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The effects of Inquiry-Based Stress Reduction (IBSR) on mental health and well-being among a non-clinical sample

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ABSTRACT

Background: Mental problems are highly common among the general population. Mind-body interventions were found to be highly effective in treating them. The current study assessed the effect of Inquiry-Based Stress Reduction (IBSR) meditation on psychological parameters in a general population sample.
Methods: Ninety-seven Participants enrolled in a 28-day workshop and completed a set of self-administered measures before and after the workshop. Outcome measures included Beck Depression Inventory-II (BDI–II), Quick Inventory of Depressive Symptomology-Self Report (QIDS-SR_{16}), Outcome Questionnaire OQ-45.2, The Quality of Life Inventory (QOLI), State-Trait Anxiety Inventory Form (STAI), State-Trait Anger Expression Inventory (STAXI) (State), Subjective Happiness Scale (SHS), Eating Attitudes Test (EAT).
Results: BDI scale decreased significantly before and after the intervention. QIDS scale improved significantly from T1 to T2 ($p < 0.001$). Outcome questionnaire decreased significantly at T2. Quality of life scores improved significantly between T1 and T2 ($p < 0.001$). Anxiety state and trait scores decreased significantly after the intervention ($p < 0.001$) All the subscales of anger decreased significantly after the intervention ($p < 0.001$).Subjective happiness improved significantly ($p < 0.001$).
Conclusions: IBSR meditation improved various psychological scales among a general population sample. Further controlled studies should evaluate the clinical implementation of IBSR among the general population.

1. Introduction

Mental problems are highly common among the general population [1–3]. According to the literature, mental health has significant personal [4,5], physical [6,7], social and economic implications [8]; hence, it is considered an important issue in the field of public health worldwide.

In recent years, there is a growing amount of evidence regarding the effectiveness of mind-body interventions for various mental problems in the general population, such as mindfulness for stress management [9], Tai chi for emotion function, vitality and perceived mental health [10], meditation for anxiety and depression [11] and yoga for stress [12].

Inquiry-based stress reduction (IBSR) meditation technique (also known as The Work) was developed by Byron Katie in 1986. It is based on a process of self-inquiry, which enables individuals to actively identify and question the stressful thoughts that cause them suffering (such as marital relationship, work place, body image, etc.). This meditative process includes two phases; the first one is to identify stressful thoughts in a systematic and comprehensive way. The second phase is a meditative investigation of these thoughts by a series of four questions and turnarounds. When subjected to inquiry, the participants may realize that the stressful belief is not partially or in totality factual and therefore can be relieved from the negative emotion. By doing so, it enables them to regulate their stress levels and to cope better with distress by adopting a less judgemental approach. The technique does not require any intellectual, religious or spiritual preparation, but rather a determination to deepen the level of self-awareness [13,14].

Similar to the classical Cognitive Behavioral Therapy (CBT), IBSR assumes that dysfunctional cognitions are the main cause of distress and problematic behaviors. However, in CBT, these cognitions are challenged by rational and objective approaches, such as reasoning and argument [15]. In IBSR, the inner wisdom is addressed rather than the rationality, the integration of all kinds of knowing, such as observation, logical analyses, kinesthetic and sensory experiences, behavioral learning and intuition [16].

IBSR combines in-depth inquiry of dysfunctionl thoughts with the

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process of cognitive detachment, which assists people to recognize that these maladaptive thoughts are separated from reality [17]. This combination can provide a bridge between the second and the third waves of Cognitive behavior therapy [18].

Previous studies have demonstrated the efficacy of the IBSR technique on various psychological scales among non-clinical samples, meaning without a formal psychiatric diagnosis. For example, a previous study with a non-clinical sample demonstrated that a wide variety of psychopathologic symptoms, including depression, anxiety, interpersonal sensitivity and hostility reduced significantly after the intervention. In addition, all but one symptom (hostility) remained significantly low after the 3-month follow-up period [19]. A study with 197 participants demonstrated a significant improvement in depression levels [20]. In addition, a study with 58 participants revealed a significant improvement in satisfaction with life levels, sense of coherence, mental well-being and self-esteem [21].

Few studies have examined the dose-response relationship of non-pharmacological interventions, especially those that included intensive workshops. One study demonstrated partial evidence that brief and intensive CBT is more effective in reducing anxiety level, than standard CBT protocol, however since the study was not randomized, this finding should be interpreted with cation as it can be related to the severity of the prognosis as well [22].

The aim of the current study was to evaluate the potential effectiveness of an extensive IBSR workshop (28 days) in improving various psychological scales among a non-clinical sample.

