

Burnout Intervention Strategies on Healthcare Provider Burnout (Cultural Differences): A Systematic Review and Meta-analysis

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ABSTRACT

Burnout intervention strategies are related to reduced nurse burnout, but their effect is uncertain due to cultural differences. Thus, based on the cultural variations among healthcare workers, this study aimed to examine the impact of BIS on nurse burnout and job satisfaction.

PRISMA guidelines and the Joanna Briggs Institution criteria were used as a guide in meta-analysis and studies were obtained from five databases. Moreover, a meta-analysis was performed with RevMan 5.3 software. The differences between the intervention and control groups were used Standardized mean differences and 95% confidence intervals.

Nineteen studies met the criteria, consisting of 11 in Asia and 8 in Western cultures. The burnout intervention strategies significantly decreased nurse burnout, and increased job satisfaction. Analysis of the sub-group of Asian nurses showed that the coping strategies had a significant effect on decreasing emotional exhaustion, depersonalization, and personal accomplishment. In Western nurses, the BIS caused significant effects on emotional exhaustion, depersonalization, and personal accomplishment.

This study showed the potential benefits of burnout intervention strategies in managing burnout problems of healthcare providers in Asian or Western cultures and should be considered a part of the burnout intervention.

KEYWORDS: Coping strategies, nurse, burnout, meta-analysis, healthcare provider, cultural difference

INTRODUCTION

Burnout is often experienced by healthcare providers when performing their duties and responsibilities. Numerous factors might contribute to this situation, but in particular, when heavy workloads are exacerbated by systemic problems including personnel shortages, rotating shifts, irregular working hours, and "voluntary" overtime¹. The detrimental ailment known as burnout is a multifaceted illness², influencing psychological symptoms such as personal accomplishment (PA), depersonalization (DP), and emotional exhaustion (EE)³. The global prevalence of burnout among healthcare providers has increased by 11.2% over the past two decades⁴, worsening to 68% post-COVID-19 pandemic⁵. Furthermore, a number of studies have discovered that culture can affect an individual's behavior, especially when they are dealing with burnout⁶. A previous report has shown that burnout characteristics among healthcare providers in Japan are higher than in Switzerland³. Cultural variations have an effect on people's problem-solving strategies and actively influence psychological patterns^{7,8}. Therefore, addressing burnout among healthcare providers is essential, particularly considering cultural differences. Several efforts have been made to mitigate this issue, with burnout

intervention strategies (BIS) showing significant effectiveness. These strategies include coping, stress management, education, exercise, psychological interventions, and individual burnout intervention programs⁹⁻¹³. The Maslach Burnout Inventory (MBI) has also been recommended as a tool for measuring burnout, including components such as EE, DP, and PA¹⁴. Therefore, this study aimed to compare the effectiveness of BIS on burnout (EE, DP, and PA) among healthcare providers based on cultural differences (primary outcome), as well as burnout and job satisfaction (secondary outcome).

METHODOLOGY

Search Strategy and Data Sources

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) criteria are adhered to in this study. A comprehensive search of several databases was conducted from March to May 2024 for relevant English-language publications from 1998 to 2021 in six electronic databases, namely Medline, CINAHL, the Cochrane Library, Embase, and Google Scholar. The search terms included comprehensive healthcare, health system, healthcare, long stay care, and healthcare, as well as coping ability, behavior, mechanism, skill, strategy, and style, with burnout, syndrome, psychological, and psychological. This study included randomized control trials (RCTs) and pre-posttest designs that used the MBI as a measurement tool and were prospectively registered with PROSPERO (CRD42024542128).

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Eligibility Criteria and Quality Assessment

The predefined PICO criteria were used to guide the data search, and duplicates were then eliminated from the databases that were chosen. After removing studies that did not match the inclusion criteria, the screening process was based on titles and abstracts to assess the efficacy of interventions on nursing burnout. When the reviewers looked through the full-text studies' reference lists and were unable to find any further papers that fulfilled the inclusion requirements, the search was declared over.

Data Extraction and Quality Assessment.

Data, including study design and responder characteristics such geography, kind of intervention, assessment, and outcome, were retrieved independently by reviewers. As indicated in Table 1, the technique quality was also evaluated independently, and the studies' quality was evaluated using the Joanna Briggs Institute (JBI) Critical Appraisal tools for RCTs and Non-RCT designs. Cochrane's Risk of Bias 2.0 (RoB 2.0) for randomised controlled trials and the Risk of Bias in Non-randomized Studies of Interventions (RoBINS-I) for quasi-experimental research designs were used to screen publications for bias. Disagreements were settled by conversation, and the possibility of publication bias was assessed using a funnel plot.

