

Supplementary information for: Brief computerised self-help interventions, the “Miracle Question,” and the moderating effects of openness-to-experience

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Table S1. Questions used in the “Miracle Question,” problem-focused, and neutral coaching conditions.

Intervention	Questions
“Miracle Question”	<ul style="list-style-type: none"> • “So now imagine that while you're asleep, a miracle happens. The problem you've described is solved - just like that. But this happens while you're sleeping, so you don't yet know that it's happened. You wake up in the morning and start to go about your day. What would be different that would tell you the problem has been solved?” • “What else would be different?” • “What would you find yourself <i>doing</i> differently?” • “What <i>else</i> would you be doing differently?” • “Think about other people. What would <i>they</i> see you doing differently?” • “When was the last time parts of this ‘miracle’ actually happened in your life (even a tiny little bit)?”
Problem-Focused Counseling	<ul style="list-style-type: none"> • “How long has this been a problem?” • “How did the problem start?” • “What do you think is causing the problem?” • “How do you feel about the problem?” • “What could you do about the problem?” • “What else could you do about the problem?”
Neutral Coaching Approach	<ul style="list-style-type: none"> • “Ok. What have you tried to do to make things better?” • “How effective has that been?” • “What else have you tried?” • “How effective was that?” • “What could you try that you haven’t tried before?” • “How effective do you think that would be?” • “What do you think would be the best thing to do?”

Note. The “Miracle Question” (MQ) questions were modelled on those presented in solution-focused textbooks (e.g. de Shazer and Dolan, 2021). The questions used for the Problem-Focused (PF) and Neutral Coaching conditions were drawn from or based on previous studies (e.g. Grant, 2012), counseling texts (e.g. Nelson-Jones, 2014) and popular guides to coaching (e.g. Whitmore, 1992).

Table S2. Mean time spent (in minutes) and mean number of words written in each condition in Experiment 1.

	MQ ^a		PF ^b		Neutral	
	M	SD	M	SD	M	SD
Time spent	15.12	9.03	18.63	36.95	16.67	30.62
Number of Words	96.85	86.44	77.85	69.79	72.07	54.36

^aMQ = Miracle Question

^bPF = Problem-Focused Condition

For time spent, the greater standard deviations of the PF and Neutral condition were due to unexpectedly long times recorded for three participants in the PF (62, 145, and 231 mins) and one participant in the Neutral condition (229 mins). When the slow-completers were removed, the difference in mean times was significant: $F(2,157) = 3.23, p = .04$. Tukey's post hoc comparisons indicated that the only significant difference was that between the MQ and PF condition ($p = .03$). Nevertheless, mean completion times for all three conditions were in the expected 10-20 minute range. With the slow-completers in the analysis, the mean time taken by participants did not differ significantly across conditions: $F(2,161) = 0.22, p = .80$. The mean number of words written did not differ significantly across conditions: $F(2,161) = 1.83, p = .16$.

1. Supplementary analyses for Experiment 1

1.1 Associations between OTE and time spent on the interventions

The correlation between openness-to-experience (OTE) and time spent on the intervention was positive but small in the MQ condition ($r = .13, p = .32$), negative and small-to-moderate in the PF condition ($r = -.25, p = .08$), and negative but extremely small in the Neutral condition ($r = -.03, p = .81$). The correlation between time spent and hope was positive but small in the MQ condition ($r = .21, p = .12$), negative but extremely small in the PF condition ($r = -.05, p = .70$), and negative but even smaller in the Neutral condition ($r = -.01, p = .96$). The correlation between time spent and posttest expectancy was positive but small in the MQ condition ($r = .21, p = .12$), moderately negative in the PF condition ($r = -.29, p = .04$), and positive but extremely small in the Neutral condition ($r = .07, p = .62$).

Time spent was regressed on OTE, two dummy variables coding the conditions and two product terms capturing the interactions between condition and OTE. The coefficients for the two product terms ($b = -1.71$ and $b = -.43$) and the omnibus test of interaction were not statistically significant ($ps > .09$). Evidence that the effect of condition on time-spent varied with OTE was therefore not particularly strong.

Table S3. Mean time spent (in minutes) and mean number of words written in each condition in Experiment 2.

	MQ		PF		Neutral	
	M	SD	M	SD	M	SD
Time spent	10.73	5.83	10.15	6.52	9.52	5.21
Number of Words	93.88	48.53	90.77	42.81	98.97	65.90

The mean time taken by participants did not differ significantly across conditions: $F(2,179) = 0.64$, $p = .53$. Similarly, the mean number of words written did not differ significantly across conditions: $F(2,179) = 0.37$, $p = .69$.

