory on campus, answering the questions that appeared online on a computer screen. There was no time limit. On average, participants needed forty-two minutes to complete the whole procedure.

In the four conditions, participants were invited to describe a real personal problem they were facing, as follows:

> *'Please take between 5-10 minutes to think and write about a problem that you have that you would like to solve. It should be one that you are worried about and you have not been able to solve. This problem should be real and personal, but something you feel comfortable sharing. It might be a dilemma, that is, a situation in which you feel caught between two or more possible courses of action, or a situation that you don't like.'*

Participants then completed the first set of online measures, which assessed their levels of dispositional optimism, positive and negative affect, self-efficacy, goal approach and solution-focused thinking (time 1). Then, they responded to a series of questions, depending on the experimental condition assigned. Each condition included an initial question that established the broader focus of the inquiry; once participants had answered this initial question, four follow-up questions were presented in order. All questions in all conditions are presented in Table 1.

The questions in the problem-focused condition were based on the formulations used by Grant (2012) and Neipp *et al.* (2016). Solution-focused conditions were selected on the basis of a review of the solution-focused literature (de Shazer, 1986, 1991, 1994; DeJong & Berg, 2013;

TABLE 1 *Questions for each condition*

Conditions	Initial question	Follow-up questions
Problem-focused	Think about your problem. Describe in detail in what way it is affecting you and others. How does the problem make you feel?	• What were the initial causes of the problem? What is the view of others on this?" • What is it that prevents you now from resolving the problem? • What would it take for you to solve the problem? • What would be the first difficulty you would have to overcome?
Miracle question	Imagine that tonight you go to bed and while you are sleeping a sort of 'miracle' happens and the problem you have described is solved. Describe in detail how you would notice tomorrow that this 'miracle' has happened: what different things would you be doing, where, with whom, etc. How would you feel?	• Who else would notice that this 'miracle' had happened? How would they notice? • What effects would doing these 'miracle' things have on you and on others? • What would be a first sign that you are moving towards this 'miracle'? How would others notice? • What could you do to do that?

(Continues)

TABLE 1 *(Continued)*

Conditions	Initial question	Follow-up questions
Scaling questions	Imagine a scale from 1 to 10, where 10 stands for this problem is completely solved, a 1 is when it was at its worst. Where would you say things are between 1 and 10?	• Describe in detail what comes into that number, what is better that when you were at a 1. What are you doing differently? Who else has noticed? (If you have answered '1' to the first question: How are you coping with that?) • How did you do that? What did you to go up from 1 to the number where things are now? (If you have answered '1' to the first question: 'How do you do that?') • What would be a first sign for you that things are one point better than now? How would others know? • What could you do to get there?
Exceptions	Think on the last time when you expected the problem to happen, but it did not. Describe in detail what was different on that occasion: what did you do, where, with whom. How did you feel?	• Who else noticed that things were different on that occasion? How did they notice? • What effect did doing these different things have on you and on other? • How did you do that? How did you make it happen? • What would be the next step you could take?

George *et al.*, 1999) and the SFBT manual of the Solution-focused Brief Therapy Association (Bavelas *et al.*, 2013). In each condition, after the initial formulation, a number of follow-up questions were presented, asking for behavioural details and for the perspective of others. As in the problem condition, the last follow-up question provided closure by asking about possible next small steps, so that each condition could work as an independent intervention for the described problem.

After responding to these questions, participants in the four conditions completed a second set of measures of solution-focused thinking, positive and negative affect, self-efficacy and goal approach (time 2). Finally, participants were asked to list up to twenty *action steps,* defined as specific behavioural steps they could take to reach their goal. If they could not think of any steps, they were required to answer '0'.