Data Synthesis and Statistical Analysis

The data synthesis for this study was done using RevMan 5.4 software. Changes from the pre- to posttest are utilized to illustrate the outcomes, along with comparisons of the intervention group's and the control group's post-intervention findings. Standardized mean differences (SMD) were used to present the data synthesis, and the I² test was used to quantify study heterogeneity. Significance was determined at p < 0.05 with a 95% confidence interval (CI). Moreover, effect sizes (ES) were provided for changes in burnout, such as emotional exhaustion (EE), depersonalization (DP), personal accomplishment (PA), and job satisfaction. This study employed both fixed-effects and random-effects models.

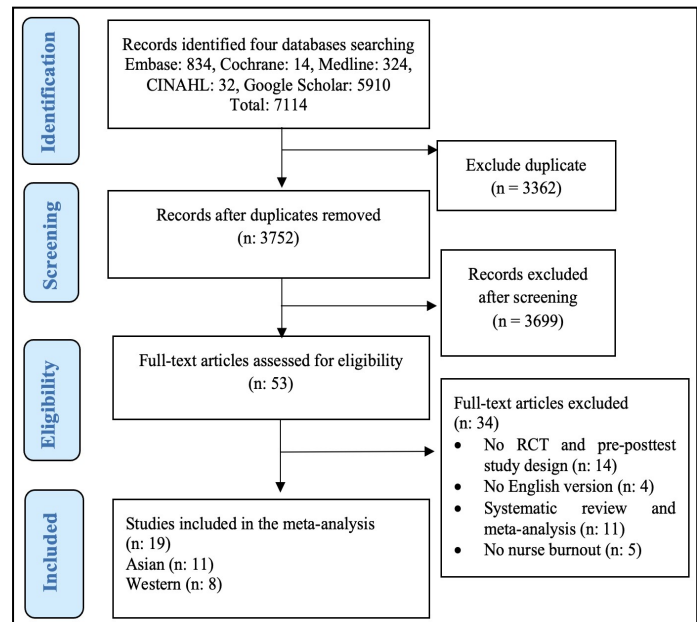
RESULTS & DISCUSION

Description of Selected Studies

The first screening process contained 7114 studies total from six databases: Embase (n = 834), Medline (n = 324), Central (n = 14), CINAHL (n = 32), and Google Scholar (n = 5910). Then, 3699 papers were eliminated based on title and abstract screening, and 3362 studies were eliminated for duplication. Following the full-text screening, 297 papers were eliminated for failing to meet the inclusion and exclusion criteria, while 53 studies satisfied the identification criteria. Studies that focused on nurse burnout (n = 4) and that were not RCTs or pre-posttest research designs (n = 14), in English (n = 4), systematic reviews, or meta-analyses (n = 11), were

excluded. Ultimately, this analysis comprised 20 studies that satisfied the criterion.

Figure 1:
Flow diagram of the study selection process



Characteristics of the Studies

Table I lists the 19 RCT and pre-posttest study designs that were included in the analysis. The studies ranged in time from 1998 to 2021 and included 8 RCTs and 11 quasi-experimental studies. These studies involved 1543 respondents in total, with 883 in the intervention group and 660 in the control group. The average age of the respondents ranged from 33.54±9.83 to 48.8±7.8 years. Two sub-group analyses were also conducted for this study: eight for the Western respondents and eleven for the Asian respondents. The BIS was then assessed using the MBI, taking into account techniques for managing stress, emotional freedom, cognitive coping, mindful-compassion art-based treatment, and yoga therapy. Additional tactics included psychosocial intervention training, happy arts therapy, psychodrama-based psychological empowerment programs, positive psychology intervention, and mindfulness instruction.

The Benefit of BIS on Burnout

Table II shows that five studies comprise 266 respondents in the intervention group and 266 in the control group. Based on the results, the intervention group showed that BIS significantly reduced burnout among nurses (SMD: -0.60, 95% CI: -0.98 to -0.22, I²: 74%) compared to the control group.

