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REVIEW ARTICLE

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

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Abstract

While there is evidence for the effects of positive psychology interventions (PPIs) in the Western world, we know little about their effects on Arab cultures. This review aimed to assess the effects of PPIs on well-being and mental health across Arab countries. Systematic searches of randomised controlled trials (RCTs) and quasi-experimental studies investigating PPIs in Arabia were conducted in six English and Arabic databases from the inception of positive psychology in 1998 to 28 February 2022. The quality of the studies was assessed using the Cochrane risk-of-bias tools. The protocol was published in the *BMJ Open*. Forty-four studies from 10 Arab countries ($n = 3598$ participants) were included. Of these, 12 were RCTs and 32 were quasi-experimental. The studies mainly focused on adults (73%) and healthy populations (86%). PPIs included mindfulness, positive thinking, strengths, hope, optimism, self-compassion, positive traits, and multiple PPIs. Nearly all studies (91%) mentioned cultural adaptation; however, little detail was given. This is the first review in Arabia. PPIs appear to be effective for promoting well-being and reducing mental health issues. However, there were

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some risks of bias concerns. Future research should include younger and clinical populations, using larger samples and providing more details about adaptation.

KEYWORDS

Arab countries, mental health, positive psychology interventions, systematic review, well-being

INTRODUCTION

The Arab region, encompassing 22 countries (Algeria, Bahrain, Comoros, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Mauritania, Oman, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, United Arab Emirates, and Yemen), is home to roughly 5% of the world's population, with 60% being under the age of 25 years. The area has a high burden of mental health disorders (GBD, 2018) given underfunded health systems, mental health stigma, insufficient research capacity and training, sociocultural changes, political instability and conflict, and economic inequalities as contributors (Alzahrani, 2020; Maalouf et al., 2019). Such a high burden will require ongoing efforts towards the development of effective and culturally congruent psychological interventions in response.

Therefore, to address the negative effects of such conditions experienced by some Arab countries and the stigma around mental health, positive psychology-based interventions can offer a complementary role alongside traditional interventions as they will enhance well-being and make life more fulfilling (Basurrah et al., 2022) and thus preventing and/or treating psychological issues will take place indirectly. In addition, because the mental health care system in the Arab region places a strong emphasis on the treatment of illnesses, the use of positive interventions is considered a *prevention* and *promotion* approach (Basurrah et al., 2022).

Positive psychology is the scientific study of what makes life worth living (Seligman & Csikszentmihalyi, 2000) with an emphasis on subjective and psychological well-being. Whereas subjective well-being refers to a high level of positive affect, a low level of negative affect, and a high degree of life satisfaction (Diener, 1984), psychological well-being refers to hedonic (e.g. pleasure and positive emotions) and eudemonic (e.g. fulfilment and flourishing) components (Ryan & Deci, 2001), as well as resilience. This can be accomplished via positive actions, cognitions, and emotions, known as positive psychology interventions (PPIs). PPIs were first defined by Sin and Lyubomirsky (2009) as 'intervention, therapy, or activity primarily aimed at increasing positive feelings, positive behaviours, or positive cognitions' (p. 469). Recently, Parks and Biswas-Diener (2013) proposed a more comprehensive definition emphasising that interventions target 'positive' variables, be scientifically proven and evidence-based. Examples include mindfulness, self-compassion, and the use of character strengths. We define PPIs as interventions aimed at enhancing positive feelings, behaviours, or cognitions and which are based on positive psychology theories and research.

The past decade has seen a growing trend towards research examining PPIs (Rusk & Waters, 2013). Systematic reviews of randomised controlled trials (RCTs) showed that PPIs have a small to moderate effect in increasing well-being and decreasing distress (Bolier et al., 2013; Carr et al., 2021; Hendriks et al., 2020; Sin & Lyubomirsky, 2009).

Indeed, PPIs were initially developed for use in clinical depression (Seligman et al., 2005) with participants showing significant decreases in depressive symptoms and increases in well-being, findings that have been replicated (e.g. Mongrain & Anselmo-Matthews, 2012). Previous meta-analyses have also assessed the effects of PPIs delivered as a single exercise (Bolier et al., 2013; Sin & Lyubomirsky, 2009) or conjointly, called multicomponent PPIs (MPPIs; Hendriks et al., 2020). These meta-analyses found that PPIs had statistically significant small to medium effects on well-being, stress, depression, and anxiety. However, A recent comprehensive systematic review (Carr et al., 2021) of 347 studies reported that nearly half (47%) of the studies reviewed were of poor methodologically quality. Furthermore, most of the studies reviewed (82%) were conducted in western, educated, industrialised, rich, and democratic (WEIRD) countries and it is therefore difficult to generalise their findings to Arab or more collectivistic countries.