2. Materials and methods

2.1. Participants

The sample included individuals self-enrolled in the 28-day residential program (Turn Around House) in Ojai, CA, USA. All the participants signed an informed consent form prior to enrolment in the research study. Due to the sample's characteristics, minimal exclusion criteria of ability to read English at a ninth grade level or higher (as judged by successful completion of a battery of self-reported measures) and willing to sign an informed consent were employed.

Ninety-seven participants completed the initial surveys (T1), and 82 completed the surveys immediately after the 28-day intervention (T2). The number of participants included in the follow-up period was significantly low (less than 30%) and hence was not included in the analysis. Most of the participants were female (60.7%), single (35.1%), self-employed (38.4%) and had a college degree (32.9%). Most of the sample defined themselves as atheist or agonist (45.9%). The demographic characteristics are detailed in Table 1.

Table 1
Demographic characteristics of the participants (n = 97).

Characteristic		No. (%[b]) or Mean
Sex	Female	54 (60.7%)
	Male	35 (39.3%)
	Missing	8
Age (years)	Women	50.29
	Men	50.26
Marital status	Single	39 (35.1%)
	Married	30 (27%)
	Divorced	12 (10.8%)
	Separated	3 (2.7)
	Widowed	6 (5.4%)
	Missing	7
Employment status	Full Time	11 (15.1%)
	Part Time	6 (8.2%)
	Self-Employed	28 (38.4%)
	Unemployed	19 (26%)
	Retired	9 (12.3%)
	Missing	24
Education level	< 12 y	5 (5.9%)
	Good Enough Diploma[a]	5 (5.9%)
	High school	6 (7.1%)
	13–15 Years	16 (18.8%)
	College degree	28 (32.9%)
	Master's degree	22 (25.9%)
	Doctorate degree	3 (3.5%)
	Missing	12
Religion	Christian	15 (24.6%)
	Jewish	2 (3.3%)
	Buddhist	6 (9.8%)
	None/atheist/agonist	28 (45.9%)
	Other	10 (16.4%)
	Missing	36

Abbreviation: SD, Standard Deviation.
[a] Awarded to high school dropouts who passed an examination.
[b] Percentages are based on valid (non-missing) observations.

2.2. Data collection

All the participants filled in eight self-administered questionnaires at the beginning of the training course (T1) and at the completion of the training course (T2). Questionnaires were scored according to the standard procedures of each instrument's instruction manual.

2.3. Intervention method

The participants attended a 28-day workshop guided by Byron Katie, and assisted by a staff of facilitators who were trained in the authorized certification program at “The institute of the Work” (ITW), an international learning center [14] based in the USA.

The technique includes two parts. The first one is to identify the stressful thoughts in a systematic and comprehensive way. The “Judge Your Neighbor” worksheet is the main tool for doing that. The participant is instructed to “think of a reoccurring stressful situation, a situation that is reliably stressful even though it may have only happened once and reoccurs only in your mind. Before answering each of the questions below, allow yourselves to mentally revisit the time and place of the stressful occurrence”. Then participants write down all the thoughts and beliefs regarding the stressful situation as he/she perceives them according to the worksheet format [13,14].

In the second part, the participant, with or without the help of a facilitator, (a person with experience in the IBSR technique) chooses the most stressful thought and investigates it by four questions and turnarounds. Examples of stressful thoughts are “My husband doesn't listen to me”, “My body is too fat”. The participant then examines the selected thoughts by asking the following questions: 1) Is it true? 2) Can I absolutely know that it is true? 3) How do I react when I believe that thought? 4) Who would I be without the thought? This part is meditative and the participant is guided to search the true and genuine answers to the four questions with no fixed agenda. Encouraging this kind of meditative ability is a central part of the IBSR technique [13,14].

The next stage is the implementation of the “turnarounds”, in which the participant experiences a different interpretation of the reality, as he/she perceives it. If the original thought was: “My husband doesn't listen to me”, a possible turnaround can be: “I don't listen to my husband” (turnaround to the other), “I don't listen to myself” (Turnaround to myself), “My husband does listen to me” (turnaround to the opposite). The participant is asked to find three genuine examples in which the turnaround is as true as the original thought. By doing so, the participant can understand and experience that he/she does not have to automatically believe the thoughts that cause stress and frustration, but can choose to replace them by other thoughts and different interpretations of reality [13,14].

Given its duration (28 days), this workshop is considered a relatively extensive program, which enables the participants to thoroughly explore their thoughts and inner experience.

Table 2
Outcome measures at the two time points.