The Benefit of BIS on Emotional Exhaustion (EE)

Table III shows that a total of 19 studies were assessed, with 11 of them belonging to the Asian subgroup and 457 respondents to the intervention group and 456 respondents to the control group. Eight investigations, with 394 respondents in the intervention group and 262 in the control group, were conducted in the Western sub-group in the meantime.

Table I: Characteristics of articles

Authors, year	Country	Age (Mean±SD)	Design	Participants I/C	Intervention	Outcome	JBI
(Dincer & Inangil, 2021) ²⁵	Turkey	33.54±9.83	RCT	35/37	Emotional Freedom Techniques	MBI	13/13
(Gunusen & Ustun, 2010) ²⁰	Turkey	-	RCT	30/28	Cognitive coping strategies and problem-solving methods	MBI	11/13
(Ho et al., 2021) ²⁶	Singapore	43.52 ±11.54	RCT	29/27	Mindful-Compassion Art-based therapy	MBI	13/13
(Ozbas & Tel, 2016) ¹²	Turkey	-	RCT	38/44	Psychodrama-based psychological empowerment program	MBI	10/13
(Wei et al., 2017) ¹³	China	-	RCT	51/51	Active intervention and regular management.	MBI	9/13
(Alexander et al., 2015) ²⁷	USA	-	RCT	20/20	Yoga therapy	MBI	12/13
(Asuero et al., 2014) ⁹	Spain	48.8 ±7.8	RCT	43/25	Mindfulness Education Program	MBI	11/13
(Redhead et al., 2011) ²⁸	UK	39.4±12.4	RCT	12/9	Psychosocial intervention training	MBI	12/13
(Ahn, 2017) ²²	Korea	-	Quasi-experiment	15/15	Mindfulness-based stress reduction program	MBI	7/9
(Alenezi et al., 2019) ²⁴	Saudi Arabia	-	Quasi-experiment	154/142	(Workshop) burnout prevention	MBI	8/9
(Bagheri et al., 2019) ¹⁰	Iran	-	Quasi-experiment	30/30	Stress coping strategies	MBI	9/9
(Kavurmaci et al., 2022) ¹¹	Turkey	36.39 ± 9.38	Quasi-experiment	35/35	Yoga therapy	MBI	9/9
(Luo et al., 2019) ²¹	China	-	Quasi-experiment	41/46	Positive psychological intervention	MBI	8/9
(Sabanciogullari et al., 2015) ²⁹	Turkey	-	Quasi-experiment	33/30	The professional identity development program	MBI	8/9
(Yoon et al., 2013) ³⁰	Korea	-	Quasi-experiment	25/25	Happy arts therapy	MBI	7/9
(Felker, 2013) ³¹	USA	-	Quasi-experiment	17/17	Yoga therapy	MBI	8/9
(Le Blanc et al., 2007) ¹⁸	Netherlands	36.2±8.4	Quasi-experiment	208/98	Stress management interventions	MBI	6/9
(Mackenzie et al., 2006) ³²	USA	48.62±6.52	Quasi-experiment	16/14	Mindfulness-based stress reduction intervention	MBI	5/9
(Rowe, 2006) ¹⁹	USA	-	Quasi-experiment	42/39	Stress management intervention	MBI	6/9
(Van Dierendonck et al., 1998) ³³	Netherlands ;	-	Quasi-experiment	36/39	Individual Burnout Intervention Program	MBI	5/9

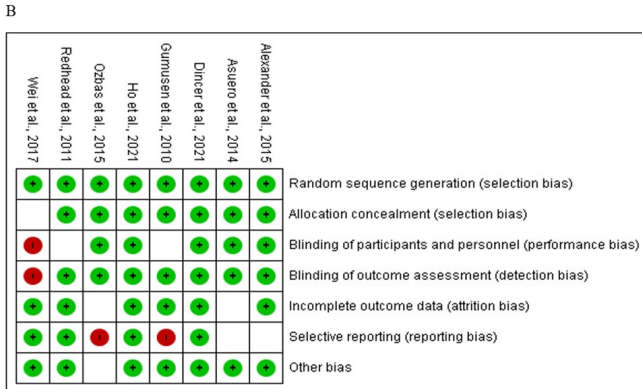
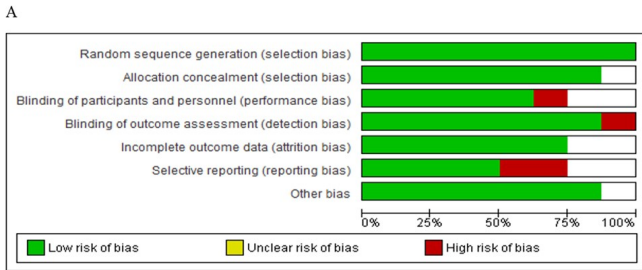
Note: *I/C*: intervention/control; *JBI*: Joanna Briggs Institute; *RCT*: Randomized control trial; *MBI*: Maslach Burnout Inventory