Once all data had been gathered, the first author reviewed the problem descriptions and deleted those subjects that had chosen non-personal problems (e.g. 'no peace in the world'). This led to slight differences in the number of subjects in the problem condition ($n = 56$), the miracle condition ($n = 64$), the scaling condition ($n = 62$) and the exception condition ($n = 64$), but the four groups were equivalent in university of origin $\chi^2(3) = 5.144$, $p = .162$; in gender, $\chi^2(3) = 2.124$, $p = .547$; and in age, $F(3, 242) = 0.509$, $p = .676$.

Data analysis

The differential impact of the problem-focused and the solution-focused conditions was evaluated by means of several analyses of covariance (ANCOVAs) with one between-subjects factor (problem condition, miracle condition, scaling condition, exception condition). The dependent variables were positive affect, negative affect, self-efficacy, goal approach and solution-focused thinking measures at time 2, with measures taken at time 1 as covariates. Multiple comparisons were performed applying the Sidak correction. Intergroup differences in the number of action steps generated at time 2 were analysed using an analysis of variance (ANOVA) with one between-subjects factor (condition). The possible moderating effects of optimism were examined by means of ANCOVAs. Effect sizes were estimated using eta squared.

Results

Preliminary analyses

Prior to addressing the differential effects of the four conditions, descriptive statistics and bivariate correlations between dependent variables were computed.

As presented in Table 2, the correlations matrix for dependent variables yielded results that were coherent with theoretical background, with moderate-to-large positive correlations between positive affect, self-efficacy, goal approach and solution-focused thinking, both at time 1 (.33–.74) and

TABLE 2 *Correlations, means and standard deviations for dependent variables*

Measure	1	2	3	4	5	***M***	***SD***
1. PA	–	–.114	.325**	.362**	.323**	30.22	8.31
2. NA	–.149*	–	–.331**	–.262**	–.263**	23.37	8.34
3. SE	.423**	–.361**	–	.739**	.411**	11.71	3.74
4. GA	.431**	–.322**	.762**	–	.341**	6.03	2.30
5. SFT	.387**	–.377**	.490**	.396**	–	53.23	8.64
6. AS	.158*	.143*	.066	.066	–.042	5.96	4.45
M	28.49	25.61	9.91	5.20	52.20	–	–
SD	7.08	8.24	3.42	2.18	8.39	–	–

*Note: Correlations for DVs measured at time 1 (n = 246) are presented above the diagonal, and correlations for DVs measured at time 2 (n = 246) are presented below the diagonal. Means and standard deviations for DVs measured at time 1 are presented in the horizontal rows, and means and standard deviations for DVs measured at time 2 are presented in the vertical columns. PA = positive affect; NA = negative affect; SE = self-efficacy; GA = goal approach; SFT = solution-focused thinking; AS = action steps.*p <.05; **p <.01.*

at time 2 (.39–.76), and moderate negative correlations between negative affect on the one hand and self-efficacy, goal approach and solution-focused thinking on the other hand (–.26 to –.33 at time 1; –.32 to –.38 at time 2). It is worth pointing out the very low or statistically null correlations found between positive and negative affect at time 1 and time 2, according to the orthogonal nature of these constructs, as well as between action steps and the rest of the measures at time 2. As expected, the strongest correlations were found between self-efficacy and goal approach.

Effects of different types of questions

Figure 1 shows the effects of all four conditions for those measures taken twice (i.e. all of them except action steps). Table 3 presents the results from the ANCOVAs undertaken on these dependent variables, in which comparisons across conditions were based on the estimated means on the post-test measure (time 2) once controlled for the pre-test measure's effect (time 1).

Positive affect. ANCOVA yielded no differential effects of the four conditions on positive affect scores (Table 3), which on average increased from time 1 (M = 28.49, SD = 7.08) to time 2 (M = 30.22, SD = 8.31).

