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The effects of positive psychology interventions in Arab countries: a protocol for a systematic review

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2021-052477
Article Type:	Protocol
Date Submitted by the Author:	16-Apr-2021
Complete List of Authors:	Basurrah, Asma; University College Cork, School of Applied Psychology; King Abdulaziz University, Faculty of Arts and humanities, Department of Psychology Lambert, Louise; United Arab Emirates University Setti, Annalisa ; University College Cork, School of Applied Psychology Murphy, Mike ; University College Cork, School of Applied Psychology Warren, Meg; Western Washington University Shrestha, Topaz; University College Cork, School of Applied Psychology di Blasi, Zeldia; University College Cork, School of Applied Psychology
Keywords:	PSYCHIATRY, MENTAL HEALTH, PUBLIC HEALTH

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The effects of positive psychology interventions in Arab countries: a protocol for a systematic review

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Key words: Mental health; Psychiatry; Public health; Positive Psychology; Meta-analysis

Word Count: 2,310

Abstract

Introduction Despite the growing volume of published studies on the effects of Positive Psychology Interventions (PPIs), little is known about their effectiveness outside of Western countries, particularly in Arab countries. The effectiveness of PPIs in this region remains unclear, as a systematic review focusing on this area of research is yet to be published. Here, we present a protocol for the first systematic review that aims to examine the effects of PPIs on increasing well-being, quality of life and resilience and decreasing depression, anxiety and stress for both health and clinical, child and adult populations in Arab countries.

Methods and analysis This protocol is carried out in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols (PRISMA-P) guidelines. A systematic literature search for studies up to 30 April 2021 will be conducted in the following electronic databases: PsycINFO, PubMed, Scopus, ProQuest, Dar Al Mandumah and Almanhal. Experimental/quasi-experimental quantitative studies about the effects of PPIs on healthy and clinical participants of all ages in the 22 Arab countries will be included. Outcomes will include psychological effects of PPIs on dimensions related to well-being (e.g. happiness), quality of life, resilience, depression, anxiety and stress. The risk of bias will be evaluated using the Cochrane risk-of-bias tool. A narrative synthesis with tables of study characteristics will be provided. A meta-analysis will be included if outcomes allow; in this instance, subgroups analysis will be conducted, depending on the data gathered, to examine differences in effect sizes based on age group, population type, duration of intervention, and type of intervention.

Ethics and dissemination Ethical approval is not required for the performance of this systematic review. We intend to publish the study in a peer-reviewed journal and share the findings at conferences.

PROSPERO Registration number CRD42020198092

Strengths and limitations of this study

- This will be the first systematic review to provide an evidence-based review of the effects of PPIs for clinical and healthy populations in the Arab region.

- The main strength is the inclusion, in addition to the English databases, of the two largest Arabic databases.
- An extensive search strategy was developed in consultation with a review team as well as a library specialist for both searches concerning English and translated Arabic terms.
- A description of the intervention types, durations, delivery methods and population types will be provided, enabling investigation of their effectiveness.
- Since this review will be limited to only published English and Arabic studies, unpublished relevant studies will be missed.

Introduction

The Arab region accounts for around 5% of the world's population. As of 2019, this region was home to nearly 427 million inhabitants [1], with 60% being aged under 25 years. Arab countries have recorded the highest burden of mental health disorders globally [2]. In a call for action into mental health research in the Arab region published in the *Lancet*, researchers explained that stigma, reluctance to self-disclose and to seek formal help, conflict and war, were some of the reasons for such high levels of mental health disorders [3].

With the increasing population growth in the region, research directly studying positive mental health and well-being is needed. This research will in turn impact the world, especially with the increasing concern regarding mental health problems caused by the COVID-19 pandemic [4]. Several studies have examined the psychological impact of the ongoing pandemic and reported negative effects on mental health including anxiety, depression and stress [5-8]. These findings emphasize the need to support people during this time by delivering psychological interventions [4-7]. As Positive Psychology Interventions (PPIs) focus on cultivating psychological resilience and well-being as well as alleviating mental health problems [9-14], we believe the findings of this review are an important contribution to addressing of mental health problems resulting from the COVID-19 pandemic.

The past decade has witnessed a rise in research examining PPIs [15]. Sin and Lyubomirsky first defined PPIs as 'intervention, therapy, or activity primarily aimed at increasing positive feelings, positive behaviors, or positive cognitions' [9, p. 469]. Bolier *et al.* assert that

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3 PPIs should be designed based on positive psychology theories [10]. Another definition was
4 proposed by Parks and Biswas-Diener in which they emphasize that interventions must target
5 'positive' variables and have sufficient empirical evidence [16]. PPIs include, but are not restricted
6 to, gratitude, compassion, strengths, optimism and kindness. While a variety of definitions have
7 been suggested, we define PPIs as psychological interventions (training, therapy) aimed at
8 enhancing positive feelings, behaviours, or cognitions, based on positive psychology theories and
9 research.

10
11 Several meta-analyses have found that PPIs have a small to moderate significant effect on
12 well-being and distress in both the general population [e.g.9,10,12] and patients with mental health
13 problems [e.g.11]. These include meta-analyses that have examined single PPIs [e.g.9,10] and
14 multi-component [e.g.12] PPIs. While studies on PPIs have been mainly examined in Western
15 countries, dominated by western, educated, industrialised, rich, and democratic (WEIRD)
16 populations [17], there is now some evidence for their effectiveness in non-Western countries [18].
17 In a separate systematic review of PPIs in non-Western countries, Hendriks *et al.* reported
18 a moderate effect for well-being and a large effect for depression and anxiety [18]. This review
19 was limited to peer-reviewed English articles published up until 2017. More recently, Carr *et*
20 *al.* conducted a meta-analysis including studies published in any language in peer-reviewed
21 journals or grey literature [19]. Reviewed 347 studies, including three studies from the Arab
22 region, they reported a small to medium significant effect of PPIs on well-being and distress [19].
23 They concluded that those who benefitted most from multiple PPI were clinical samples from non-
24 Western countries, who engaged in longer therapy programmes. However, they did not search
25 Arabic databases (e.g. Dar Al Mandumah), where most Arabic studies can be found. The present
26 review is designed to address this limitation.

