

#### BASS CONNECTIONS

## Background

Hypertension is a leading modifiable risk factors for cardiovascular disease, which is the leading cause of death worldwide.

Prevention and management of hypertension in low- and middle-income countries (LMICs) is inadequate due to multiple factors including knowledge, lack the resources, **O**T awareness.

Mobile health (mHealth) technology has shown promise in lowering blood pressure in clinical trials, but a comprehensive review of these studies is still needed.

# Study Aims

We are aimed to assess the effectiveness of digital health interventions in reducing high blood pressure among adult patients in LMICs.

# Design and Methods

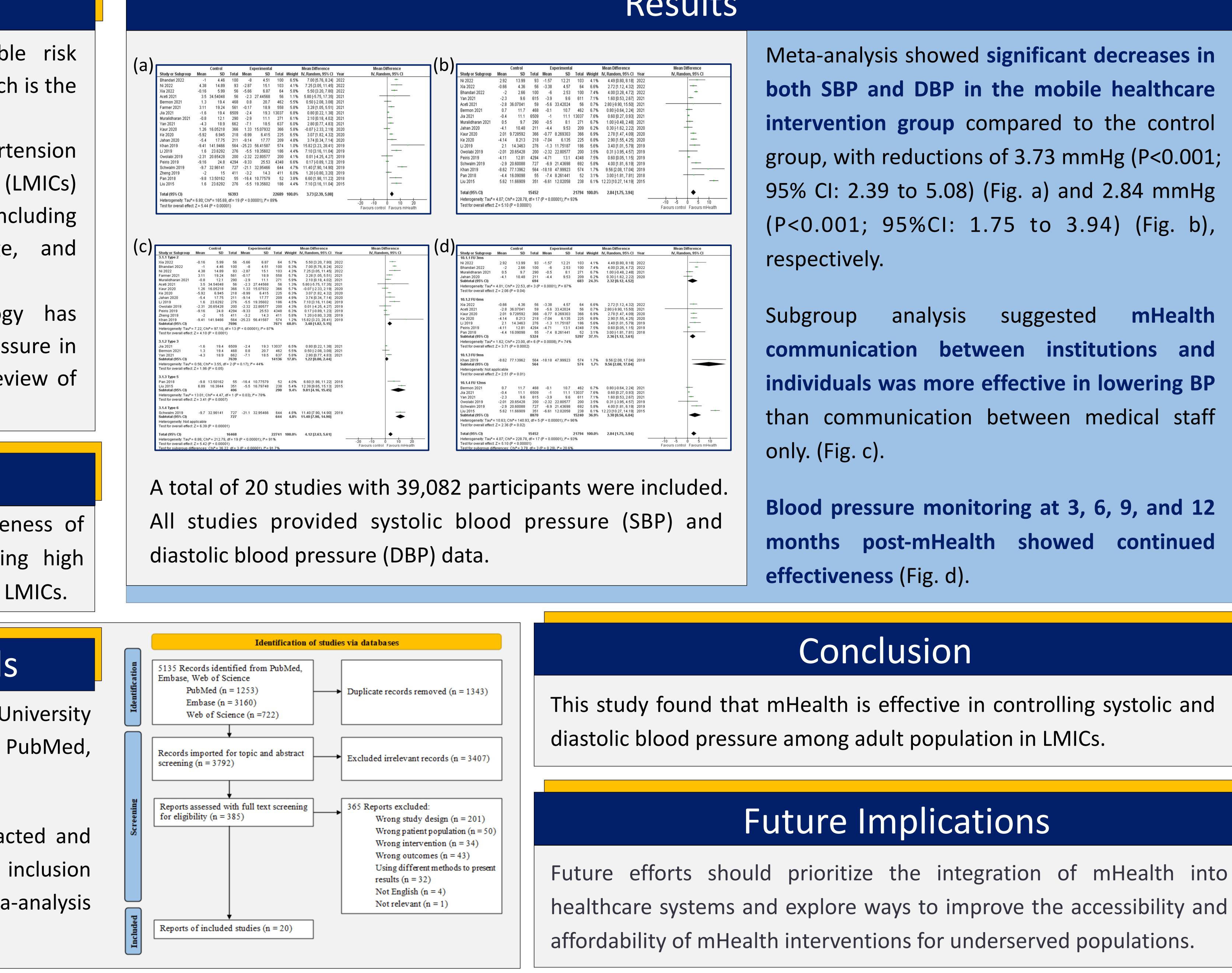
For the report identification, Duke University systematically searched librarians Embase, and Web of Science.