Table II: The benefit of burnout intervention strategies on burnout

Study or Subgroup	Intervention			Control			Weight	Std. Mean Difference IV, Random, 95% CI	Std. Mean Difference IV, Random, 95% CI
	Mean	SD	Total	Mean	SD	Total			
Dincer 2021	2.48	1.06	35	3.43	0.76	37	19.0%	-1.02 [-1.52, -0.53]	
Bahgeri et al., 2019	27.45	16.03	30	46.8	22.24	30	17.9%	-0.99 [-1.52, -0.45]	
Berger et al., 2011	45.34	7.8	42	52.93	11.4	38	19.9%	-0.78 [-1.23, -0.32]	
Analesi et al., 2019	66.15	17.23	130	69.99	11.48	125	24.9%	-0.26 [-0.51, -0.01]	
Ho et al., 2021	45.83	11.66	29	46.22	13.11	27	18.2%	-0.03 [-0.56, 0.49]	
Total (95% CI)			266			257	100.0%	-0.60 [-0.98, -0.22]	

Heterogeneity: Tau² = 0.14; Chi² = 15.55, df = 4 (P = 0.004); I² = 74%
 Test for overall effect: Z = 3.07 (P = 0.002)

Appendix I: Risk of bias (RCT design)



Note: (A) Risk of bias summary; (B) Risk of bias graph

Funnel plots in the Asian subgroup demonstrated that, in comparison to the control, BIS significantly decreased EE in the intervention group (SMD: -0.80, 95% CI: -0.94 to -0.66, I²: 77%). In the Western sub-group, comparable outcomes were seen, with BIS considerably lowering EE in the intervention group (SMD: -0.31, 95% CI: -0.47 to -0.15, I²: 52%).

The Benefit of BIS on Depersonalization (DP)

A total of 19 studies were included in this analysis, comprising 11 in the Asian sub-group and eight in the Western sub-group, as shown in Table IV. Results from the Asian sub-group, with 457 respondents in the

intervention group and 456 in the control group, showed that BIS significantly reduced depersonalization in the intervention group (SMD: -0.63, 95% CI: -0.94 to -0.32, I²: 80%) compared to the control group. Similar results were obtained in the Western sub-group, with 394 respondents in the intervention group and 264 in the control group, where BIS significantly reduced depersonalization in the intervention group (SMD: -0.21, 95% CI: -0.39 to -0.04, I²: 9%).

The Benefit of BIS on Personal Accomplishment (PA)

Table V shows that 16 studies were included in this analysis, comprising 9 in the Asian and seven in the Western sub-group. The results showed that BIS significantly improved PA in the intervention group (SMD: 0.38, 95% CI: -0.01 to 0.77, I²: 90%). However, in the Asian sub-group, with 417 respondents in the intervention group and 416 in the control group, BIS did not significantly improve personal accomplishment in the intervention group (SMD: 0.41, 95% CI: -0.15 to 0.96, I²: 93%) compared to the control. Similar results were found in the Western sub-group, with 186 respondents within the group that received intervention and 169 in the control group, where BIS did not significantly improve personal accomplishment in the intervention group (SMD: 0.31, 95% CI: -0.13 to 0.75, I²: 74%) in contrast to the group under authority.

The Benefit of Burnout Intervention on Job Satisfaction

Table VI shows that three studies with 68 respondents in the intervention group and 66 in the control group show that burnout intervention significantly improved job satisfaction in the intervention group (SMD: 0.43, 95% CI: 0.08 to 0.77, I²: 0%) compared to the control group.