PPIs beyond Western countries

The applicability and validity of PPIs outside of Western culture (Hendriks & Graafsma, 2019; Ng & Lim, 2019; Smith et al., 2019) have also been explored. This signifies a move away from PPIs being primarily examined within Western countries dominated by WEIRD populations (Hendriks et al., 2019). For instance, in Hendriks et al.'s. (2018) systematic review from non-Western countries ($n = 28$), a moderate effect of PPIs on well-being and a large effect on depression and anxiety was found; yet, their review included only English language studies published until 2017, thus potentially missing out on a wealth of research published in other languages. Recently, Carr et al.'s. (2021) meta-analysis included studies published in peer-reviewed journals or grey literature in any language. Reviewing 347 studies, they found a small to medium effect of PPIs on well-being and distress. However Arabic language databases were not searched, and too few results from Arab countries limit our knowledge on their regional efficacy in the Arab world.

Across the Middle East and North Africa (MENA) region, positive psychology has sparked the interest of scholars. Warren et al. (2015) published a regional systematic review looking at the characteristics of positive psychological research. The number of publications had risen since 2011 to include 53 studies that were focused on developing positive states as much as dealing with adversity.

Considering cultural fit when implementing PPIs is vital (Hendriks et al., 2019; Kubokawa & Ottaway, 2009; Lambert & Pasha-Zaidi, 2019b), including differences between Western 'individualist' and Eastern 'collectivist' cultures (Ng & Lim, 2019), as well as religion and spirituality, especially as these influence subjective well-being (Abdel-Khalek, 2019). Research evaluating the effects of PPIs among Arab populations suggests they are being tailored to fit aspects of culture (e.g. Al-Ghalib & Salim, 2018; Basurrah et al., 2020). In a recent research paper (Basurrah et al., 2022) on positive psychology in Arab countries, we highlighted the importance of cultural factors that must be considered when evaluating PPIs in Arab countries. It has been suggested that differences exist between individual Western culture and collective Arab culture in terms of self-concept, emotions, values, and religion (Basurrah et al., 2022), which may lead to different effects of PPIs compared with those reported in Western culture. For instance, the construction of self-concept varies between Western and Arab cultures. While people from the West focus on the self-directed and autonomous individual (Realo et al., 2002), those of Arab culture, who value their family, friendship, and community, emphasise their

relationships with others to build their self-concept (Markus & Kitayama, 1991). Hence, a more prosocial (group-oriented) PPIs practice such as the act of kindness or the gratitude letter may enhance the well-being of the Arab population more than self-oriented PPIs (e.g. identifying character strengths; Basurrah et al., 2022).

It is now well established that considering culture when applying PPIs is vital as various cultures have distinct ways of defining the self, experiencing emotions, and expressing values (Kubokawa & Ottaway, 2009). Still, an understanding of the effects of PPIs in the Arab region is lacking as no systematic review exists. This information would help to disseminate PPI research, enrich the field of positive psychology and mental health, and offer the basis for a culturally responsive indigenous positive psychology (Kim et al., 2018; Lambert & Pasha-Zaidi, 2019b). Therefore, the primary aim of this review was to synthesise the up-to-date evidence about the use and the effects of PPIs on well-being and mental health in both the general public and in clinical populations in the Arab region. The secondary aims were to determine the quality of the studies and examine if PPIs were adapted for the local Arab context.

METHODS

This systematic review follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The protocol was registered on PROSPERO (CRD42020198092) and published at *BMJ Open* (Basurrah et al., 2021).

Search strategy

We searched PsycINFO, PubMed, Scopus, and ProQuest Dissertation and Thesis as well as Arabic databases, including Dar Al Mandumah and Al Manhal. Results were limited to peer-reviewed articles and dissertations published in English or Arabic from 1998—the inception of positive psychology—to 28 February 2022. We also checked the reference lists of included studies and previous reviews (Bolier et al., 2013; Carr et al., 2021; Hendriks et al., 2018, 2019, 2020; Sin & Lyubomirsky, 2009; Warren et al., 2015). We manually searched the *Middle East Journal of Positive Psychology*, the recent book, *Positive Psychology in the Middle East/North Africa* (Lambert & Pasha-Zaidi, 2019b), and contacted regional experts. Keywords related to 'positive psychology interventions' and 'Arab countries' were searched. To develop equivalent search terms in Arabic, AB, a native Arabic speaker, translated English search terms in consultation with MA.