27
28 The Arab world consists of 22 countries in the Middle East and North Africa: Algeria,
29 Bahrain, Comoros, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Mauritania,
30 Oman, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, the United Arab Emirates
31 and Yemen. These countries share cultural traditions, histories and a common language.
32 Researchers from the Middle East and North Africa have recently shown an increasing interest in
33 positive psychology. A systematic review investigating the prevalence and characteristics of
34 positive psychology research in the Middle East and North Africa region, published in 2013, was
35 undertaken by Rao, Donaldson and Doiron [20]. Reviewing a total of 53 studies, they found that
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positive psychology research in the region has grown exponentially since 2011. They also found that the region's literature focused on two paths: one path aimed at increasing positive states, while the other path aimed to coping with adversity. However, this review by Rao and colleagues did not examine the effects of PPIs [20]. The current review attempts to address this gap.

The positive psychology movement originated in the United States [21], which raises concerns about the practical generalisability of PPIs, due to cultural differences between Western 'individualistic' and Eastern 'collectivist' cultures [22,23]. Because of these differences, we believe it is important to undertake this review. Several studies across the Arab region have recently examined the effects of PPIs [24-29], with studies adapting these interventions to their particular cultures [25,30,31]. However, the effects of PPIs in the Arab region remain unclear as, to our knowledge, no systematic quantitative review has yet been published. It is timely and essential to provide the Arab populations with evidence on PPIs to develop a culturally responsive positive psychology [32], as well as an indigenous positive psychology [33].

Objectives

Primary objective

- To examine the effectiveness of PPIs on increasing well-being, quality of life and resilience and decreasing depression, anxiety and stress for both health and clinical, child, adolescent and adult populations in the Arab region.

Secondary objectives

- To identify types of PPIs that have been conducted in the Arab region.
- To determine if the interventions were adapted for the local context.
- To identify variables that may influence the effects of PPIs on outcomes.

Methods and analysis

This protocol was developed in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA-P) guidelines [34]. This review has been registered in the International Prospective Registry of Systematic Review – PROSPERO. In the event of protocol amendments, the date of each amendment will be recorded and reported in PROSPERO with a description of changes and its rationale.

Criteria for considering studies for this review

Types of studies

We will include empirical studies where individual participants (not groups) have been randomised, there is a control condition, and the researcher provided an effect size or enough information to allow us to calculate an effect size.

Non-experimental studies (correlational/relationships studies, descriptive studies) and qualitative studies will be excluded. We will include studies published in peer reviewed journals and dissertations.

Types of participants

Inclusion: Healthy and clinical participants of all ages in the Arab region. The Arab countries include Algeria, Bahrain, Comoros, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Mauritania, Oman, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, the United Arab Emirates, and Yemen.

Exclusion: Participants from outside the Arab region. When a study includes Arab and non-Arab participants, the study is included if the results of the Arab participants are presented separately.

Patient and public involvement

No patient involved. Data will be collected from published articles.

Types of interventions

Inclusion: Studies will be eligible for inclusion if they investigated the delivery of intervention (training, therapy) aimed at enhancing positive feelings, positive behaviours or positive cognitions.

We will include studies examining one intervention (single-component) or two or more interventions (multi-component). The intervention must be explicitly developed in line with the theoretical tradition of positive psychology. PPIs are defined by Sin and Lyubomirsky as ‘treatment methods or intentional activities that aim to cultivate positive feelings, behaviours, or cognitions’ (p. 467) [9]. PPIs include, but are not restricted to, self-compassion, gratitude, character strengths, mindfulness, optimism (e.g. best possible self), forgiveness, kindness, savouring and humour.

Exclusion: We will exclude studies reporting the effects of physical activity interventions. Studies examining traditional psychotherapeutic interventions (e.g. cognitive behavioural therapy) including a component of positive psychology will also be excluded.

Types of outcome measures

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3 The outcomes of interest are well-being (e.g. happiness, life satisfaction), quality of life, resilience,
4 depression, anxiety and stress. We will include only studies that reported changes in at least one
5 of those psychological outcome measures, assessed pre-intervention and post-intervention and
6 linked their findings to positive psychology literature.
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12 Search method for identification of studies -

13 *Electronic searches*

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15 For English-language literature, the databases that will be searched are:

- 16 • PsycINFO
- 17 • MEDLINE (via PubMed)
- 18 • Scopus
- 19 • ProQuest Dissertation and Thesis

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22 For Arabic-language literature, the databases that will be searched are:

- 23 • Dar Al Mandumah
- 24 • Al Manhal

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26 Limits will be applied to retrieve studies published in the English or Arabic language from 1998 –
27 the inception of the positive psychology movement – to 30 April 2021. The searches will be re-
28 run just before the final analyses, and new studies will be retrieved for inclusion. Manual searches
29 of references will be conducted in relevant papers. We will also search PROSPERO and the
30 Cochrane library for any systematic reviews planned or completed. A range of words and indexed
31 terms related to ‘positive psychology interventions’ and ‘Arab countries’ will be searched. The
32 strategies for searching databases will be modelled on the search strategy designed for PubMed
33 (see supplementary file 1. Search Strategy Example). In order for us to develop equivalent search
34 terms in Arabic, AB, the first author, who is a native Arabic speaker, will translate the English
35 search terms in consultation with experts in the field.
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48 *Searching other resources*

- 49 • Reference lists of recent meta-analyses [12,18,19] and a review from the Middle East and
50 North Africa region [20] will be searched.
- 51 • We will contact experts in the field from the Arab region and ask them to provide sources
52 that might still be missing.
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- Hand searching of the Middle East Journal of Positive Psychology, as well as of the recent book called Positive Psychology in the Middle East/North Africa [35] will be carried out. Reference lists of all eligible studies will be hand-searched to attempt to identify additional relevant studies.

Study records

Data management and selection process

Search results, including citations, abstracts and full-text articles, will be uploaded and recorded to EndNote X9. We will remove duplicates and screen all titles and abstracts against the inclusion criteria. This will be done by AB and then a second reviewer will screen a random 10% of studies independently to ensure consistency. The kappa statistic will be calculated to quantify the interobserver agreement. Where titles and abstracts are deemed to be relevant or unclear, full-text articles will be retrieved and independently screened by two reviewers to identify studies for inclusion. Additional information will be obtained if required. In case of disagreement, a third reviewer will be involved. Studies that are noted as excluded will be recorded, and their reason for exclusion will be reported using a flow diagram following the PRISMA guidelines.

Data extraction process

A data extraction form will be developed and piloted to obtain outcome data from included studies. This will be done by AB, and another reviewer will check the extracted data. Discrepancies will be resolved by discussion. In case of disagreement, the final classification will be made by consensus with the involvement of a third reviewer. Extracted data will be recorded in an excel spreadsheet. Data extracted will include:

1. Country of origin, author(s), year of publication
2. Study method: design (e.g. experimental, quasi-experimental)
3. Sample: (e.g. number of participants, clinical or non-clinical, gender)
4. Type of intervention: single- vs multi-component
5. Delivery form
6. Session duration (number of sessions and duration of session period)
7. Control group
8. Number of participants at follow up

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3 9. Mean/Standard Deviation, p-value, effect size

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5 10. Retention rate (post)

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7 11. Outcome measures, questionnaires used.