Table III: The benefit of burnout intervention strategies on emotional exhaustion

Study or Subgroup	Intervention			Control			Weight	Std. Mean Difference IV, Fixed, 95% CI	Std. Mean Difference IV, Fixed, 95% CI
	Mean	SD	Total	Mean	SD	Total			
1.2.1 EE Asian									
Ahn et al., 2017	32.07	5.71	15	33.47	5.6	15	2.1%	-0.24 [-0.96, 0.48]	
Analesi et al., 2019	25.45	10.33	130	35.33	6.35	125	15.4%	-1.14 [-1.41, -0.88]	
Bahgeri et al., 2019	24.28	12.58	30	26.14	13.01	30	4.2%	-0.14 [-0.65, 0.36]	
Gurnusen et al., 2010	17.3	6	30	20.57	4.9	28	3.9%	-0.59 [-1.11, -0.06]	
Ho et al., 2021	16.48	5.79	29	17.48	6.05	27	3.9%	-0.17 [-0.69, 0.36]	
Kavurmaci et al., 2021	14	6.58	35	15.38	7.61	35	4.9%	-0.19 [-0.66, 0.28]	
Luo, 2019	1.97	0.77	41	2.51	1.58	46	6.0%	-0.42 [-0.85, 0.00]	
Ozbas et al., 2015	18	3.7	38	24.64	6.32	44	4.8%	-1.25 [-1.72, -0.77]	
Sabanciogullari, 2015	12.8	4	33	19	6	30	3.7%	-1.21 [-1.75, -0.67]	
Wei et al., 2017	9.65	3.27	51	15.39	4.94	51	5.8%	-1.36 [-1.79, -0.93]	
Yoon et al., 2013	3.86	0.58	25	4.4	0.63	25	3.2%	-0.88 [-1.46, -0.30]	
Subtotal (95% CI)			457			456	58.0%	-0.80 [-0.94, -0.66]	
Heterogeneity: Chi ² = 43.04, df = 10 (P < 0.00001); I ² = 77%									
Test for overall effect: Z = 11.45 (P < 0.00001)									
1.2.2 EE Western									
Alexander et al., 2015	12.95	8.76	20	20.6	12.09	20	2.6%	-0.71 [-1.35, -0.07]	
Asuero et al., 2014	19.5	11	43	26.7	13.6	25	4.3%	-0.59 [-1.10, -0.09]	
Felker 2013	18.35	7.66	17	24.18	11.47	17	2.3%	-0.58 [-1.27, 0.10]	
Le Blanc et al., 2007	1.53	0.92	208	1.85	1	96	18.5%	-0.13 [-0.37, 0.12]	
Mackenzie et al., 2006	20.67	10.39	16	17.23	10.18	14	2.1%	0.33 [-0.40, 1.05]	
Redhead et al., 2011	21.16	14.08	12	20.11	1.58	9	1.5%	0.09 [-0.77, 0.96]	
Rowe et al., 2006	21.27	4.77	42	25.29	4.93	42	5.5%	-0.82 [-1.27, -0.37]	
Van derendonck et al., 1998	10	5.6	36	11.9	9.1	39	5.2%	-0.25 [-0.70, 0.21]	
Subtotal (95% CI)			394			262	42.0%	-0.31 [-0.47, -0.15]	
Heterogeneity: Chi ² = 14.44, df = 7 (P = 0.04); I ² = 52%									
Test for overall effect: Z = 3.79 (P = 0.0002)									
Total (95% CI)			851			718	100.0%	-0.59 [-0.70, -0.49]	
Heterogeneity: Chi ² = 78.03, df = 18 (P < 0.00001); I ² = 77%									
Test for overall effect: Z = 11.18 (P < 0.00001)									
Test for subgroup differences: Chi ² = 20.55, df = 1 (P < 0.00001); I ² = 95.1%									