Study selection

After the removal of duplicates, AB screened the titles and abstracts and two reviewers (MA and TS) independently screened 10% of these for interrater reliability (Cohen's Kappa statistic = 0.87 and 0.97 in Arabic and English studies respectively indicating near perfect agreement). Next, full articles were screened by three reviewers (AB, MA, and TS). There was a near perfect interrater agreement for screening full texts with a Cohen's kappa of 0.90 and 0.97 in Arabic and English studies, respectively.

The studies were included if they:

1. Used RCTs or quasi-experimental (QE) design;
2. Examined PPIs (single component or multicomponent) developed in line with the theoretical tradition of positive psychology. PPIs were defined as psychological interventions (training, exercise, therapy) aimed at increasing positive feelings, behaviours, or cognitions (Rusk & Waters, 2013). MPPIs were defined as the use of two or more PPIs within a single programme to enhance domains of well-being (Hendriks et al., 2020);
3. Were conducted in Arab countries;
4. Used a control group for comparison;
5. Used outcome measures reported on psychological outcomes, broadly defined to include well-being, resilience, quality of life, satisfaction with life, depression, anxiety, or stress;
6. Published in peer reviewed journals or dissertations in English or Arabic.

In accordance with the study protocol (Basurrah et al., 2021), articles were excluded if they examined physical activity interventions or more traditional psychotherapy interventions such as cognitive behavioural therapy (CBT). When a study included Arab and non-Arab participants, the study was included if the results of Arab participants were presented separately.

Data extraction and study quality assessment

An Excel data extraction form was developed and piloted in four randomly selected studies. Data from the included studies were extracted by three independent reviewers (AB, MA, and TS). There was a high level of interrater agreement across the three raters. For data extraction 15 items, an interrater agreement was 0.98 and 0.96 in Arabic and English studies, respectively. The extracted information included author(s), year of publication, country, study design, details of the intervention, delivery form, session duration, control group, number of participants, mean age and standard deviation, female percentage, retention rate (post), follow-up assessment, and main findings. In the case of missing data, we contacted 11 authors, seven of whom provided additional information. Data were reviewed as reported where author contact was not possible. Because a meta-analysis was deemed inappropriate due to the heterogeneity of study designs, varying interventions and outcome measures employed, a narrative synthesis was undertaken.

Study quality was evaluated using the Cochrane risk-of-bias tools. The Rob2 tool (Sterne et al., 2019) assesses RCTs across five domains: (1) Randomisation process; (2) deviations from intended intervention; (3) missing data; (4) outcome measurement; (5) selection of the reported result. The quality of a study was assessed as ‘Low’, ‘Some concerns’, or ‘High’ risk of bias, as determined by a validated a priori algorithm. The ROBINS-I tool (Sterne et al., 2016) assessed quasi-experimental studies based on seven domains: (1) Confounding; (2) selection of participants; (3) classification of interventions; (4) deviations from intended intervention; (5) missing data; (6) outcome measurement; (7) selection of the reported result. The quality of a study was assessed as ‘Low’, ‘Moderate’, ‘Serious’, ‘Critical’ risk of bias, or ‘No information’. This was conducted independently by three reviewers (AB, MA, and TS). Interrater agreement was 0.89 and 0.85 in Arabic and English studies, respectively. Any disagreement was resolved through

discussion with the review team. In the case of insufficient information, we contacted the study authors.

RESULTS

Retrieved from the databases were 4888 records. An additional 29 were identified through other sources. A total of 4092 records remained after removing duplicates. After screening the title/abstracts, 211 studies were found eligible for full-text screening. Finally, 44 studies, which were published in 43 articles, met the inclusion criteria. One article reported outcomes of two studies (Lambert et al., 2019). The study selection process is in Figure 1.

