



Solution Focused vs Problem Focused Questions on Affect and Processing Speed among Individuals with Depression

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Abstract

The present study investigated the effect of solution-focused and problem-focused questions on affect and processing speed in a sample of 60 individuals diagnosed with depression. Participants were equally and randomly assigned to the solution focused question group, problem focused question group, and delayed experimental group. The Beck depression inventory-II was used to assess the severity of depressive symptoms of the participants. The positive and negative affect schedule was used to measure affect. Symbol search and coding were used to measure the processing speed. Solution-focused questions significantly reduced negative affect and improved coding compared to problem-focused questions. Even though there was no significant interaction between the groups in positive affect and symbol search test performance, solution-focused questions caused simple effects in both. Findings imply the scope of solution-focused questions as psychological first aid in intervening depression. Possible long-term effects of solution-focused questions on individuals with depression were discussed.

Keywords Solution focused brief therapy · Solution focused questions · Depression · Affect · Processing speed

Introduction

Depressive disorder is characterized by deficits in processing resources, including working memory and processing speed (Miyake et al., 2000; Siedlecki et al., 2020). Recent research suggests that one of the most effective therapeutic strategies for depression is solution-focused brief therapy (Estrada & Beyebach, 2007; Knekt et al., 2004; Koorankot & Shabnam, 2017). Solution-focused questions, an essential

component of solution-focused brief therapy, outperform problem-focused questions in bringing promising changes in the affect of people suffering from depression (Grant, 2012; Koorankot et al., 2019). In traditional psychotherapies, problem-focused questions help identify the presenting problem's etiology, duration, and impact. (Neipp et al., 2015). On the other hand, solution-focused questions are intended to shift thinking from the undesirable past to the desired future. Studies show that solution-focused questions can lead to positive changes in self-efficacy, goal approach, action steps, mood, and skin resistance. (Grant, 2012; Koorankot et al., 2019; Neipp et al., 2015). According to De Shazer et al. (2007), solution-focused questions assist therapists and clients in co-constructing solution language. This questioning strategy is most likely a resource that assists solution-focused therapists in resolving impairments in processing resources and thus improving the neurocognitive functioning of depressed individuals (Lee et al., 2001; Miloyan et al., 2014; Nebes et al., 2000).

Solution-focused therapists use questions presupposing that clients have the strength and resources to think about and describe their preferred future (George et al., 2010; Grant, 2012). While answering solution-focused questions, the client's attention will be drawn to potential solutions rather than the difficulties that brought them to therapy.

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While answering solution-focused questions, the client's attention will be drawn to potential solutions rather than the difficulties that brought them to therapy. Working on the solutions enhances their positive affect (Grant, 2012; Koorankot et al., 2017) and lessens the negative affect (Braunstein & Grant, 2016). An increase in positive affect will broaden perspective and build resources for adaptive coping (Frederickson, 2001). Adaptive coping can enhance processing speed and combat depression. (Spitz et al., 2013). Reducing negative affect diminishes the tendency to ruminate (Johnson & O'Brien, 2013; Ray et al., 2005), which is common in people who suffer from depression (Papageorgiou & Wells, 2003; Spasojevic & Alloy, 2001). Low ruminators are good at processing speed and executive function tasks (Schwert, 2017).

Literature reflects that solution-focused questions, which are effective in influencing affective experiences, are also effective in intervening in processing resource deficits (Siedlecki et al., 2020). According to Kalb et al. (2006), processing speed is negatively correlated with depression and positively correlated with antidepressants. Many studies have shown that improvement in processing speed is a key indicator of curing depression (Brailean et al., 2016; Herrera-Guzmán et al., 2009; MacQueen & Memedovich, 2016). Studies also have shown that traditional problem-focused questions, focusing on the presenting complaints and the origin and determinants of the problems, can less influence the affective experience of the individuals with depression (Neipp et al., 2015). The underpinning assumption of the problem-focused question is that the therapist needs to know the problem etiology to understand it well enough to find a solution. A range of theoretical frameworks can be used in problem-focused questions, including root cause analysis and psychodynamic approaches (Grant & O'Connor, 2010).