Table IV: The benefit of burnout intervention strategies on depersonalization

Study or Subgroup	Intervention			Control			Weight	Std. Mean Difference IV, Random, 95% CI	Std. Mean Difference IV, Random, 95% CI
	Mean	SD	Total	Mean	SD	Total			
1.3.1 DP Asian									
Ahn et al., 2017	13	4.83	15	14.53	4.45	15	4.1%	-0.32 [-1.04, 0.40]	
Analesi et al., 2019	10.02	7.27	130	13.82	5.45	125	7.0%	-0.59 [-0.84, -0.34]	
Bahgeri et al., 2019	6.25	2.56	30	12	3.29	30	4.7%	-1.93 [-2.54, -1.31]	
Gurnusen et al., 2010	4.63	3.21	30	5.39	2.69	28	5.3%	-0.25 [-0.77, 0.26]	
Ho et al., 2021	12.69	5.29	29	13.11	4.54	27	5.3%	-0.08 [-0.61, 0.44]	
Kavurmaci et al., 2021	3.75	3.01	35	5.17	3.94	35	5.6%	-0.40 [-0.87, 0.07]	
Luo, 2019	1.92	0.84	41	2.28	1.58	46	5.9%	-0.00 [-0.42, 0.42]	
Ozbas et al., 2015	7.46	1.63	38	10.79	2.43	44	5.4%	-1.57 [-2.07, -1.07]	
Sabanciogullari, 2015	4.3	2.8	33	6.2	4.5	30	5.4%	-0.51 [-1.01, -0.00]	
Wei et al., 2017	6.9	14.1	51	11.49	4.86	51	6.1%	-0.43 [-0.82, -0.04]	
Yoon et al., 2013	2.76	0.7	25	3.54	0.83	25	4.9%	-1.00 [-1.59, -0.41]	
Subtotal (95% CI)			457			456	59.7%	-0.63 [-0.94, -0.32]	
Heterogeneity: Tau ² = 0.21; Chi ² = 49.14, df = 10 (P < 0.00001); I ² = 80%									
Test for overall effect: Z = 3.94 (P < 0.0001)									
1.3.2 DP Western									
Alexander et al., 2015	2.5	3.65	20	5.15	4.51	20	4.6%	-0.63 [-1.27, 0.00]	
Asuero et al., 2014	7.2	5.5	43	9	5.7	25	5.5%	-0.32 [-0.82, 0.18]	
Felker 2013	10.12	4.3	17	12.24	5.31	17	4.3%	-0.43 [-1.11, 0.25]	
Le Blanc et al., 2007	0.94	0.82	208	1	0.65	98	7.0%	-0.08 [-0.32, 0.16]	
Mackenzie et al., 2006	4.8	4.43	16	5	5.89	14	4.1%	-0.04 [-0.76, 0.68]	
Redhead et al., 2011	3.08	2.9	12	6.22	2.48	9	3.1%	-1.10 [-2.04, -0.16]	
Rowe et al., 2006	6.97	2.91	42	7.63	3.11	42	5.9%	-0.22 [-0.65, 0.21]	
Van dierendonck et al., 1998	3.7	2.4	36	3.8	3.6	39	5.7%	-0.03 [-0.49, 0.42]	
Subtotal (95% CI)			394			264	40.3%	-0.21 [-0.39, -0.04]	
Heterogeneity: Tau ² = 0.01; Chi ² = 7.70, df = 7 (P = 0.36); I ² = 9%									
Test for overall effect: Z = 2.39 (P = 0.02)									
Total (95% CI)			851			720	100.0%	-0.49 [-0.71, -0.28]	
Heterogeneity: Tau ² = 0.16; Chi ² = 69.74, df = 18 (P < 0.00001); I ² = 74%									
Test for overall effect: Z = 4.50 (P < 0.00001)									
Test for subgroup differences: Chi ² = 5.12, df = 1 (P = 0.02), I ² = 80.5%									

Table V: The benefit of burnout intervention strategies on personal accomplishment