Table S1 describes the characteristics of the 44 studies from 10 different countries. The earliest study included in 2008 was the first to be identified in the Arab region. Nearly half of the studies (39%, $n = 17$) were from Egypt, nine (20%) from Jordan, six (14%) from Saudi Arabia, three (7%) from Libya, two (5%) from Kuwait, Tunisia, and

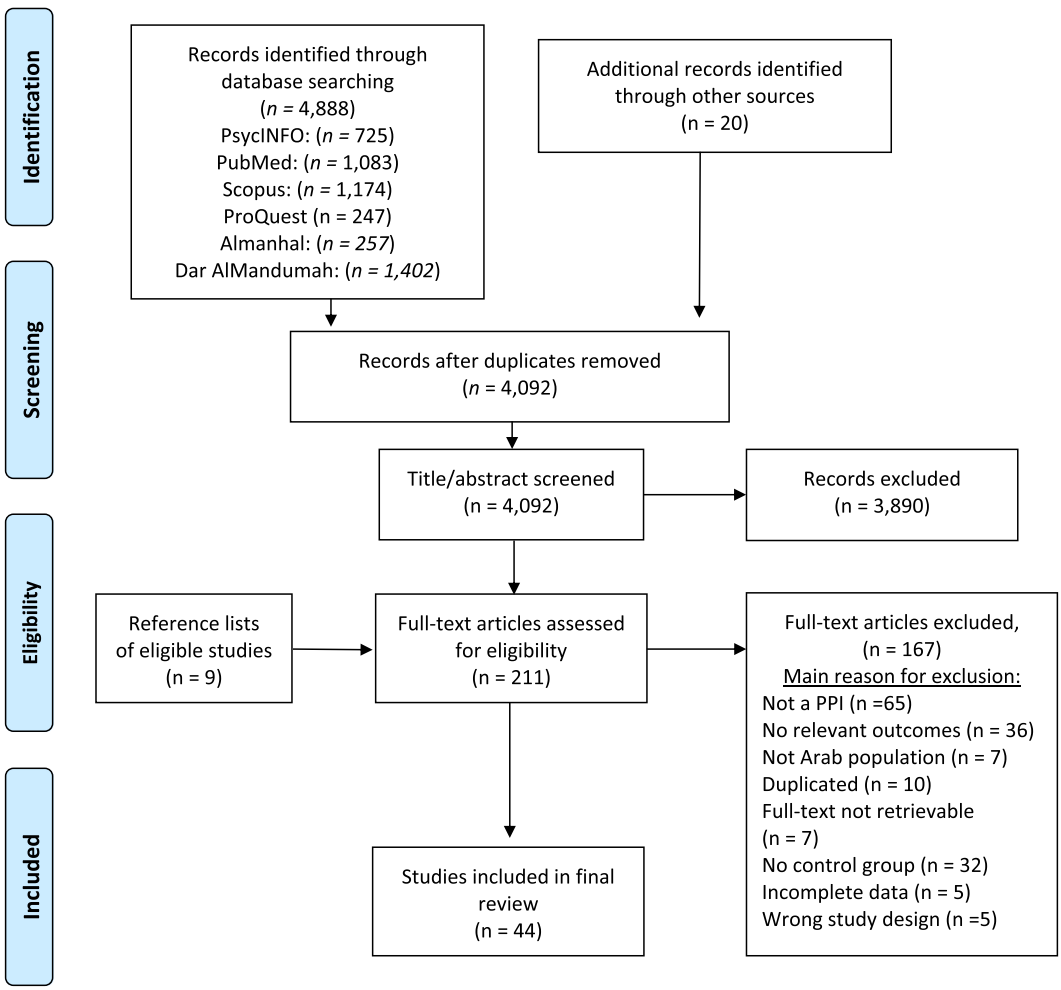


FIGURE 1 Flow chart of the study selection process

United Arab Emirates, whereas Iraq, Palestine, and Yemen each accounted for one. Thirty-four (77%) studies were published in Arabic and 10 (23%) in English. Thirty-seven (84%) studies were published in peer-reviewed journals, whereas seven (16%) were published as dissertations. Overall, 32 (73%) adopted quasi-experimental designs and 12 (27%) were RCTs.

Participant characteristics

The studies contained a total of 3598 participants at post-assessment, of whom 2127 participants were in the PPI groups. Twenty-eight studies reported the mean age of participants, which was 21.6 years ($SD = 2.46$). The sex distribution was skewed towards females (75%), with 16 studies reporting only female participants and five omitting such information. Most studies ($n = 32$, 73%) were conducted on adults and 12 (27%) were conducted on youth up to 17 years. Further, 38 studies (86%) were conducted among healthy populations (with more than half [66%] being conducted among university or school students) and six (14%) on clinical populations, including children with diabetes mellitus, injured military, drug addicts, learning disabled, deaf samples, and depressed cancer patients. Intervention group sample sizes ranged from five to 833 participants, with 26 studies (59%) having fewer than 30 participants. Only three studies included sample sizes of more than 100 participants.