8 ***Dealing with missing data***

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10 In the case of missing data or insufficient information, we will attempt to contact the study authors.

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12 If the authors cannot be contacted, available data will be analysed as reported.

13 ***Assessment of risk of bias in included studies***

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15 We will use the Cochrane risk-of-bias tool, in accordance with the Cochrane handbook to assess
16 the methodological quality of the included studies. This will be done by two reviewers
17 independently. In the case of disagreements, a discussion will be conducted with a third reviewer
18 to reach a consensus. In the case of insufficient or additional information, we will contact the study
19 authors. The assessments will be classified into three levels: low risk, some concerns, and high
20 risk.
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25 ***Data synthesis***

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27 We will provide a narrative synthesis of all the included studies' findings, with tables of study
28 characteristics, participants, intervention details, and outcome measures. Where possible,
29 quantitative data will be pooled for a meta-analysis. Multilevel modelling will be conducted to
30 synthesize multiple effect sizes from single studies.
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34 ***Subgroup analysis***

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36 Depending on the data gathered, subgroups may be formed and outcomes explored according to
37 age or clinical nature of samples. Subgroup analyses will be conducted to examine moderating
38 effects of the following possible moderators. The moderators are:
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- 41 1) age group: Child/ adolescent (up to 17 years old) or adult (18 years old and up);
 - 42 2) study population: clinical or non-clinical;
 - 43 3) type of intervention: single- component or multi-component;
 - 44 4) duration of intervention: short (<8 weeks) or long (>8 weeks).
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48 ***Ethics and dissemination***

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50 Ethical approval will not be required for the performance of this systematic review because we
51 will collect data from existing sources. The results of this systematic review will be submitted to
52 a peer-reviewed journal in the field of positive psychology. Furthermore, the findings of this
53 review will be shared with professionals and practitioners at conferences.
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Discussion

PPIs have the potential to improve mental health and promote well-being. However, much uncertainty still exists in examining the application of these interventions in the Arab region, as most studies have only focused on Western samples. This review will be the first study to systematically review the efficacy of PPIs in the Arab region. The findings of this review are expected to provide health/clinical populations of all ages in the Arab region with a detailed and evidence-based overview of the overall effects of PPIs that will enrich the field of positive psychology and mental health. In turn, this will contribute to evaluating these types of interventions and strengthen their generalisability by providing a multi-cultural perspective [33] for health professionals and practitioners in the field.

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Footnotes

Contributors: AB and ZDB conceptualised, designed and registered the protocol. AB and ZDB developed the search strategy with contributions from co-authors (MM, AS, MW, LL). AB will screen potential studies, extract data of included studies, assess the risk of bias, and complete data synthesis, along with a second independent reviewer (TS). Statistical analysis will be conducted by MM. All co-authors (AB, ZDB, MM, AS, MW, LL, TS) critically revised the protocol, provided feedback on the draft of the manuscript and approved the publishing of the protocol.

Funding: This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

Acknowledgment: This systematic review is part of a PhD. The first author AB is supported by the graduate scholarship programme of King Abdulaziz University, Ministry of Higher Education, Saudi Arabia.

Competing interests: None declared.

Ethics approval: Ethical approval was obtained from the School of Applied Psychology Ethics Committee, University College Cork (Ireland).

Data sharing statement: The results of the review will be disseminated through peer-reviewed publications.

For peer review only

Supplementary File 1. Search Strategy Example

Search strategy: PubMed

- #1 "positive psych*[tiab] OR "positive intervention"[tiab] OR positivity [tiab] OR "posttraumatic growth"[tiab] OR "personal growth"[tiab] OR optimism[tiab] OR hope [tiab] OR gratitude[tiab] OR blessing*[tiab] OR "three good things"[tiab] OR mindfulness[tiab] OR kindness[tiab] OR "best possible self"[tiab] OR "character strengths"[tiab] OR strengths[tiab] OR meaning*[tiab] OR humor[tiab] OR humour[tiab] OR savoring[tiab] OR savouring[tiab] OR forgiveness[tiab] OR compassion [tiab] OR empathy[tiab] OR engagement[tiab] OR altruism[tiab] OR reminiscence[tiab] OR "positive thinking"[tiab] OR "optimistic thinking"[tiab] OR "positive emotions"[tiab] OR "positive writing"[tiab] OR self-regulat*[tiab] OR empowerment[tiab] OR "growth mindset"[tiab] OR well-being[tiab] OR wellbeing[tiab] OR "well being"[tiab] OR happiness[tiab] OR happy[tiab] OR "life satisfaction"[tiab] OR "satisfaction with life"[tiab] OR resilience[tiab] OR hardiness[tiab] OR "relationship satisfaction"[tiab] OR "relationship quality"[tiab] OR thriving[tiab] OR flourishing[tiab] OR "job satisfaction"[tiab] OR morale[tiab]
- #2 "Psychology, Positive" [MAJR] OR Positive Psychology[Mh] OR Well Being[Mh] OR Optimism[Mh] OR "Hope"[MAJR] OR "Mindfulness/methods"[MAJR] OR "Character"[MAJR] OR "Forgiveness"[MAJR] OR Compassion[Mh] OR "Work Engagement"[Mh] OR "Happiness"[MAJR] OR Happiness[Mh] OR "Resilience, Psychological"[Mh] OR Life Satisfaction[Mh]
- #3 Program*[tiab] OR intervention*[tiab] OR therap*[tiab] OR treatment*[tiab] OR Training[tiab] OR Exercise[tiab]
- #4 Therapy[Mh] OR Psychotherapy[Mh] OR Training[Mh] OR Exercise[Mh]
- #5 effect*[tiab] OR effic*[tiab] OR outcome*[tiab] OR evaluat*[tiab]
- #6 random*[tiab] OR RCT*[tiab] OR Trial*[tiab] OR non-random*[tiab] OR experiment*[tiab] OR quasi-experiment*[tiab] OR control*[tiab] OR condition [tiab]
- #7 "Middle East"[tiab] OR "North Africa"[tiab] OR Arab*[tiab] OR Algeria[tiab] OR Algerian[tiab] OR Bahrain[tiab] OR Bahraini[tiab] OR Djibouti [tiab] OR Djiboutian [tiab] OR Comoros[tiab] OR Egypt[tiab] OR Egyptian[tiab] OR Iraq[tiab] OR Iraqi[tiab] OR Jordan[tiab] OR Jordanian[tiab] OR Kuwait[tiab] OR Kuwaiti[tiab] OR Lebanon[tiab] OR Lebanese[tiab] OR Libya[tiab] OR Libyan[tiab] OR Morocco[tiab] OR Moroccan[tiab] OR Mauritania [tiab] OR Mauritanian [tiab] OR Oman[tiab] OR Omani[tiab] OR Palestine[tiab] OR Palestinian[tiab] OR Qatar[tiab] OR Qatari[tiab] OR "Saudi Arabia"[tiab] OR Saudi[tiab] OR Somalia [tiab] OR Somali [tiab] OR Sudan [tiab] OR Sudanese [tiab] OR Syria[tiab] OR Syrian[tiab] OR Tunisia[tiab] OR Tunisian[tiab] OR [tiab] OR "United Arab Emirates"[tiab] OR Emirati[tiab] OR "UAE"[tiab] OR Yemen[tiab] OR Yemeni[tiab]) OR ("Middle East"[Af] OR "North Africa" [Af] OR Arab*[Af] OR Algeria[Af] OR Bahrain[Af] OR Djibouti [Af] Comoros[Af] OR Egypt[Af] OR [Af] OR Iraq[Af] OR Jordan[Af] OR Kuwait[Af] OR Lebanon[Af] OR Libya[Af] OR Morocco[Af] OR Mauritania [Af] OR Oman[Af] OR Palestine[Af] OR Qatar[Af] OR "Saudi Arabia"[Af] OR Somalia [Af] OR Sudan [Af] OR Syria[Af] OR Tunisia[Af] OR "United Arab Emirates"[Af] OR "UAE"[Af] OR Yemen[Af]
- #8 #1 OR #2
- #9 #3 OR #4
- #6 #8 AND #9 AND #5 AND #6 AND #7 (filter: 1998-2020, Humans, English, Arabic)