Study or Subgroup	Intervention			Control			Weight	Std. Mean Difference IV, Random, 95% CI	Std. Mean Difference IV, Random, 95% CI
	Mean	SD	Total	Mean	SD	Total			
1.4.1 PA Asian									
Analesi et al., 2019	33.31	7	130	20.54	8.07	125	6.8%	1.69 [1.40, 1.97]	
Bahgeri et al., 2019	13.2	4.12	30	23.21	12.59	30	6.2%	-1.05 [-1.60, -0.51]	
Gurnusen et al., 2010	21.43	3.5	30	19.92	3.12	28	6.3%	0.45 [-0.07, 0.97]	
Ho et al., 2021	32.48	5.29	29	33.22	4.54	27	6.3%	-0.15 [-0.67, 0.38]	
Kavurmaci et al., 2021	23.93	3.04	35	20.73	4.56	35	6.4%	0.82 [0.33, 1.31]	
Luo, 2019	1.91	1.09	41	2.02	1.51	46	6.6%	-0.08 [-0.50, 0.34]	
Ozbas et al., 2015	31.08	2.61	38	27.7	4.73	44	6.5%	0.86 [0.40, 1.31]	
Sabanciogullari, 2015	23	2.4	33	20.5	4.1	30	6.3%	0.74 [0.23, 1.26]	
Wei et al., 2017	25.98	5.21	51	24.54	4.21	51	6.6%	0.30 [-0.09, 0.69]	
Subtotal (95% CI)			417			416	58.0%	0.41 [-0.15, 0.96]	
Heterogeneity: Tau ² = 0.67; Chi ² = 113.75, df = 8 (P < 0.00001); I ² = 93%									
Test for overall effect: Z = 1.44 (P = 0.15)									
1.4.2 PA Western									
Alexander et al., 2015	39.6	8.9	20	37.05	9.98	20	6.0%	0.26 [-0.36, 0.89]	
Asuero et al., 2014	40.9	4.7	43	39.5	6	25	6.4%	0.27 [-0.23, 0.76]	
Felker 2013	34.24	5.87	17	30.94	3.83	17	5.8%	0.65 [-0.04, 1.34]	
Mackenzie et al., 2006	41.6	3.25	16	33.33	6.77	14	5.4%	1.55 [0.72, 2.38]	
Redhead et al., 2011	35.66	4.39	12	32.55	7.4	12	5.4%	0.49 [-0.32, 1.31]	
Rowe et al., 2006	35.33	3.86	42	37.38	4.28	42	6.5%	-0.50 [-0.93, -0.06]	
Van dierendonck et al., 1998	31.4	6	36	31.8	5.5	39	6.5%	-0.07 [-0.52, 0.38]	
Subtotal (95% CI)			186			169	42.0%	0.31 [-0.13, 0.75]	
Heterogeneity: Tau ² = 0.25; Chi ² = 23.36, df = 6 (P = 0.0007); I ² = 74%									
Test for overall effect: Z = 1.39 (P = 0.17)									
Total (95% CI)			603			585	100.0%	0.38 [-0.01, 0.77]	
Heterogeneity: Tau ² = 0.55; Chi ² = 150.58, df = 15 (P < 0.00001); I ² = 90%									
Test for overall effect: Z = 1.93 (P = 0.05)									
Test for subgroup differences: Chi ² = 0.07, df = 1 (P = 0.79), I ² = 0%									

Methodological Quality of the Studies

Table I shows the process of evaluating methodological quality of the studies using JBI scores. Generally, the possibility of prejudice for RCT study designs (Appendix 1), consisting of eight studies was rated as "some concern," while the methodological

quality of studies with quasi-experimental design among 11 studies was categorized as "moderate to high."

A many as 19 studies were divided into two sub-group analyses, consisting of 11 from Asia and eight from Western regions. Despite burnout being a global

Table VI: The benefit of burnout intervention strategies on job satisfaction

Study or Subgroup	Intervention			Control			Weight	Std. Mean Difference IV, Fixed, 95% CI	Std. Mean Difference IV, Fixed, 95% CI
	Mean	SD	Total	Mean	SD	Total			
Mackenzie et al., 2006	47.4	6.65	16	45.92	10.28	14	22.8%	0.17 [-0.55, 0.89]	
Felker 2013	28.59	6.13	17	25.41	7.71	17	25.4%	0.45 [-0.24, 1.13]	
Kavurmaci et al., 2021	4.17	0.68	35	3.82	0.62	35	51.8%	0.53 [0.05, 1.01]	
Total (95% CI)			68			66	100.0%	0.43 [0.08, 0.77]	

Heterogeneity: Chi² = 0.68, df = 2 (P = 0.71); I² = 0%
 Test for overall effect: Z = 2.44 (P = 0.01)

phenomenon⁴, Research on the frequency of burnout among nurses in Western and Asian nations has demonstrated the critical relevance of interventions. Therefore, the goal of this research was to ascertain how BIS can help with concerns related to nurse burnout, specifically EE, DP, and PA, and to enhance job satisfaction among healthcare providers while taking cultural differences into consideration.