Intervention characteristics

Just over half ($n = 23$, 52%) of the studies were MPPIs, with the other half using single PPIs, including mindfulness, positive thinking, character strengths, hope, optimism, self-compassion, and psychological support for positive traits. Almost all studies (92%) adapted PPIs for the local context. Delivery was mostly group-based in 39 studies (89%), self-help/online in three studies (7%) or delivered individually in two studies (5%). Almost all studies (91%, $n = 40$), compared a PPI with a no-intervention control group, two studies compared a PPI with an active control group and two studies with a waiting list.

Outcomes

Forty studies measured well-being, nine measured depression, and 13 and 11 studies measured anxiety and stress, respectively. Further, 25 studies measured a follow-up, ranging from four to 20 weeks, with 12 studies measuring less than 8 weeks follow-up and ($n = 13$) studies measuring eight to 20 weeks. Of the Arabic studies, most of the measures were developed by the authors themselves (Abu Ghali, 2017; Al-Eroud, 2018; Al-Hattab, 2017; Al-khatatneh, 2019; Al-Khateeb & Ma'ali, 2019; Al–Menshawi, 2021; Al-Salmouni, 2016; Al-Sanabani & Al-Sabwa, 2014; Alzoghby, 2017; Elaiwah, 2017; Eldabee, 2021; Haddad, 2014; Issa, 2019; Khlef et al., 2021; Mansour et al., 2016; A. Ramadan & Al-Dars, 2017; Soud & Al-Rashid, 2018; Zahran, 2015) with validity and reliability noted. Therefore, in Table S1, we decided to present the main findings rather than list the instruments used. Because of the level of heterogeneity between studies in terms of outcomes and interventions, the data are summarised qualitatively.

The effects of PPIs on well-being and mental health

Mindfulness-based intervention

Eight studies (three quasi-experiments and five RCTs) examined the effectiveness of mindfulness on well-being among university students (Al-Ghalib & Salim, 2018; Al-khatatneh, 2019; Awad, 2019; Thomas et al., 2016; Zaki & Hilmi, 2019), parents of children with autism (Rayan & Ahmad, 2016, 2017), and addicted adults (Al-Rashidi, 2018). Studies on university students reported significant large reductions in stress (Al-khatatneh, 2019; Thomas et al., 2016) and depression (Thomas et al., 2016), whereas Al-Ghalib and Salim (2018) found that the mindfulness group had marginally decreased levels of stress, anxiety and depression. Mindfulness also improved well-being among students. Al-Ghalib and Salim (2018) found a statistically significant increase in life satisfaction from the pretest to the posttest for the experimental group ($n = 26$) and a marginal increase in mental well-being. Others found improvements in academic resilience (Zaki & Hilmi, 2019) and psychological resilience (Awad, 2019), the latter of which lasted up to 1 month (Awad, 2019). Two RCTs were conducted among parents of children with autism also found reductions in stress, anxiety, and depression (Rayan & Ahmad, 2017) and increases in quality of life and positive stress reappraisal (Rayan & Ahmad, 2016), compared with the control groups. Finally, Al-Rashidi's (2018) study with adults struggling with addiction ($n = 32$) found mindfulness to have significant effects on stress reduction 7 weeks post-intervention.

Self-compassion

Promoting psychological resilience and decreasing anxiety through a self-compassion intervention was the focus of two small quasi-experimental studies conducted among university students (Elaiwah, 2017; Eldabee, 2021). Elaiwah (2017) examined a long-term self-compassion intervention (30 sessions in 10 weeks) among students ($n = 20$) and found that the participants in the experimental group showed a significant increase in psychological resilience ($p < 0.01$), compared with the control group. This improvement was maintained at a 2-month follow-up. In the same vein, a recent study by Eldabee (2021) investigated a shorter online self-compassion intervention (10 sessions in 4 weeks) among a small number of students ($n = 13$) and found significant differences between the mean scores of the experimental and control group in anxiety ($p < 0.01$), also maintained 6 weeks of follow-up. These two studies adopted Neff's work on self-compassion (Neff, 2003) including covering Mindfulness, Self-Kindness, and Common Humanity.

Hope

One quasi-experimental study (Zaki, 2016) used a hope intervention to enhance psychological well-being among female university students ($n = 26$). Zaki (2016) based the intervention on Snyder's principles of Hope including Pathways Thinking (Way Power) and Agency Thinking (Will Power) and applied these in an educational context relating it to academic hope (Jackson et al., 2003). The hope intervention was delivered to the participants over 6 weeks (13 sessions

of 90 min each). Compared with the control group, students in the experimental group reported significantly higher levels of psychological well-being ($p < 0.001$) post-intervention.