Reporting checklist for protocol of a systematic review.

Based on the PRISMA-P guidelines.

Instructions to authors

Complete this checklist by entering the page numbers from your manuscript where readers will find each of the items listed below.

Your article may not currently address all the items on the checklist. Please modify your text to include the missing information. If you are certain that an item does not apply, please write "n/a" and provide a short explanation.

Upload your completed checklist as an extra file when you submit to a journal.

In your methods section, say that you used the PRISMA-Preorting guidelines, and cite them as:

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		Reporting Item	Page Number
Title			
Identification	#1a	Identify the report as a protocol of a systematic review	1
Update	#1b	If the protocol is for an update of a previous systematic review, identify as such	n/a
Registration			
	#2	If registered, provide the name of the registry (such as PROSPERO) and registration number	2
Authors			
Contact	#3a	Provide name, institutional affiliation, e-mail address of all protocol authors; provide physical mailing address of corresponding author	1
Contribution	#3b	Describe contributions of protocol authors and identify the	12

guarantor of the review

Amendments

[#4](#) If the protocol represents an amendment of a previously completed or published protocol, identify as such and list changes; otherwise, state plan for documenting important protocol amendments n/a

Support

Sources [#5a](#) Indicate sources of financial or other support for the review 13

Sponsor [#5b](#) Provide name for the review funder and / or sponsor 13

Role of sponsor or funder [#5c](#) Describe roles of funder(s), sponsor(s), and / or institution(s), if any, in developing the protocol 13

Introduction

Rationale [#6](#) Describe the rationale for the review in the context of what is already known 3-5

Objectives [#7](#) Provide an explicit statement of the question(s) the review will address with reference to participants, interventions, comparators, and outcomes (PICO) 5

Methods

Eligibility criteria [#8](#) Specify the study characteristics (such as PICO, study design, setting, time frame) and report characteristics (such as years considered, language, publication status) to be used as criteria for eligibility for the review 6,7

Information sources [#9](#) Describe all intended information sources (such as electronic databases, contact with study authors, trial registers or other grey literature sources) with planned dates of coverage 7,8

Search strategy [#10](#) Present draft of search strategy to be used for at least one electronic database, including planned limits, such that it could be repeated 7

Study records - data management [#11a](#) Describe the mechanism(s) that will be used to manage records and data throughout the review 8

Study records - [#11b](#) State the process that will be used for selecting studies (such 8

1	selection process		as two independent reviewers) through each phase of the	
2			review (that is, screening, eligibility and inclusion in meta-	
3			analysis)	
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5	Study records -	#11c	Describe planned method of extracting data from reports	8,9
6	data collection		(such as piloting forms, done independently, in duplicate),	
7	process		any processes for obtaining and confirming data from	
8			investigators	
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10				
11	Data items	#12	List and define all variables for which data will be sought	8,9
12			(such as PICO items, funding sources), any pre-planned data	
13			assumptions and simplifications	
14				
15	Outcomes and	#13	List and define all outcomes for which data will be sought,	9
16	prioritization		including prioritization of main and additional outcomes, with	
17			rationale	
18				
19	Risk of bias in	#14	Describe anticipated methods for assessing risk of bias of	9
20	individual studies		individual studies, including whether this will be done at the	
21			outcome or study level, or both; state how this information will	
22			be used in data synthesis	
23				
24	Data synthesis	#15a	Describe criteria under which study data will be quantitatively	9
25			synthesised	
26				
27	Data synthesis	#15b	If data are appropriate for quantitative synthesis, describe	9
28			planned summary measures, methods of handling data and	
29			methods of combining data from studies, including any	
30			planned exploration of consistency (such as I ² , Kendall's τ)	
31				
32	Data synthesis	#15c	Describe any proposed additional analyses (such as	9
33			sensitivity or subgroup analyses, meta-regression)	
34				
35	Data synthesis	#15d	If quantitative synthesis is not appropriate, describe the type	n/a
36			of summary planned	
37				
38	Meta-bias(es)	#16	Specify any planned assessment of meta-bias(es) (such as	n/a
39			publication bias across studies, selective reporting within	
40			studies)	
41				
42	Confidence in	#17	Describe how the strength of the body of evidence will be	9
43	cumulative		assessed (such as GRADE)	
44	evidence			
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3 made by the [EQUATOR Network](#) in collaboration with [Penelope.ai](#)
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BMJ Open

The effects of positive psychology interventions in Arab countries: A protocol for a systematic review