The results showed that BIS could reduce burnout, consistent with previous studies where a significant improvement was found in psychological problems^{10,12}. Similarly, as Tables 3 and 4 demonstrate, BIS has been demonstrated to positively reduce EE and DP issues across Asian and Western healthcare providers. A syndrome known as emotional exhaustion (EE) is when people experience a build-up of stress from either their personal lives, their jobs, or both.¹⁵ Meanwhile, DP includes a change in self-awareness and identity, leading to dissociation or detachment from the surrounding environment¹⁶. When DP is not properly managed, there is potential for negative impact on individuals, organizations, or groups¹⁷. Therefore, BIS programs are a viable option for reducing burnout and stress management^{10,18,19}, coping strategies²⁰, yoga therapy¹¹, and psychological interventions^{12,21}. BIS has also been shown to reduce EE and DP while enhancing PA among healthcare providers experiencing burnout, both in Asian and Western contexts^{9,11,21,22}.

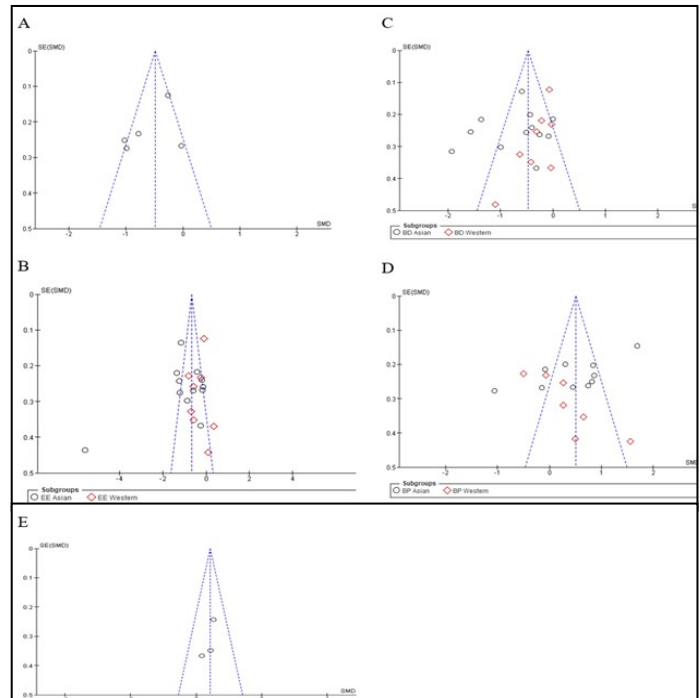
Table V indicates that no statistically significant relationship could be found between BIS and PA improvement among healthcare providers from Asian and Western cultures. Even though Hofstede (1997) claimed that a person's acceptance was influenced by their culture^{7,8}, other factors required consideration, such as self-efficacy and individual motivation²³. These factors significantly impact an individual's acceptance of the therapy provided beyond culture.

Limitation

One of the study's weaknesses was that none of the assessed studies showed any indications of publication bias. Appendix 1 demonstrates that data on performance and attrition bias were lacking in several studies. Furthermore, because of variations in sample sizes and BIS program types, the analysis revealed significant variability, as illustrated by the forest and funnel plots (**Appendix 2**). Two independent reviewers made an effort to manage the risks of bias and high heterogeneity by searching five databases for papers and employing reliable analytic

techniques. An additional constraint involved the incorporation of solely English-published research and the omission of many characteristics, including motivation and self-efficacy, which may have affected the outcomes showcased in Table 5. Consequently, it is advised that motivation and self-efficacy be taken into account in subsequent meta-analyses when analyzing how BIS affects healthcare personnel' burnout.

Appendix II: Funnel plots of the studies



Note: (A) Benefit BIS on burnout; (B) Benefit BIS on EE; (C) Benefit BIS on DP; (D) Benefit BIS on PA; (E) Benefit BIS on job satisfaction

CONCLUSION

This study's findings demonstrated the potential advantages of BIS in lowering burnout and raising job satisfaction among healthcare professionals. In both Asian and Western contexts, BIS successfully decreased EE and DP among healthcare providers while also improving PA with negligible differences. As a result, the findings offered insightful knowledge about BIS for subsequent research, taking into account additional elements like motivation and self-efficacy to reinforce the evidence-based advantages

of BIS on burnout in light of cultural variations.

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AUTHOR CONTRIBUTION

Riu SDM: Perform the literature screening, data extraction, data analysis, results representation, and drafting the manuscript for intellectual content.

Nursalam N: Quality appraisal of articles.

Ruku DM: Quality appraisal of articles, statistical analysis, interpreted the data, and contributed to and revised manuscript for intellectual content, literature screening, data extraction, data analysis and results representation.

All authors approved the final manuscript.

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