In this randomized controlled trial, we examined the effects of solution-focused questions versus problem-focused questions on affect and processing speed in individuals suffering from depression. We used positive and negative affect schedule (PANAS) to measure the affect of the participants. Measures of processing speed included coding (Fry & Hale, 1996; Kail, 2000) and symbol search tests (Fry & Hale, 1996; Groth-Marnat, 2009; Kail, 2000; Kaufman & Lichtenberger, 2006).

Method

Participants and Procedure

The study was initiated after obtaining the ethics committee approval from the Institute of Mental Health and Neurosciences (IMHANS), Kerala, India. The participants included 60 individuals (equal number of men and women)

from the outpatient units of a significant mental health facility in Calicut city premises, Kerala. All participants were diagnosed with depression and referred to undergo psychological interventions. The study procedure was in accordance with the Declaration of Helsinki and the American Psychology Association code of ethics.

After briefing participants and caregivers about the study and its implications, we began data collection. One of the investigators informed them about the participant's roles and rights. After clarifying all the queries, each participant and the concerned caregiver signed written informed consent. Participation was voluntary. Twenty participants were randomly assigned to one of three groups: (1) solution focused questions, (2) problem focused questions, and (3) delayed experimental.

Regardless of group placement, all participants met the following inclusion criteria; Diagnosis of a depressive episode by a mental health professional based on scores (between 14 and 28) from the Beck depression inventory-II (Beck et al., 1996) and criteria consistent with the DSM-5 [F32 Depressive episode (F32.1–F32.9); Recurrent depressive disorder (F33.0–F33.1)]. The age of the participants was between 18 and 50. All the participants completed their senior secondary education. Individuals with comorbid psychosis, a history of neurological conditions, or those under any form of psychotherapy treatment were excluded from the study.

After gathering pre-test data using positive and negative affect schedule (PANAS), symbol search test, and coding, the solution-focused question group was exposed to solution-focused questions and the problem-focused question group was exposed to problem-focused questions for approximately 30 min. The solution-focused and problem-focused questions were adopted from Neipp et al. (2015).

Solution Focused Questions Applied in the Study

Imagine that this night you go to sleep, and while you are sleeping, a sort of 'miracle' happens, and the problem you have just described is solved. Describe how you would notice the next morning that this 'miracle' has happened in as much detail as possible. What would you be doing differently?

How would you understand when you solve the problem?

Describe some steps you could take to start towards solving this problem.

Can you tell me your thoughts, which you will be having when you solve this problem?

Can you tell me how you would feel when you solve your problems?

How do you express your feeling when you solve your problems?

Can you describe your future when you solve this problem?

Problem Focused Questions Applied in the Study

How long has this been a problem for you?

When did it start?

How is this a problem for you, and how is it hampering your life?

What are your thoughts when you are into this problem?

How do you feel when you have these thoughts?

Did you ever have similar problems in the past?

Do you think this problem will hamper your future?

The Delayed Experimental group waited in a controlled situation till the questioning intervention was over in the other groups. Upon completing the questions, the participants again responded to PANAS and performed the symbol-search test and coding. Subsequently, therapists invited the members of the delayed experimental group for supportive psychotherapeutic conversation. The investigators ensured that the data set for analysis had no personal or sensitive information about the participants.

Measures

The affect of the participants was measured using the positive and negative affect Schedule (PANAS). PANAS comprised items on positive affect ($n = 10$) and negative affect ($n = 10$). Respondents rated the momentary experience of affect on a 5-point Likert scale ranging from 1 (very slightly or not at all) to 5 (very much). Watson et al. (1988) reported that Cronbach's alpha coefficient of the positive affect scale was between 0.86 and 0.90, and the negative affect scale was between 0.84 and 0.87. The test-retest correlation in 8 weeks ranged from 0.47 to 0.68 for positive affect and 0.39 to 0.71 for the negative affect. In the non-clinical sample, Cronbach's alpha was 0.89 for positive affect and 0.85 for negative affect (Crawford & Henry, 2004). The validity of the schedule was also reported as being adequate (Crawford & Henry, 2004).