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2021-052477.R1
Article Type:	Protocol
Date Submitted by the Author:	28-Jun-2021
Complete List of Authors:	Basurrah, Asma; University College Cork, School of Applied Psychology; King Abdulaziz University, Faculty of Arts and humanities, Department of Psychology Lambert, Louise; Canadian University of Dubai Setti, Annalisa ; University College Cork, School of Applied Psychology Murphy, Mike ; University College Cork, School of Applied Psychology Warren, Meg; Western Washington University Shrestha, Topaz; University College Cork, School of Applied Psychology di Blasi, Zeldia; University College Cork, School of Applied Psychology
Primary Subject Heading:	Mental health
Secondary Subject Heading:	Mental health, Public health
Keywords:	PSYCHIATRY, MENTAL HEALTH, PUBLIC HEALTH

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The effects of positive psychology interventions in Arab countries: A protocol for a systematic review

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Key words: Mental health; Psychiatry; Public health; Positive Psychology; Meta-analysis

Word Count: 2,472

Abstract

Introduction Despite the growing volume of published studies on the effects of Positive Psychology Interventions (PPIs), little is known about their effectiveness outside of Western countries, particularly in Arab countries. As the effectiveness of PPIs in this region remains unclear, a systematic review focusing on this area of research can offer a valuable contribution. Here, we present a protocol for the first systematic review that aims to examine the effects of PPIs on increasing well-being, quality of life and resilience, and decreasing depression, anxiety and stress for both health and clinical, child and adult populations in Arab countries.

Methods and analysis This protocol is carried out in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols (PRISMA-P) guidelines. A systematic literature search for studies up to 30 April 2021 will be conducted in the following electronic databases: PsycINFO, PubMed, Scopus, ProQuest, Dar Al Mandumah and Almanhal. Experimental/quasi-experimental quantitative studies evaluating the effects of PPIs on healthy and clinical participants of all ages in the 22 Arab countries will be included. Outcomes will include psychological effects of PPIs on dimensions related to well-being (e.g., happiness), quality of life, resilience, depression, anxiety and stress. The risk of bias will be evaluated using the Cochrane risk-of-bias tool. A narrative synthesis with tables of study characteristics will be provided. A meta-analysis will be included if outcomes allow; in this instance, subgroups analysis will be conducted, depending on the data gathered, to examine differences in effect sizes based on age group, population type, duration of intervention and type of intervention.

Ethics and dissemination Ethical approval was not required for the performance of this systematic review. We intend to publish the study in a peer-reviewed journal and share the findings at relevant conferences.

PROSPERO Registration number CRD42020198092

Strengths and limitations of this study

- This will be the first systematic review to provide an evidence-based review of the effects of PPIs for clinical and healthy populations in the Arab region.

- The main strength is the inclusion, in addition to the English databases, of the two largest Arabic databases.
- An extensive search strategy was developed in consultation with a review team as well as a library specialist for both searches concerning English and translated Arabic terms.
- A description of the intervention types, durations, delivery methods and population types will be provided, enabling investigation of their effectiveness.

Introduction

The Arab region accounts for around 5% of the world's population. As of 2019, this region was home to nearly 427 million inhabitants [1], with 60% being aged under 25 years. Arab countries have recorded the highest burden of mental health disorders globally [2]. In a call for action into mental health research in the Arab region published in the *Lancet*, researchers explained that stigma, reluctance to self-disclose and to seek formal help, conflict and war, were some of the reasons for such high levels of mental health disorders [3].

With the increasing population growth in the region, research directly studying positive mental health and well-being is needed. This research will in turn impact the world, especially with the increasing concern regarding mental health problems caused by the COVID-19 pandemic [4]. Several studies have examined the psychological impact of the ongoing pandemic and reported negative effects on mental health including anxiety, depression and stress [5-8]. These findings emphasize the need to support people during this time through delivering psychological interventions [4-7]. As Positive Psychology Interventions (PPIs) focus on cultivating psychological resilience and well-being as well as alleviating mental health problems [9-14], we believe the findings of this review are an important contribution to addressing of mental health problems resulting from the COVID-19 pandemic.

The past decade has witnessed a rise in research examining PPIs [15]. Sin and Lyubomirsky first defined PPIs as 'intervention, therapy, or activity primarily aimed at increasing positive feelings, positive behaviors, or positive cognitions' [9, p. 469]. Bolier *et al.* assert that PPIs should be designed based on positive psychology theories [10]. Another definition was proposed by Parks and Biswas-Diener in which they emphasize that interventions must target 'positive' variables and have sufficient empirical evidence [16]. PPIs include, but are not restricted

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3 to, gratitude, compassion, strengths, optimism and kindness. While a variety of definitions have
4 been suggested, we define PPIs as psychological interventions (training, therapy) aimed at
5 enhancing positive feelings, behaviours, or cognitions, based on positive psychology theories and
6 research.
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10 Several meta-analyses have found that PPIs have a small to moderate significant effect on
11 well-being and distress in both the general population [e.g. 9, 10, 12] and patients with mental
12 health problems [e.g. 11]. These include meta-analyses that have examined single PPIs [e.g. 9, 10]
13 and multi-component [e.g. 12] PPIs. While studies on PPIs have been mainly examined in Western
14 countries, dominated by Western, Educated, Industrialised, Rich, and Democratic (WEIRD)
15 populations [17], there is now some evidence for their effectiveness in non-Western countries [18].
16 In a separate systematic review of PPIs in non-Western countries, Hendriks *et al* reported a
17 moderate effect for well-being, and a large effect for depression and anxiety [18]. This review was
18 limited to peer-reviewed English articles published up until 2017. In 2020, Carr *et al.* conducted a
19 meta-analysis including studies published in any language in peer-reviewed journals or grey
20 literature [19]. Upon review of 347 studies, including 3 studies from the Arab region, and reported
21 a small to medium significant effect of PPIs on well-being and distress [19]. They concluded that
22 those who benefitted most from multiple PPIs were clinical samples from non-Western countries,
23 who engaged in the programmes for longer periods. However, they did not search Arabic databases
24 (e.g., Dar Al Mandumah), where most Arabic studies can be found. The present review is designed
25 to address this limitation.
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38 The Arab world consists of 22 countries in the Middle East and North Africa: Algeria,
39 Bahrain, Comoros, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Mauritania,
40 Oman, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, the United Arab Emirates
41 and Yemen. These countries share cultural traditions, histories and a common language.
42 Researchers from the Middle East and North Africa have recently shown an increasing interest in
43 positive psychology. A systematic review investigating the prevalence and characteristics of
44 positive psychology research in the Middle East and North Africa region, published in 2013, was
45 undertaken by Rao, Donaldson and Doiron [20]. Upon reviewing a total of 53 studies, they found
46 that positive psychology research in the region has grown exponentially since 2011. They also
47 found that the region's literature focused on two paths: one path aimed at increasing positive states,
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3 while the other path aimed to coping with adversity. However, this review by Rao and colleagues
4 did not examine the effects of PPIs [20]. The current review attempts to address this gap.
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6 The positive psychology movement originated in the United States [21], which raises
7 concerns about the practical generalisability of PPIs, due to cultural differences between Western
8 'individualistic' and Eastern 'collectivist' cultures [22, 23]. Because of these differences, we
9 believe it is important to undertake this review. Several studies across the Arab region have
10 recently examined the effects of PPIs [24-29], with studies adapting these interventions to their
11 particular cultures [25, 30, 31]. However, the effects of PPIs in the Arab region remain unclear as,
12 to our knowledge, no systematic quantitative review has yet been published. It is timely and
13 essential to provide the Arab populations with evidence on PPIs to develop a culturally responsive
14 positive psychology [32], as well as an indigenous positive psychology [33].
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24 *Objectives*