A subsequent ANCOVA was performed, by adding a second covariate to the previous one, dispositional optimism, which was not related to

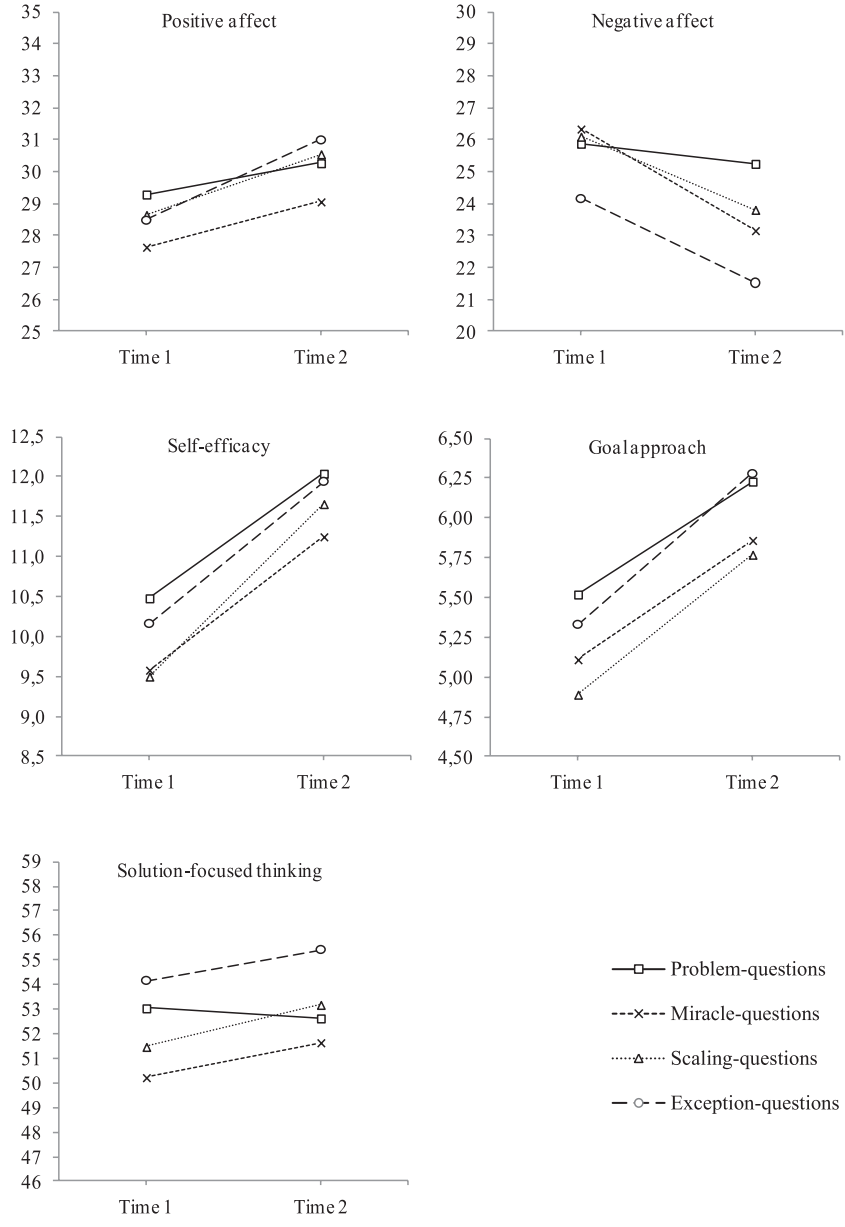

Figure 1. Effects of four types of intervention. Changes in pre-post scores.