Character strengths

Two RCTs (Basurrah et al., 2020; Chérif et al., 2021) examined the effects of character strengths. Chérif et al.'s (2021) study focused on fostering all 24-character strengths over 24 days in university students ($n = 75$). There was no difference between the two groups on happiness immediately following the intervention. However, there was a significant improvement in happiness scores in the intervention group at a one-month follow-up ($p < 0.001$). Basurrah et al. (2020) examined the effects of strengths on happiness and depression in the general population ($n = 79$). Specifically, the study evaluated the short-term efficacy of 'using signature strengths in a new way' intervention and further determine if a text reminder would increase its effectiveness. Participants were randomly assigned to one of two intervention groups (using signature strengths, using signature strengths with reminder) or the control group. Although there was some evidence that the intervention group reported being happier and less depressed after the one-week intervention, a marginal significant difference ($p = 0.06$) was found between the experimental and control groups in happiness, with participants in the reminder group had the greatest increase.

Positive thinking

Six studies examined the effects of positive thinking interventions, based on learned optimism, positive explanatory style, and gratitude. These studies largely involved university (Al-kfouri et al., 2019; Mohammed et al., 2014) or school students (Bin Shaban et al., 2016; Haddad, 2014), while one study (Mohammad et al., 2015) focused on mothers of mentally disabled children and another (Khlef et al., 2021) on parents of autistic children. The duration of the intervention ranged from four to 19 weeks (including eight to 37 sessions). In comparison with the control group, participants who received the intervention reported significantly enhanced quality of life (Mohammed et al., 2014), happiness (Bin Shaban et al., 2016), and psychological hardiness (Al-kfouri et al., 2019). They also reported significantly decreased test anxiety (Haddad, 2014), future anxiety (Khlef et al., 2021), and stress (Mohammad et al., 2015), which was maintained at 6-week (Haddad, 2014) and 2-month follow-up (Khlef et al., 2021; Mohammad et al., 2015).

Optimism

The development of optimism was the focus of one quasi-experimental study by Al-Farajani et al. (2019) conducted on female secondary school students ($n = 60$). Researchers found that optimism intervention (30 sessions) significantly improved students' psychological resilience ($p < 0.01$), maintained at a 2-month follow-up. Besides using disputing irrational beliefs and distorted thoughts, she integrated Seligman's (2006) Learned Optimism principles and developed Optimistic Explanatory Style techniques in her 30-session programme.

Psychological support for positive traits

Mansour et al.'s (2016) quasi-experimental study focused on psychological support for positive traits (optimism, hope, self-efficacy) in reducing future anxiety for deaf adolescent girls ($n = 30$). In addition to Bandura's Self-efficacy (1982), the intervention included both Snyder, Rand, and Sigmon's Hope (2002) and Seligman's Optimism (2006). These three main terms are put together to be delivered in different group-support strategies like open discussion, modelling, reflection, and reinforcement. Participants who received the intervention reported a significant reduction in future anxiety that was maintained at a 2-month follow-up, compared with the no-intervention control group.

MPPIs

MPPIs (Hendriks et al., 2020) use two or more PPIs within one programme to enhance domains of well-being. Examples of MPPIs include empowerment, resilience, PERMA model (Positive emotions, Engagement, Relationships, Meaning, and Accomplishment), CARE programme (Coherence, Attention, Relationship, and Engagement), quality of life, and positive education. Studies among general ($n = 19$) and clinical populations ($n = 3$) reported the effectiveness of MPPIs in enhancing happiness (Al-Salmouni, 2016; Alwalani, 2016; Ammar, 2016), quality of life (Al-Hattab, 2017; Al-Sanabani & Al-Sabwa, 2014; Alwalani, 2016; Issa, 2019), positivity (Soud & Al-Rashid, 2018), flourishing (Lambert et al., 2019), and psychological hardiness/resilience (Abu Ghali, 2017; Al-Eroud, 2018; Al-Khateeb & Ma'ali, 2019; Hanour & Mawad, 2019; Hemeda, 2017; A. Ramadan & Al-Dars, 2017). MPPIs also improved life satisfaction (Abu As'ad, 2017; Al-Sanabani & Al-Sabwa, 2014; Ammar, 2016; Ramadan, 2014). However, one study (Lambert et al., 2021) found no differences and another study (Lambert et al., 2019) found no differences between experimental groups on students' life satisfaction in high-school samples but did for university-aged students. MPPIs were found to significantly reduce stress (Abu Ghali, 2017; Al-Khateeb & Ma'ali, 2019; Krifa et al., 2022), depression (Al-Hattab, 2017; Al Menshawi, 2021; Krifa et al., 2022), and anxiety (Al-Fangari, 2008; Al-Hattab, 2017; Alzoghby, 2017; Issa, 2019; Krifa et al., 2022; Soud & Al-Rashid, 2018; Zahran, 2015). The effect of MPPIs was maintained at 6 weeks, 1-month, 2-month, and 3-month follow-ups.