25 **Primary objective**

- 26 • To examine the effectiveness of PPIs on increasing well-being, quality of life and resilience
27 and decreasing depression, anxiety and stress for both health and clinical, child, adolescent
28 and adult populations in the Arab region.
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32 **Secondary objectives**

- 33 • To identify types of PPIs that have been conducted in the Arab region.
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35 • To determine if the interventions were adapted for the local context.
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37 • To identify variables that may influence the effects of PPIs on outcomes.
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41 **Methods and analysis**

42 This protocol was developed in accordance with the Preferred Reporting Items for Systematic
43 Reviews and Meta-Analyses (PRISMA-P) guidelines [34]. This review has been registered in the
44 International Prospective Registry of Systematic Review – PROSPERO. In the event of protocol
45 amendments, the date of each amendment will be recorded and reported in PROSPERO with a
46 description of changes and its rationale.
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52 Criteria for considering studies for this review

53 **Types of studies**

We will include Randomised Controlled trials (RCTs) and quasi-experiments (controlled, non randomised and pre-post intervention studies).

Non-experimental studies (e.g., uncontrolled, cohort, descriptive, observational) and qualitative studies will be excluded. We will include studies published in peer-reviewed journals and dissertations.

Types of participants

Inclusion: Healthy and clinical participants of all ages in the Arab region. The Arab countries include Algeria, Bahrain, Comoros, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Mauritania, Oman, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, the United Arab Emirates, and Yemen.

Exclusion: Participants from outside the Arab region. When a study includes Arab and non-Arab participants, the study is included if the results of the Arab participants are presented separately.

Patient and public involvement

No patient involved. Data will be collected from published articles.

Types of interventions

Inclusion: Studies will be eligible for inclusion if they investigated the delivery of intervention (training, therapy) aimed at enhancing positive feelings, positive behaviours or positive cognitions. We will include studies examining one intervention (single-component) or two or more interventions (multi-component). The intervention must be explicitly developed in line with the theoretical tradition of positive psychology. PPIs are defined by Sin and Lyubomirsky as 'treatment methods or intentional activities that aim to cultivate positive feelings, behaviours, or cognitions' (p. 467) [9]. PPIs include, but are not restricted to, self-compassion, gratitude, character strengths, mindfulness, optimism (e.g., best possible self), forgiveness, kindness, savouring and humour.

Exclusion: We will exclude studies reporting the effects of physical activity interventions. Studies examining traditional psychotherapeutic interventions (e.g., cognitive behavioural therapy) including a component of positive psychology will also be excluded.

Types of outcome measures

The outcomes of interest are well-being (e.g., happiness, life satisfaction), quality of life, resilience, depression, anxiety and stress. We will include only studies that reported changes in at

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3 least one of those psychological outcome measures, assessed pre-intervention and post-
4 intervention and linked their findings to positive psychology literature.
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8 Search method for identification of studies -
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10 *Electronic searches*

11 For English-language literature, the databases that will be searched are:

- 12 • PsycINFO
- 13 • MEDLINE (via PubMed)
- 14 • Scopus
- 15 • ProQuest Dissertation and Thesis

16 For Arabic-language literature, the databases that will be searched are:

- 17 • Dar Al Mandumah
- 18 • Al Manhal

19 Limits will be applied to retrieve studies published in the English or Arabic language from 1998 –
20 the inception of the positive psychology movement – to 30 April 2021. The searches will be re-
21 run just before the final analyses, and new studies will be retrieved for inclusion. Manual searches
22 of references will be conducted in relevant papers. We will also search PROSPERO and the
23 Cochrane library for any systematic reviews planned or completed. A range of words and indexed
24 terms related to ‘positive psychology interventions’ and ‘Arab countries’ will be searched. The
25 strategies for searching databases will be modelled on the search strategy designed for PubMed
26 (see supplementary file 1. Search Strategy Example). In order for us to develop equivalent search
27 terms in Arabic, AB, the first author, who is a native Arabic speaker, will translate the English
28 search terms in consultation with experts in the field.
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45 *Searching other resources*

- 46 • Reference lists of recent meta-analyses [12, 18, 19] and a review from the Middle East and
47 North Africa region [20] will be searched.
- 48 • We will contact experts in the field from the Arab region and ask them to provide sources
49 that might still be missing.
- 50 • Hand searching of the Middle East Journal of Positive Psychology, as well as of the recent
51 book called Positive Psychology in the Middle East/North Africa [35] will be carried out.
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Reference lists of all eligible studies will be hand-searched to attempt to identify additional relevant studies.

Study records

Data management and selection process

Search results, including citations, abstracts and full-text articles, will be uploaded and recorded to EndNote X9. We will remove duplicates and screen all titles and abstracts against the inclusion criteria. This will be done by AB and then a second reviewer will screen a random 10% of studies independently to ensure consistency. The kappa statistic will be calculated to quantify the interobserver agreement. Where titles and abstracts are deemed to be relevant or unclear, full-text articles will be retrieved and independently screened by two reviewers to identify studies for inclusion. Additional information will be obtained if required. In case of disagreement, a third reviewer will be involved. Studies that are noted as excluded will be recorded, and their reason for exclusion will be reported using a flow diagram following the PRISMA guidelines.