TABLE 3 *Analyses of covariance in post-test measures (covariate: pre-test)*

Variable	***M*** (***SE***)	95% CI	***F***(3, 241)	***p***	η^2
Positive affect			1.015	.387	.012
Problem questions	29.52 (0.67)	[28.19, 30.85]			
Miracle questions	29.86 (0.63)	[28.61, 31.10]			
Scaling questions	30.40 (0.64)	[29.14, 31.66]			
Exception questions	31.00 (0.63)	[29.76, 32.24]			
Negative affect			3.302	.021	.039
Problem questions	25.03 (0.64)	[23.77, 26.28]			
Miracle questions	22.55 (0.60)	[21.37, 23.72]			
Scaling questions	23.40 (0.61)	[22.21, 24.60]			
Exception questions	22.71 (0.60)	[21.53, 23.89]			
Self-efficacy			0.394	.757	.005
Problem questions	11.59 (0.35)	[10.90, 12.28]			
Miracle questions	11.51 (0.33)	[10.87, 12.16]			
Scaling questions	11.99 (0.33)	[11.33, 12.64]			
Exception questions	11.75 (0.33)	[11.10, 12.39]			
Goal approach			0.345	.792	.004
Problem questions	5.97 (0.19)	[5.59, 6.35]			
Miracle questions	5.94 (0.18)	[5.58, 6.29]			
Scaling questions	6.03 (0.18)	[5.67, 6.40]			
Exception questions	6.18 (0.18)	[5.82, 6.52]			
Solution-focused thinking			2.522	.058	.030
Problem questions	51.88 (0.57)	[50.75, 53.00]			
Miracle questions	53.41 (0.54)	[52.35, 54.48]			
Scaling questions	53.83 (0.54)	[52.76, 54.90]			
Exception questions	53.65 (0.54)	[52.59, 54.71]			

Note: M = Adjusted mean of the dependent variable at time 2 after controlling for the effect of the measure at time 1; SE = standard error; CI = confidence interval. Covariate values (pre-test): positive affect = 28.49; negative affect = 25.61; self-efficacy = 9.91; goal approach = 5.20; solution-focused thinking = 52.20.

positive affect scores at time 2, $F(1, 240) = 2.410$, $p = .122$. Therefore, the effect of the independent variable (condition) did not substantially differ, $F(3, 240) = .627$, $p = .598$, after controlling for optimism.

Negative affect. ANCOVA showed a significant effect of condition on negative affect scores (Table 3). To contrast the differential effects of the four types of questions, pairwise comparisons applying the Sidak

correction revealed that the miracle condition significantly decreased negative affect compared with the problem condition, p =.029, 95% CI [0.16, 4.79]. In the same way, a difference in the limits of significance was found between the problem and the exception conditions, with lower negative affect scores in the latter, p =.050, 95% CI [0.00, 4.65].

The subsequent ANCOVA controlling for the effect of optimism showed that this covariate was significantly related to negative affect scores at time 2, $F(1, 240) = 6.403$, p =.012. Nevertheless, the effect of the independent variable (condition) remained basically unmodified in this second analysis, $F(3, 240) = 3.371$, p =.0.019, indicating that the participants' level of dispositional optimism had no significant influence on the effects of the four interventions on negative affect.

Self-efficacy. No significant differences across conditions were found in the ANCOVA for self-efficacy scores (Table 3), which on average increased from time 1 (M = 9.91, SD = 3.42) to time 2 (M = 11.71, SD = 3.74).

Participants' dispositional optimism was not related to self-efficacy scores at time 2, as a second ANCOVA including this covariate revealed, $F(1, 240) = 1.312$, p =.253. Consequently, the effect of the independent variable (condition) did not substantially change compared with the first analysis, $F(3, 240)$ =.285, p =.836.

Goal approach. ANCOVA yielded no differences by type of intervention in goal approach scores at time 2 (Table 3) since these scores increased similarly across conditions from time 1 (M = 5.20, SD = 2.18) to time 2 (M = 6.03, SD = 2.30).

The subsequent ANCOVA adding the control for participants' optimism confirmed the independence of this covariate with regard to goal approach scores, $F(1, 240) = 0.016$, p =.898. Therefore, the effect of the independent variable (condition) in this second analysis remained the same, $F(3, 240)$ =.344, p =.794.

Solution-focused thinking. The ANCOVA showed that there were no significant differences across conditions (Table 3), which indicates that the solution-focused thinking scores from time 1 (M = 52.20, SD = 8.39) to time 2 (M = 53.23, SD = 8.64) did not statistically differ after controlling for the effect of the pre-test measure.