The processing speed of the participants was measured using the symbol search test and coding, the two subtests from the Wechsler adult intelligence scale-IV (WAIS-IV) (Wechsler, 2013). The symbol search test had 60 paired groups of symbols, each with a target group and a search

group. Participants indicated whether either of the target symbols appeared in the search group within a specific time frame (120 s) by ticking the appropriate check box. Coding consisted of a series of numbers, each paired with its own corresponding hieroglyphic-like symbol. The participants used a key to write the symbol that corresponded to its number.

We utilized Beck depression inventory-II (BDI-II) (Beck et al., 1996) to assess the severity of depressive symptoms. BDI-II comprises 21 items, each with a four-point (0–3) response scale. Scores can range from zero to 63, with higher scores reflecting greater severity of symptoms. Scores from zero to 13 indicate no or minimal depression, 14–19 mild depression, 20–28 moderate depression, and scores above 29 severe depression (Beck et al., 1996).

Statistical Analysis

Shapiro Wilk's normality test showed that the pre-test measures of affect, symbol search, and coding were normally distributed in each group. Levene's homogeneity test indicated that the groups are homogenous in the distribution of pre-test measures. One-way ANOVA was used to rule out the between-group difference in affect and processing speed. Mixed multifactor ANOVA was used to analyze and compare the effect of solution-focused and problem-focused questions on positive affect, negative affect, and the performance in symbol search and coding.

The datasets generated and analyzed during the current study are available at <http://dx.doi.org/10.17632/9xyb3mn8w4.1>.

Results

We used one-way ANOVA to test if there is a difference in the pre-test scores of affect and processing speed. Significant between group difference was observed in negative affect ($F = 6.94$, $p < 0.01$), symbol search ($F = 3.93$, $p < 0.05$), and coding ($F = 5.46$, $p < 0.05$). Tukey post hoc between-group pairwise comparison showed that delayed experimental group ($M = 24.3$, $SD = 7.45$) was significantly lower than solution focused question group ($M = 32.55$, $SD = 7.41$) and problem focused question group ($M = 31.1$, $SD = 7.57$) in the pre-test scores of the negative affect. The pre-test scores of symbol search test were significantly higher in solution focused question group ($M = 27.35$, $SD = 7.77$) than delayed experimental group ($M = 22.15$, $SD = 6.03$). Solution focused question group ($M = 58.2$, $SD = 16.19$) performed significantly better than problem focused question group ($M = 41.55$, $SD = 13.32$) in coding in the pre-test.

Mixed multifactor ANOVA (Table 1) showed that the three groups did not show a between-group interaction effect in positive affect. However, the solution focused question group had a significant increase ($F=6.62, p<0.05$) in positive affect from pre-test ($M=25.60, SD=7.92$) to post-test ($M=29.15, SD=8.55$) with a large effect size ($\eta^2_p=0.26$). In the problem-focused question group and the delayed experimental group, the change in positive affect was minimal and insignificant.

Solution-focused questions had a significant effect on the negative affect ($F=12.14, p<0.01$), with a large effect size ($\eta^2_p=0.39$). There was a significant reduction of negative affect in solution focused question group from pre-test ($M=32.55, SD=7.41$) to post-test ($M=27.60, SD=9.13$). This significant change in negative affect did not occur in the problem focused question group and delayed experimental group. There was a significant between-group interaction effect ($F=4.11, p<0.01$) with a large effect size ($\eta^2_p=0.13$), indicating that solution-focused questions reduced the negative affect. However, Tukey post hoc between-group pairwise comparison showed that this was a type one error. The difference between the groups was not significant.