Data extraction process

A data extraction form will be developed and piloted to obtain outcome data from included studies. This will be done by AB, and another reviewer will check the extracted data. Discrepancies will be resolved by discussion. In case of disagreement, the final classification will be made by consensus with the involvement of a third reviewer. Extracted data will be recorded in an excel spreadsheet. Data extracted will include:

1. Country of origin, author(s), year of publication
2. Study method: design (e.g., experimental, quasi-experimental)
3. Sample: (e.g., number of participants, clinical or non-clinical, gender)
4. Type of intervention: single- vs multi-component
5. Delivery form
6. Session duration (number of sessions and duration of session period)
7. Control group
8. Number of participants at follow up
9. Mean/Standard Deviation, p-value, effect size
10. Retention rate (post)

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3 11. Outcome measures, questionnaires used.

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5 ***Dealing with missing data***

6 In the case of missing data or insufficient information, we will attempt to contact the study authors.
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8 If the authors cannot be contacted, available data will be analysed as reported.
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11 ***Assessment of risk of bias in included studies***

12 We will use the Cochrane risk-of-bias tool, in accordance with the Cochrane handbook to assess
13 the methodological quality of the included studies. This will be done by two reviewers
14 independently. In the case of disagreements, a discussion will be conducted with a third reviewer
15 to reach a consensus. In the case of insufficient or additional information, we will contact the study
16 authors. The assessments will be classified into three levels: low risk, some concerns, and high
17 risk.
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22 ***Data synthesis***

23 We will provide a narrative synthesis of all the included studies' findings, with tables of study
24 characteristics, participants, intervention details, and outcome measures. Where possible,
25 quantitative data will be pooled for a meta-analysis. Multilevel modelling will be conducted to
26 synthesize multiple effect sizes from single studies.
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31 ***Subgroup analysis***

32 Depending on the data gathered, subgroups may be formed and outcomes explored according to
33 age or clinical nature of samples. Subgroup analyses will be conducted to examine moderating
34 effects of the following possible moderators. The moderators are:
35

- 36 1) age group: Child/ adolescent (up to 17 years old) or adult (18 years old and up);
 - 37 2) study population: clinical or non-clinical;
 - 38 3) type of intervention: single- component or multi-component;
 - 39 4) duration of intervention: short (<8 weeks) or long (>8 weeks).
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45 ***Ethics and dissemination***

46 This systematic review will use data from published literature; hence, no ethical approval will be
47 required. The results of this systematic review will be submitted to a peer-reviewed international
48 journal and shared at relevant conferences.
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53 **Discussion**

PPIs have the potential to improve mental health and promote well-being. However, much uncertainty still exists in examining the application of these interventions in the Arab region, as most studies have only focused on Western samples. This review will be the first study to systematically review the efficacy of PPIs in the Arab region. The findings of this review are expected to provide health/clinical populations of all ages in the Arab region with a detailed and evidence-based overview of the overall effects of PPIs that will enrich the field of positive psychology and mental health. In turn, this will contribute to evaluating these types of interventions and strengthen their generalisability by providing a multi-cultural perspective [33] for health professionals and practitioners in the field.

Footnotes

Contributors: AB and ZDB conceptualised, designed and registered the protocol. AB and ZDB developed the search strategy with the assistance of an information specialist and contributions from co-authors (MM, AS, MW, LL). AB will screen potential studies, extract data, assess the risk of bias, and complete data synthesis, along with a second reviewer (TS). Statistical analysis will be conducted by MM. All co-authors (AB, ZDB, MM, AS, MW, LL, TS) critically revised the protocol, provided feedback and approved the final manuscript.

Funding: This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

Acknowledgment: This systematic review is part of a PhD thesis. The first author AB is supported by the graduate scholarship programme of King Abdulaziz University, Ministry of Higher Education, Saudi Arabia. The authors thank the editor and reviewers of the manuscript for their constructive feedback and the support of Donna O'Doibhlin who is a librarian and was instrumental in providing advice on structuring the keyword search.

Competing interests: None declared.

Patient consent for publication: Not required.

Provenance and peer review: Not commissioned; externally peer reviewed.

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Supplementary File 1. Search Strategy Example

Search strategy: PubMed

- #1 "positive psych*[tiab] OR "positive intervention"[tiab] OR positivity [tiab] OR "posttraumatic growth"[tiab] OR "personal growth"[tiab] OR optimism[tiab] OR hope [tiab] OR gratitude[tiab] OR blessing*[tiab] OR "three good things"[tiab] OR mindfulness[tiab] OR kindness[tiab] OR "best possible self"[tiab] OR "character strengths"[tiab] OR strengths[tiab] OR meaning*[tiab] OR humor[tiab] OR humour[tiab] OR savoring[tiab] OR savouring[tiab] OR forgiveness[tiab] OR compassion [tiab] OR empathy[tiab] OR engagement[tiab] OR altruism[tiab] OR reminiscence[tiab] OR "positive thinking"[tiab] OR "optimistic thinking"[tiab] OR "positive emotions"[tiab] OR "positive writing"[tiab] OR self-regulat*[tiab] OR empowerment[tiab] OR "growth mindset"[tiab] OR well-being[tiab] OR wellbeing[tiab] OR "well being"[tiab] OR happiness[tiab] OR happy[tiab] OR "life satisfaction"[tiab] OR "satisfaction with life"[tiab] OR resilience[tiab] OR hardiness[tiab] OR "relationship satisfaction"[tiab] OR "relationship quality"[tiab] OR thriving[tiab] OR flourishing[tiab] OR "job satisfaction"[tiab] OR morale[tiab]
- #2 "Psychology, Positive" [MAJR] OR Positive Psychology[Mh] OR Well Being[Mh] OR Optimism[Mh] OR "Hope"[MAJR] OR "Mindfulness/methods"[MAJR] OR "Character"[MAJR] OR "Forgiveness"[MAJR] OR Compassion[Mh] OR "Work Engagement"[Mh] OR "Happiness"[MAJR] OR Happiness[Mh] OR "Resilience, Psychological"[Mh] OR Life Satisfaction[Mh]
- #3 Program*[tiab] OR intervention*[tiab] OR therap*[tiab] OR treatment*[tiab] OR Training[tiab] OR Exercise[tiab]
- #4 Therapy[Mh] OR Psychotherapy[Mh] OR Training[Mh] OR Exercise[Mh]
- #5 effect*[tiab] OR effic*[tiab] OR outcome*[tiab] OR evaluat*[tiab]
- #6 random*[tiab] OR RCT*[tiab] OR Trial*[tiab] OR non-random*[tiab] OR experiment*[tiab] OR quasi-experiment*[tiab] OR control*[tiab] OR condition [tiab]
- #7 "Middle East"[tiab] OR "North Africa"[tiab] OR Arab*[tiab] OR Algeria[tiab] OR Algerian[tiab] OR Bahrain[tiab] OR Bahraini[tiab] OR Djibouti [tiab] OR Djiboutian [tiab] OR Comoros[tiab] OR Egypt[tiab] OR Egyptian[tiab] OR Iraq[tiab] OR Iraqi[tiab] OR Jordan[tiab] OR Jordanian[tiab] OR Kuwait[tiab] OR Kuwaiti[tiab] OR Lebanon[tiab] OR Lebanese[tiab] OR Libya[tiab] OR Libyan[tiab] OR Morocco[tiab] OR Moroccan[tiab] OR Mauritania [tiab] OR Mauritanian [tiab] OR Oman[tiab] OR Omani[tiab] OR Palestine[tiab] OR Palestinian[tiab] OR Qatar[tiab] OR Qatari[tiab] OR "Saudi Arabia"[tiab] OR Saudi[tiab] OR Somalia [tiab] OR Somali [tiab] OR Sudan [tiab] OR Sudanese [tiab] OR Syria[tiab] OR Syrian[tiab] OR Tunisia[tiab] OR Tunisian[tiab] OR [tiab] OR "United Arab Emirates"[tiab] OR Emirati[tiab] OR "UAE"[tiab] OR Yemen[tiab] OR Yemeni[tiab]) OR ("Middle East"[Af] OR "North Africa" [Af] OR Arab*[Af] OR Algeria[Af] OR Bahrain[Af] OR Djibouti [Af] Comoros[Af] OR Egypt[Af] OR [Af] OR Iraq[Af] OR Jordan[Af] OR Kuwait[Af] OR Lebanon[Af] OR Libya[Af] OR Morocco[Af] OR Mauritania [Af] OR Oman[Af] OR Palestine[Af] OR Qatar[Af] OR "Saudi Arabia"[Af] OR Somalia [Af] OR Sudan [Af] OR Syria[Af] OR Tunisia[Af] OR "United Arab Emirates"[Af] OR "UAE"[Af] OR Yemen[Af]
- #8 #1 OR #2
- #9 #3 OR #4
- #6 #8 AND #9 AND #5 AND #6 AND #7 (filter: 1998-2020, Humans, English, Arabic)