Risk of bias assessment

Overall, 12 RCTs were assessed using the Rob2 tool: Four were at low risk of bias, another three were at high risk, and five had some concerns (Figure 2). Three studies were ranked as having a 'high risk of bias' around the measurement of the outcomes and three were ranked as having 'some concerns' in the randomisation process. All Arabic RCTs ($n = 5$) mentioned that participants were randomised, but only two (Abu Ghali, 2017; Al-Rashidi, 2018) noted the randomisation sequence.

The remaining quasi-experimental (QE) studies ($n = 32$) were evaluated using the ROBINS-I tool (Figure 3). All of the included studies, except one study (Lambert et al., 2021) was at 'some concern', were at 'serious risk of bias' according to the ROBINS-I criteria, which considers a study to be at serious risk if it scores 'serious' in at least one domain. The most

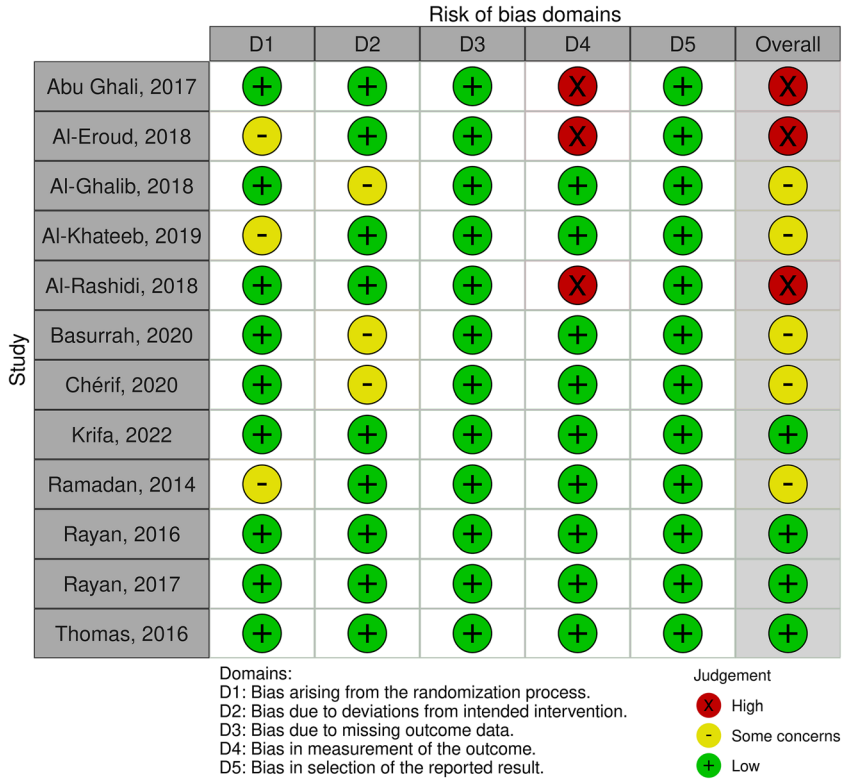


FIGURE 2 Quality assessment of RCTs

frequently noted domains causing 'serious' risk of bias included measurement of outcomes ($n = 31$) and confounding ($n = 9$). In terms of outcome measures, the variables of interest in this review rely on self-reports, and thus all included QE studies are at serious risk as the assessment was not performed under blinded circumstances given the nature of PPIs (i.e. measurement of outcomes is self-reported, participants are aware of the intervention as are the outcome assessors themselves). All studies used a 'no intervention' control group and nearly all studies were at low risk of bias, as there was complete data for all participants and only two studies were at serious risk, given a large number of missing data and one at some concern.

DISCUSSION

To our knowledge, this is the first systematic review evaluating the effects of PPIs in Arabia. We identified 44 studies ($n = 3{,}598$ participants) that investigated the impact of PPIs on enhancing well-being and decreasing ill-being in healthy and clinical populations, in 10 countries. Of these, 12 were RCTs and 32 were quasi-experimental studies, and most (77%) were in the Arabic language.