After the solution focused questions, the participants in the solution focused question group showed a significant improvement (pre-test $M=27.35, SD=7.77$; post-test $M=31.7, SD=9.92$; $F=13.11, p<0.01$) in their symbol search test performance with a very large effect size

($\eta^2_p=0.41$). Between-group interaction effect was not significant in symbol search test performance. However, Tukey post hoc between-group pairwise comparison showed that the difference between solution focused question and problem focused question groups was significant ($MD=6.93, t=2.96, p<0.05$). The difference between solution focused question group and delayed experimental group were also identified as significant ($MD=6.05, t=2.58, p<0.05$) in the post hoc analysis.

Coding increased significantly ($F=37.09, p<0.01$) in solution focused question group from pre-test ($M=58.2, SD=16.19$) to post-test ($M=67.05, SD=17.64$) with a very large effect size ($\eta^2_p=0.66$). Also, there was a significant between group interaction ($F=10.46, p<0.01$) with a large effect size ($\eta^2_p=0.27$). Tukey post hoc between-group pairwise comparison revealed that the solution focused question group improved coding more than the problem focused question group ($MD=19.78, t=3.77, p<0.01$) and the delayed experimental group ($MD=13.48, t=2.57, p<0.05$).

Discussion

As per the results, positive affect improved, and negative affect decreased significantly in the solution-focused question group, but with little interaction effect with problem-focused and delayed experimental question groups. The

Table 1 Mixed multifactor ANOVA showing between-group and within-group interaction in affect and processing speed (symbol search and coding)

Variables	Groups	Mean (SD)		Within-group effects		Between-group effects		Tukey pairwise comparison					
		Pre-test	Post-test	<i>F</i>	η^2_p	<i>F</i>	η^2_p	SFQG*PFQG		SFQG*DEG		PFQG*DEG	
								<i>MD</i>	<i>t</i>	<i>MD</i>	<i>t</i>	<i>MD</i>	<i>t</i>
Positive affect	SFQG	25.60 (7.92)	29.15 (8.55)	6.62*	0.26	2.89	0.09	0.33	0.15	0.30	0.13	0.03	0.01
	PFQG	27.60 (6.52)	27.8 (7.56)	0.88	0.00								
	DEG	27.75 (7.18)	27.60 (5.68)	0.87	0.00								
Negative affect	SFQG	32.55 (7.41)	27.6 (9.13)	12.14**	0.39	4.11*	0.13	0.65	0.27	5.08	2.08	5.73	2.35
	PFQG	31.1 (7.57)	30.55 (10.56)	0.71	0.01								
	DEG	24.3 (7.45)	25.7 (8.37)	0.3	0.06								
Symbol search	SFQG	27.35 (7.77)	31.7 (9.92)	13.11**	0.41	1.39	0.05	6.93	2.96*	6.05	2.58*	0.88	0.37
	PFQG	21.7 (7.32)	23.5 (7.49)	3.08	0.14								
	DEG	22.15 (6.03)	24.8 (7.8)	6.14	0.24								
Coding	SFQG	58.2 (16.19)	67.05 (17.64)	37.09**	0.66	10.46**	0.27	19.78	3.77**	13.48	2.57*	6.30	1.20
	PFQG	41.55 (13.32)	44.15 (16.7)	3.97	0.17								
	DEG	48.95 (18.02)	49.35 (18.69)	0.09	0.01								

Levene's *F* showed that the groups are homogenous in pre-test and post-test

η^2_p partial eta squared, *SD* standard deviation, *MD* mean difference, *t* student's *t*, *SFQG* solution focused question group, *PFQG* problem focused question group, *DEG* delayed experimental group

* $p<0.05$

** $p<0.01$

findings conclude that solution-focused questions have no discernible effect on the affect of depressed people compared to problem-focused questions. In individuals with depression, the effect of the solution-focused questions would have limits to bringing a distinguishable change, as identified by Grant (2012) in coaching groups. As Koorankot et al. (2019) earlier stated, solution-focused questions could significantly increase affect, but with limited scope to distinguish it from changes generated by problem-focused questions. Findings confirm that problem-focused questions were less capable of influencing the affect (Neipp et al., 2015). There was no significant difference in positive or negative affect between the pre-test and post-test scores of the problem-focused question group.