		T1 M (SD)	T2 M (SD)	T1-T2		
				T-test value	df	P
Beck Depression Inventory (BDI)		20.17 (13.08)	6.08 (2.99)	8.110	59	P < 0.001
Quick Inventory of Depressive Symptomatology (QIDS)		11.30 (6.27)	6.51 (3.49)	5.615	65	P < 0.001
Presbyterian Health Care System- Outcome Questionnaire 45.2	Symptom Distress (SD)	47.02 (16.46)	28.34 (13.78)	10.771	80	P < 0.001
	Interpersonal Relationships(IR)	19.84 (7.75)	13.91 (7.42)	8.627	80	P < 0.001
	Social Role (SR)	14.49 (6.31)	10.16 (5.32)	6.335	80	P < 0.001
	Total score	81.35 (26.92)	52.42 (24.64)	10.397	80	P < 0.001
Quality of Life Inventory (QOLI)			0.69 (2.03)	2.03 (1.82)	74	P < 0.001
State Trait Anxiety Inventory (STAI)	State anxiety	48.78 (15.36)	33.03 (11.91)	8.289	74	P < 0.001
	Trait anxiety	53.01 (13.35)	40.01 (12.52)	8.344	73	P < 0.001
State Trait Anger Expression Inventory 2 (STAXI2)	State Anger (S_ANG)	21.77 (9.37)	16.00 (2.55)	5.572	76	P < 0.001
	Trait Anger (T_ANG)	20.74 (6.72)	17.18 (5.91)	5.456	79	P < 0.001
	Anger Expression Out (AX_O)	16.29 (4.66)	14.91 (4.38)	3.868	76	P < 0.001
	Anger Expression In (AX_I)	20.03 (5.1)	17.65 (5.38)	4.068	77	P < 0.001
	Anger Control Out (AC_O)	21.09 (4.98)	22.36 (5.61)	−2.769	74	.007
	Anger Control In (AC_I)	20.33 (5.32)	21.94 (5.92)	−3.303	76	.001
Subjective Happiness Scale (SHS)		4 (1.45)	5 (1.34)	−6.855	77	P < 0.001
Eating Attitudes Test (EAT)		36.06 (17.43)	33.8 (13.84)	1.201	68	.234

Abbreviations: M, mean; SD, Standard Deviation.

2.4. Measurements

a. Beck Depression Inventory-II (BDI–II): Includes 21 items, rated on a 4-point scale, which indicates the level of depressive symptoms reported by respondents, with higher numbers indicating higher levels of depression: a score of 0–13 indicates minimal level of depression, 14–19 mild depression, 20–28 moderate depression, and 29–63 severe depression [23]. It was found highly valid and reliable [24].
b. Quick Inventory of Depressive Symptomology-Self Report (QIDS-SR_{16}): measures self-reported depressive symptoms. It includes 16 items rated on a scale of 0–3. Higher numbers indicate higher levels of depression [25,26].
c. Outcome Questionnaire OQ-45.2: a 45-item self-report instrument, encompassing multidimensional measures of key functional and symptomatic areas. The broad areas assessed are: symptom distress, interpersonal relations, and social role (dissatisfaction and distress in tasks related to work, family roles, and leisure life). This questionnaire was designed for repeated measurements to examine clients' progress through therapy, and has demonstrated sensitivity to change following behavioral treatments. Higher scores indicate higher levels of distress. A score over 63 indicates levels of distress higher than normal. A 14-point change in either direction is significant [27].
d. The Quality of Life Inventory (QOLI): Includes 32 self-report items which aim to asses the overall positive mental health and satisfaction with life. It includes 16 life domains, rated by the importance people attach to them (on a 3-point rating scale) and their current satisfaction with each domain (on a 6-point rating scale). Higher numbers indicate a better quality of life. An average score on this measure ranges from 1.6 to 3.5. and a clinically significant change is denoted by a score that is either 2 standard deviations higher than a dysfunctional clinical mean or 1 standard deviation higher than a functional non-clinical mean [28,29].
e. State-Trait Anxiety Inventory Form (STAI): measures anxiety in adults. It differentiates between State Anxiety and long-standing qualities of Trait Anxiety. It includes 20 items for trait anxiety (e.g. “I am content”; “I am a steady person”) and 20 for state anxiety (e.g. “I am tensed”; “I am worried”). All items are rated on a 4-point scale, ranging from “Almost Never” to “Almost Always”. Higher scores indicate higher levels of anxiety for both measures. The mean score is 37.2 for the normal adult population for State Anxiety and 36.79 for Trait Anxiety [30].
f. State-Trait Anger Expression Inventory (STAXI) (State): assesses the intensity of anger as an emotional state at a particular “snapshot” in time. It includes 44-items rated in a 4-point scale ranging from “almost never” to “almost always”. Higher scores indicate higher levels of anger. The mean score is 18.75 for normal adults and 23.38 for the psychiatric population. The STAXI-2 (Trait) measures the respondent's more enduring disposition to experience anger as a personality trait. Higher scores indicate more proclivities for anger. The mean score is 18.14 for normal adults and 19.96 for psychiatric population. The tool was found highly reliable and with a strong association to other self-report scales [31].
g. Subjective Happiness Scale (SHS): a self-report measurement of happiness, which includes four items. Each item is completed by choosing one of the seven options; for example: “In general, I consider myself: 1 (“Not a very happy person”) to 7 (“A very happy person”). Higher scores indicate higher levels of happiness: the highest possible score is 7 and an average score is 4.5–5.5 [32].
h. Eating Attitudes Test (EAT): a widely used standardized self-report measure of symptoms and concerns characteristic of eating disorders. It includes 26 items rated in a scale of "Always" to "Never". A score above 20 has clinical significance and indicates further investigation [33].