PPIs being investigated included mindfulness ($n = 8$), positive thinking interventions ($n = 6$), character strengths ($n = 2$), and self-compassion ($n = 2$) with individual studies examining hope, optimism, and psychological support for positive traits. There were several ($n = 23$)



FIGURE 3 Quality assessment of QE studies

studies examining the effects of MPPIs, and these included empowerments, resilience, CARE, PERMA, quality of life, positive education, and well-being programmes.

Our findings enhance the regional generalisability of PPIs and show their effectiveness in enhancing well-being, quality of life, and resilience, and reducing anxiety, stress, and depression in populations from a non-Western context (Hendriks et al., 2018). Several methodological limitations were identified. Studies tended to have small sample sizes making it difficult to determine if changes in the outcomes were a true finding. Under powered samples are something that has already been identified in other systematic reviews of positive psychology interventions. Indeed, Hendriks et al. (2018) showed that in 50% of non-Western studies, there were fewer than 20 intervention group participants. About half of the studies we reviewed were conducted with students, supporting Bolier et al.'s (2013) argument that general populations are overlooked in favour of convenience samples.

Furthermore, MPPIs made it difficult to separate the effectiveness of PPIs. Interestingly, while a variety of PPIs were examined including mindfulness, hope, character strengths, and self-compassion, others were less common, such as gratitude, forgiveness, savouring, or finding flow. PPIs selected by researchers or chosen by participants may reflect cultural values. For instance, research shows that Eastern populations value low arousal positive emotions (Leu et al., 2011), exhibit a fear of happiness (Joshanloo, 2013), and hold eudemonic views of happiness that focus more on meaning and personal growth, over hedonic pleasures (Joshanloo & Weijers, 2019).

Supporting recommendations (Hendriks & Graafsma, 2019), nearly all studies (91%) mentioned cultural adaptation. While it is very important to consider the role of culture and religion in Muslim countries, surprisingly, detail about what was done to adapt the intervention to the local culture was scant. Researchers with cultural knowledge and skills consistent with local groups also reported delivering the interventions themselves, highlighting another aspect of adaptation (Hendriks & Graafsma, 2019), alongside their translation into Arabic.

Limitations and strengths

Our review is limited by the small number of RCTs and the high level of heterogeneity of PPIs and the outcome measures that precluded a comprehensive meta-analysis being conducted. The low quality of included studies, small sample sizes, and incomplete data in some were additional limitations. Our review has several strengths. Our search strategy and analysis included both Arabic and English databases published in peer-reviewed journals and dissertations. This meant that we were able to identify a significant number of relevant studies ($n = 34$) in the Arabic language, identifying what PPIs have been examined in these countries, the gaps in the research, and to examine the methodological quality of these studies.

Future research

As Arab countries produce only 1% of the global output of peer-reviewed publications in psychology (Alzahrani, 2020; Maalouf et al., 2019), building greater awareness of, and research capacity in positive psychology to generate culturally appropriate adaptations, novel PPIs (Lambert & Pasha-Zaidi, 2019a), and a database on issues of well-being to support overall health efforts, is critical. We recommend that researchers follow protocol guidelines and include

active control groups rather than have no treatment group. Well-designed RCTs that use power analysis to determine sample size, as well as increase sample diversity (for example, by including internally displaced people (IDPs), low socioeconomic groups, or conflict victims), are also recommended. This can help to generalise results and determine real life applications and efficacy. Research into questions of cultural specificity, user preference, and PPI 'fit' to determine which PPIs are most effective in cultural, religious, and/or social contexts where values differ from those for which the PPIs were originally developed (Lambert & Pasha-Zaidi, 2019b) must continue.

CONCLUSIONS

Our findings offer healthy and clinical populations in the region with an evidence-based overview of the efficacy of PPIs and confidently position them as viable and effective alternatives for mental health and well-being needs, also known to be economical and less stigmatising (Jeste et al., 2015). We invite academics and professionals to take PPIs as seriously as they do standard treatments to reduce symptoms of ill health and build protective and promotive well-being skills across the Arab region. Considering the barriers that prevent Muslims from accessing mental health services including psychological therapy such as CBT (Alharbi et al., 2021), positive psychology interventions could be integrated in the education system, at school and college level, as well as in organisational work settings where PPIs have been shown to work.

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CONFLICTS OF INTEREST

None declared.

ETHICS STATEMENT

Ethical approval was not required for the performance of this systematic review.

DATA AVAILABILITY STATEMENT

The authors confirm that the data supporting the findings of this review are available within the article and its supplementary material.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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