According to De Shazer et al. (2007), solution-focused questions would help the clients co-construct the solution language and shift the focus to the possible solutions rather than the problems. The generated positive affect due to this shift in focus, even though not discernible from the effect of problem-focused questions, could have broadened (Fredrickson, 2001) the thought-action repertoire of the clients. The reduction of negative affect due to the focus on solutions could have decreased the tendency to ruminate (Johnson & O'Brien, 2013; Ray et al., 2005) over the problems. It is probable that these subtle modifications influenced the processing speed changes.

There was a significant improvement in symbol search test performance in the solution-focused question group. Even though there was no significant between-group interaction effect, posthoc analysis showed that the solution-focused question group performed the symbol search test better than the problem-focused question group and delayed experimental group. Also, there was a significant improvement in coding in the solution-focused question group compared to the problem-focused question group and delayed experimental group with a significant interaction effect. Improvements in processing speed could be due to the diminished tendency of the participants to ruminate (Schwert, 2017), as solution-focused questions switched their focus from the problems that brought them to therapy to the resources for adaptive coping (Spitz et al., 2013).

Multiple research had indicated that processing speed enhancements were a crucial indicator of recovery from depression (Brailean et al., 2016; Herrera-Guzmán et al., 2009; MacQueen & Memedovich, 2016). Processing speed had always been correlated negatively with depression and positively with antidepressants. (Kalb et al., 2006). In this study, processing speed improved significantly following a 30-min session of solution-focused questioning. Speculatively, solution-focused questions would improve depressed people's neurocognitive functioning within a brief period (Miloyan et al., 2014; Nebes et al., 2000). Possibly, the solution-focused questions could act as a first aid that

would support individuals with depression to focus on their strengths and resources and thus develop a solution language to think about and describe their preferred future (George et al., 2010; Grant, 2012).

Conclusion

Results showed that solution-focused questions are preferable to problem-focused questions for inducing the desired changes in affect and processing speed in individuals with depression. While comparing the solution-focused question group with the problem-focused question group and the delayed experimental group, the changes in affect were indiscernible. However, the improvement seen in processing speed was evident and distinguishable. The findings were intriguing due to two reasons. First, processing speed was inversely related to depression and positively related to antidepressants. Second, the duration of the questioning intervention was 30 min. Solution-focused questions could potentially be employed as a psychological first aid tool in the treatment of depression.

Nevertheless, the study has numerous limitations. A clear limitation here was the use of only a pre-test and a post-test. Although improvements in affect and processing speed are theoretically possible, the data could represent regression to the mean. The findings and subsequent speculations were based on a single instance of questioning intervention. All the participants were from mental health facilities in a single city in the state of Kerala, India. The findings and subsequent speculations are based on a single instance of questioning. We recommend validation through replication before generalizing the findings in a broader application-oriented perspective.

The significance of the study lies in its examination of the possible benefits of questions, a crucial component of counseling and therapeutic procedures. A trained solution-focused therapist uses these questions to stand with the client to co-construct the solution language that promises the cure for depression. All the therapists were Rehabilitation Council of India (RCI) registered clinical psychologists. Those who asked solution-focused questions were trained in solution-focused brief therapy.

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Data Availability The datasets generated and analyzed during the current study are available at <http://dx.doi.org/10.17632/9xyb3mn8w4.1>.

Declarations

Conflict of interest On behalf of all authors, the corresponding author states that there is no conflict of interest. All the authors have read and

approved the version to be published. All the authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Ethical Approval The study was approved by the ethics committee at the Institute of Mental Health and Neurosciences (IMHANS), Kerala, India. We certify that the study was performed in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments and the American Psychology Association code of ethics.

Consent to Participate All the participants and their concerned bystanders provided informed consent to participate before data collection. In the current data, no identifying characteristics of the participants are involved.

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