Reporting checklist for protocol of a systematic review.

Based on the PRISMA-P guidelines.

Instructions to authors

Complete this checklist by entering the page numbers from your manuscript where readers will find each of the items listed below.

Your article may not currently address all the items on the checklist. Please modify your text to include the missing information. If you are certain that an item does not apply, please write "n/a" and provide a short explanation.

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In your methods section, say that you used the PRISMA-Preorting guidelines, and cite them as:

Moher D, Shamseer L, Clarke M, Ghersi D, Liberati A, Petticrew M, Shekelle P, Stewart LA. Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA-P) 2015 statement. Syst Rev. 2015;4(1):1.

		Reporting Item	Page Number
Title			
Identification	#1a	Identify the report as a protocol of a systematic review	1
Update	#1b	If the protocol is for an update of a previous systematic review, identify as such	n/a
Registration			
	#2	If registered, provide the name of the registry (such as PROSPERO) and registration number	2
Authors			
Contact	#3a	Provide name, institutional affiliation, e-mail address of all protocol authors; provide physical mailing address of corresponding author	1
Contribution	#3b	Describe contributions of protocol authors and identify the	12

guarantor of the review

Amendments

#4	If the protocol represents an amendment of a previously completed or published protocol, identify as such and list changes; otherwise, state plan for documenting important protocol amendments	n/a
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Support

Sources	#5a	Indicate sources of financial or other support for the review	13
Sponsor	#5b	Provide name for the review funder and / or sponsor	13
Role of sponsor or funder	#5c	Describe roles of funder(s), sponsor(s), and / or institution(s), if any, in developing the protocol	13

Introduction

Rationale	#6	Describe the rationale for the review in the context of what is already known	3-5
Objectives	#7	Provide an explicit statement of the question(s) the review will address with reference to participants, interventions, comparators, and outcomes (PICO)	5

Methods

Eligibility criteria	#8	Specify the study characteristics (such as PICO, study design, setting, time frame) and report characteristics (such as years considered, language, publication status) to be used as criteria for eligibility for the review	6,7
Information sources	#9	Describe all intended information sources (such as electronic databases, contact with study authors, trial registers or other grey literature sources) with planned dates of coverage	7,8
Search strategy	#10	Present draft of search strategy to be used for at least one electronic database, including planned limits, such that it could be repeated	7
Study records - data management	#11a	Describe the mechanism(s) that will be used to manage records and data throughout the review	8
Study records -	#11b	State the process that will be used for selecting studies (such	8

1	selection process		as two independent reviewers) through each phase of the review (that is, screening, eligibility and inclusion in meta-analysis)	
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5	Study records -	#11c	Describe planned method of extracting data from reports	8,9
6	data collection		(such as piloting forms, done independently, in duplicate),	
7	process		any processes for obtaining and confirming data from	
8			investigators	
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12	Data items	#12	List and define all variables for which data will be sought	8,9
13			(such as PICO items, funding sources), any pre-planned data	
14			assumptions and simplifications	
15				
16				
17	Outcomes and	#13	List and define all outcomes for which data will be sought,	9
18	prioritization		including prioritization of main and additional outcomes, with	
19			rationale	
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23	Risk of bias in	#14	Describe anticipated methods for assessing risk of bias of	9
24	individual studies		individual studies, including whether this will be done at the	
25			outcome or study level, or both; state how this information will	
26			be used in data synthesis	
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30	Data synthesis	#15a	Describe criteria under which study data will be quantitatively	9
31			synthesised	
32				
33	Data synthesis	#15b	If data are appropriate for quantitative synthesis, describe	9
34			planned summary measures, methods of handling data and	
35			methods of combining data from studies, including any	
36			planned exploration of consistency (such as I ² , Kendall's τ)	
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40	Data synthesis	#15c	Describe any proposed additional analyses (such as	9
41			sensitivity or subgroup analyses, meta-regression)	
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44	Data synthesis	#15d	If quantitative synthesis is not appropriate, describe the type	n/a
45			of summary planned	
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48	Meta-bias(es)	#16	Specify any planned assessment of meta-bias(es) (such as	n/a
49			publication bias across studies, selective reporting within	
50			studies)	
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53	Confidence in	#17	Describe how the strength of the body of evidence will be	9
54	cumulative		assessed (such as GRADE)	
55	evidence			
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3 made by the [EQUATOR Network](#) in collaboration with [Penelope.ai](#)
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