2. Supplementary analyses for Experiment 2

2.1 Associations between OTE and time spent on the interventions

In all three conditions the correlation between OTE and time spent was positive but small (r s between .14 and .21) and non-significant ($p > .11$). Similarly, in all three conditions correlations between time spent and hope were positive but small (r s between .13 and .22) and non-significant ($p > .09$). The correlation between time spent and posttest expectancy was negative but extremely small in the MQ condition ($r = -.01$, $p = .96$), negative but small in the PF condition ($r = -.10$, $p = .56$), and moderately positive in the Neutral condition ($r = .28$, $p = .03$). Only the last correlation was significant.

Time-spent was regressed on OTE, the dummy variables coding conditions, and the product terms capturing the interactions between OTE and condition. The coefficients for the product terms ($b = .99$ and $b = 1.59$) and result of the omnibus test of interaction were not significant ($ps > .11$). There was therefore no strong evidence to suggest that the effect of condition on time spent varied with OTE.

2.2 Associations between OTE and number of words written

The correlation between OTE and number of words written was moderately positive in the MQ condition ($r = .28$, $p = .03$) and PF condition ($r = .35$, $p = .01$), and positive but extremely small in the Neutral condition ($r = .04$, $p = .77$). The correlation between number of words written and posttest expectancy was positive but small in the MQ condition ($r = .11$, $p = .40$), moderately negative in the PF condition ($r = -.30$, $p = .20$), and negative but extremely small in the Neutral condition ($r = -.01$, $p = .93$).

Number-of-words-written was regressed on OTE, the two dummy variables coding conditions and the product terms capturing the interactions between condition and OTE. The coefficients for the product terms ($b = .55$ and $b = .77$) and omnibus test of interaction were not significant ($ps > .55$). There was therefore little to suggest that the effect of condition on number-of-words-written varied as a function of OTE.

Table S4. Mean time spent (in minutes) and mean number of words written in each condition in Experiment 3.

	MQ		PF		Neutral	
	M	SD	M	SD	M	SD
Time spent	12.58	6.52	11.97	5.40	11.38	5.70
Number of Words	99.79	46.17	98.05	60.00	105.18	67.41

The mean time taken by participants did not differ significantly across conditions: $F(2,226) = 0.79$, $p = .45$. Similarly, the mean number of words did not differ significantly across conditions: $F(2,226) = 0.31$, $p = .73$

3. Supplementary analyses for Experiment 3

3.1 Associations between OTE and time spent on the interventions

The correlation between OTE and time spent on the intervention was positive and small-to-moderate in the MQ condition ($r = .25, p = .03$), positive but small in the PF condition ($r = .17, p = .14$), and moderately positive in the Neutral condition ($r = .30, p = .01$). In all three conditions, the correlation between time spent on the intervention and goal clarity was positive but small (r s between .11 and .20) and not significant ($ps > .09$).

Time-spent was regressed on OTE, the dummy variables coding conditions, and the product terms capturing the interactions between OTE and condition. The coefficients for the product terms ($b = -1.75$ and $b = -1.40$) and result of the omnibus test of interaction were not significant ($ps > .08$). Evidence to suggest that the effect of condition on time-spent varied with OTE was therefore not particularly strong.

3.2 Associations between OTE and number of words written

The correlation between OTE and number of words written was positive but extremely small in the MQ condition ($r = .01, p = .92$), negative but small in the PF condition ($r = -.15, p = .20$), and positive but small in the Neutral condition ($r = .16, p = .16$). The correlation between number of words written and goal clarity was negative but extremely small in the MQ ($r = -.05, p = .64$) and PF condition ($r = -.02, p = .89$), and positive but extremely small in the Neutral condition ($r = .06, p = .61$).

Number-of-words-written was regressed on OTE, the dummy variables coding conditions, and the product terms capturing the interactions between OTE and condition. The coefficients for the product terms ($b = .86$ and $b = -1.10$) and result of the omnibus test of interaction were not significant ($ps > .12$). Evidence to suggest that the effect of condition on number-of-words-written varied with OTE was therefore not very strong.

Conflict of interest statement

The authors report no conflicts of interest.

Data availability statement

Data may be obtained by contacting the corresponding author by email.

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