Dispositional optimism did not moderate the interventions' effects on solution-focused thinking scores. The subsequent ANCOVA adding optimism as a covariate revealed a significant relationship between

this second covariate and solution-focused thinking scores at time 2, $F(1, 240) = 10.418$, $p = .001$, but the effect of the independent variable (condition) was equivalent, $F(3, 240) = 1.946$, $p = .123$, to the effect previously found without controlling for optimism.

Action steps. The one-way ANOVA indicated significant differences among conditions, $F(3, 242) = 4.951$, $p = .002$, $\eta^2 = .058$. The Games-Howell post hoc procedure (Levene's test $p = .001$) yielded significant differences between the scaling condition and the miracle condition ($p = .037$, 95% CI [0.10, 4.69]). Another difference was found between the scaling and the exception groups ($p = .008$, 95% CI [0.54, 4.79]). Both post hoc analyses showed that the scaling questions ($M = 7.77$, $SD = 5.54$) generated more action steps than the miracle and the exception conditions ($M = 5.37$, $SD = 4.23$ and $M = 5.11$, $SD = 3.28$, respectively).

ANCOVA controlling for optimism revealed that the covariate was not related to the amount of action steps generated, $F(1, 241) = .466$, $p = .49$, and consequently, the effect of the independent variable (condition) remained unaltered, $F(3, 241) = 4.945$, $p = .002$.

Discussion

The results of this study show that all four interventions were effective in producing positive changes in all dependent variables, except for solution-focused thinking. Participants in all four conditions increased their positive affect, decreased their negative affect, increased self-efficacy and goal approach, and generated small action steps to solve their problem.

The first hypothesis on the differential effect of solution-focused versus problem-focused questions was only partially supported. Contrary to previous findings by other teams (Braunstein & Grant, 2016; Grant, 2012; Grant & Gerrard, 2019; Neipp *et al.*, 2016; Theeboom *et al.*, 2016), the solution-focused conditions did not outperform the problem-focused condition in increasing positive affect nor self-efficacy. Data show that this was not due to a worse performance of the solution-focused conditions in this study, but to the fact that the problem condition in this study did better than the problem conditions in previous ones.

As far as negative affect is concerned, two of the three solution-focused conditions outperformed the problem condition. The miracle condition produced the largest reduction in negative affect. This is consistent with the assumption of solution-focused authors that detailed

descriptions of a preferred future generate an emotional impact that counteracts the negativity associated with the problem (Connie, 2013; Ouer, 2015). The miracle condition had a greater effect in reducing negative affect than in increasing positive affect. This could be understood in the sense that the miracle question has an effect primarily by diminishing the demoralisation that problems produce in clients (Frank & Frank, 1993). The exceptions condition followed a similar pattern, suggesting that in our sample asking about exceptions had a greater impact on negative affect than on positive affect.

The second hypothesis was not supported. The solution-focused conditions did not generate a larger increase in goal approach than the problem condition. The exception condition did not perform significantly better than the miracle or the scaling condition in goal approach.

The third hypothesis was not supported. The solution-focused conditions did not outperform the problem conditions in terms of their impact on solution-focused thinking. In fact, solution-focused thinking was the only dependent variable that was not affected by any of the four interventions, suggesting that solution-focused thinking might be better understood as a trait, less amenable to change. However, the solution-focused conditions showed a non-significant trend towards increasing solution-focused thinking, whereas the problem condition showed a trend in the opposite direction (Figure 1). This suggests that longer or more intensive interventions could have had an impact on SFI scores.

The fourth hypothesis was partially supported. Although the solution-focused conditions did not generate significantly more action steps than the problem condition, the scaling condition generated, as predicted, more behavioural action steps than the other two solution-focused conditions. This happened despite the other conditions including a last follow-up question about next steps that could be taken, which could have blurred the differences with the progress scale. This result supports the specific value of scaling questions as a bridge between the description of preferred futures in therapy sessions and the actions to be taken outside the therapist's office, as the clinical literature on SFBT proposes (Connie, 2013; George *et al.*, 1999; Stith *et al.*, 2012).