2.5. Data analysis

Paired t tests were used to detect changes in the variables between

the two time points of the measurement. The data processing was carried out by the statistical software SPSS 19. A p-value of < 0.05 suggested statistical significance for all outcome measures.

3. Results

In the BDI scale, depression levels decreased significantly from "moderate depression" category at T1 to "no depression" at T2. This positive and persistent effect in depression levels was also demonstrated in the QIDS scale, which improved significantly from T1 to T2. Table 2 details the measure outcomes at the two time points.

The baseline score of the outcome questionnaire at T1 indicated distress levels higher than normal (81.35). It decreased significantly to levels lower than the normal at T2 (52.42), as well as the scores of its three subscales: symptoms distress, interpersonal relationships and social role.

Quality of life improved significantly between T1 and T2 (0.69–2.03, $p < 0.001$). Both anxiety state and trait scores decreased significantly ($p < 0.001$) after the intervention (State: 48.78 to 33.03; Trait: 53.01 to 40.01). The levels of state anxiety fell below the normal range after the intervention (37.2).

All the subscales of anger (state and trait) decreased significantly after the intervention ($p < 0.001$).

Subjective happiness score improved significantly after the intervention, increasing to the average level in the general population (4–5, $p < 0.001$). The scale of the eating attitudes did not improve significantly after the intervention (36.06–33.8, $p = 0.23$).

4. Discussion

The current study assessed the effectiveness of an IBSR intervention in a general population sample. It demonstrated a significant improvement in various psychological scales after a 28-day workshop, as measured by a range of well-established psychometric assessment tools.

The current sample included a majority of women, which is consistent with previous findings regarding the use of complementary and alternative medicine in the general population [34].

The scale of anxiety (state and trait) improved significantly after the IBSR intervention. This finding is consistent with previous studies, which demonstrated the positive effects of meditation techniques on this measure e.g. Refs. [35,36]. Specifically, the levels of state anxiety fell below the normal range in the general population. State anxiety may be more susceptible to change as it measures an emotional, a more dynamic state rather than a personality trait [37]. This improvement has clinical implications given the high prevalence (approximately 16%) of anxiety disorder in the general population [38].

All the subscales of anger (state and trait) decreased significantly after the intervention.

The eating attitude scale did not improve significantly after the intervention, its scores at baseline and after the intervention were relatively high and indicated clinical significance. This may suggest the degree of complexity and sensitivity of this issue for the current sample and may have contributed partially to the lack of significant difference in this scale.

The current findings should be viewed in light of the study's limitations. First, the study included self-referred volunteers, which may imply that they were dealing with some level of distress. This may result in selection bias, limit the generalization ability and may overestimate the benefits of the intervention. Second, there was no control group nor was there any randomization. Third, the high dropout rate of respondents by the final 6-month follow-up (less than third of the participants) reduced the available measures and could produce bias in the results. Future studies should include better incentive for participants to complete the follow-up period. Finally, the participants' initial scores at T0 were relatively high, compared with the general population. Hence, the effect of the workshop can be explained as regression to the mean effect as well.

To conclude, the current study presents preliminary findings on potentially beneficial effects in a general population sample following an IBSR intervention. Randomized clinical studies with a control group are warranted in order to further examine the effectiveness of the intervention in the general population.

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Conflicts of interest

None.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ctcp.2018.10.015.

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