Taken together, the results show that there were not many differences between solution-focused and problem-focused questions in their immediate impact on participants. The miracle and the exception questions achieved a greater reduction in negative effect, but solution-focused questions were not more effective than problem questions in increasing positive affect, self-efficacy, goal approach or action steps. At the theory level, these results suggest that the uniqueness of solution-focused

questions has been exaggerated without sufficient evidence of truly differential effects on clients, as so often happens in the field of psychotherapy. The results also suggest that SFBT may not be considered so much an alternative to, as a variant of other problem-focused brief therapy models. This conclusion points to integration, clearing barriers to combining solution- and problem-focused techniques, as a number of brief and family therapy authors have done (Quick, 2008; Selekman, 2005).

Within a solution-focused approach, the results lend some support to the contention that different solution-focused questions have specific effects. Miracle questions may be most effective in the reduction of negative effect, and scaling questions probably generate more action steps. These findings are in line with the conversational path proposed in the solution-focused literature (De Jong & Berg, 2013; George *et al.*, 1999), describing that preferred futures facilitate the spotting of exceptions, from where progress scales help to define next steps that could be taken. In this way, the results of this study converge with qualitative research on the solution-building process as it unfolds in SFBT (Froerer & Connie, 2016).

In this study, the effect of questions was not moderated by the pre-existing level of optimism. This finding provides some evidence that solution-focused and problem-focused questions work equally well with clients who present an optimistic stance and with clients who are less optimistic. This is in line with the Helsinki Psychotherapy Project finding that weak dispositional optimism does not inhibit the effectiveness of short-term psychotherapy (Heinonen *et al.*, 2016).

Limitations

Some limitations of this study are inherent to the analogue design that was used: participants were a non-clinical sample of volunteer undergraduate students, most of them women, who answered questions on a problem that bothered them, not actual distressed clients discussing clinical problems with their therapists. This invites caution in any generalisation to clinical samples. Furthermore, within each condition, questions were presented by a computer in a rigid order, so that their effect cannot be assumed to be the same as if they had been asked in the context of an ongoing therapeutic conversation, where therapists can base their questions on their clients' previous responses. Therefore, generalisations from our analogue study to real therapeutic conversations also need to be made with great caution.

Each of the conditions was delivered as a 'stand-alone' intervention, so that each solution-focused question was used on its own and not in the context of a variety of solution-focused questions asked during an ongoing conversation within a supportive therapeutic relationship. Although this diminishes the resemblance to actual SFBT, it also makes the results more relevant for integrative practitioners who wish to use certain solution-focused questions in their practice to decrease negative affect (miracle or exception questions) or to identify possible action steps (scales).

Implications for research and practice

The findings on the differential effects of various solution-focused questions provide some clues for marriage and family therapists who wish to integrate them in their practice. The results of this study provide some empirical support to the use of the miracle question and to the discussion of past successes (exception questions). Both techniques may help to reduce clients' in-session negative affect, probably by promoting a less negative outlook on the situation. They also support the notion that progress scales can be a useful way to help clients identify small next steps towards their goals. The finding that participants' pre-intervention levels of dispositional optimism did not moderate the effect of question types may encourage integrative therapists to use solution-focused questions not only with clients who seem more optimistic to start with, but also with less optimistic or less solution-minded ones.

Replication of this study with face-to-face conversations is needed. A first step in this direction would be to replicate it with real interview conditions instead of online presentations of a fixed set of questions; this would allow the interviewers to adjust their follow-up questions to the responses of the participants. Future studies should also evaluate whether the affective changes, the increases in self-efficacy and goal approach, and the action plans developed during the conversation actually translate into more long term outcomes, into real-life changes outside the therapeutic setting.

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Conflict of Interest

No conflict of interest has been declared by the authors.

Ethical Approval

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