Seven researchers independently extracted and assessed literature quality based on inclusion and exclusion criteria, followed by meta-analysis and systematic review.

### Leveraging Digital Health Interventions to Prevent and Manage Hypertension in Low- and Middle-Income Countries: A Systematic Review and Meta-Analysis

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Schutte, A. E., Srinivasapura Venkateshmurthy, N., Mohan, S., & Prabhakaran, D. (2021). Hypertension in low-and middle-income countries. Circulation research, 128(7), 808-826. 2. Beratarrechea, A., Lee, A. G., Willner, J. M., Jahangir, E., Ciapponi, A., & Rubinstein, A. (2014). The impact of mobile health interventions on chronic disease outcomes in developing countries: a systematic review. Telemedicine and e-Health, 20(1), 75-82.

## Results

		Control		Experimental			Mean Difference			Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% Cl	Year	IV, Random, 95% Cl
Ni 2022	2.92	13.99	93	-1.57	12.21	103	4.1%	4.49 [0.80, 8.18]	2022	
Xia 2022	-0.66	4.36	56	-3.38	4.57	64	6.6%	2.72 [1.12, 4.32]	2022	
Bhandari 2022	-2	2.66	100	-6	2.53	100	7.4%	4.00 [3.28, 4.72]	2022	-
Yan 2021	-2.3	9.6	615	-3.9	9.6	611	7.1%	1.60 [0.53, 2.67]	2021	-
Aceti 2021	-2.8	36.07041	59	-5.6	33.42024	56	0.7%	2.80 [-9.90, 15.50]	2021	
Bermon 2021	0.7	11.7	468	-0.1	10.7	462	6.7%	0.80 [-0.64, 2.24]	2021	+
Jia 2021	-0.4	11.1	6509	-1	11.1	13037	7.6%	0.60 [0.27, 0.93]	2021	+
Muralidharan 2021	0.5	9.7	290	-0.5	8.1	271	6.7%	1.00 [-0.48, 2.48]	2021	+
Jahan 2020	-4.1	10.48	211	-4.4	9.53	209	6.2%	0.30 [-1.62, 2.22]	2020	+
Kaur 2020	2.01	9.728592	366	-0.77	8.269303	366	6.9%	2.78 [1.47, 4.09]	2020	-
Ke 2020	-4.14	8.213	218	-7.04	6.135	225	6.8%	2.90 [1.55, 4.25]	2020	
Li 2019	2.1	14.3463	276	-1.3	11.75187	186	5.6%	3.40 [1.01, 5.79]	2019	
Owolabi 2019	-2.01	20.65428	200	-2.32	22.80577	200	3.5%	0.31 [-3.95, 4.57]	2019	
Peiris 2019	-4.11	12.81	4294	-4.71	13.1	4348	7.5%	0.60 [0.05, 1.15]	2019	-
Schwalm 2019	-2.9	20.60088	727	-6.9	21.43698	692	5.8%	4.00 [1.81, 6.19]	2019	
Khan 2019	-8.62	77.13962	564	-18.18	47.99923	574	1.7%	9.56 [2.08, 17.04]	2019	
Pan 2018	-4.4	16.09098	55	-7.4	8.261441	52	3.1%	3.00 [-1.81, 7.81]	2018	
Liu 2015	5.62	11.66909	351	-6.61	12.02058	238	6.1%	12.23 [10.27, 14.19]	2015	
Total (95% CI)			15452			21794	100.0%	2.84 [1.75, 3.94]		•
Heterogeneity: Tau <sup>2</sup> =	= 4.07; C	hi² = 228.78	, df = 17	(P < 0.0	0001); I <sup>2</sup> = 9	33%				
Test for overall effect: Z = 5.10 (P < 0.00001)									-10 -5 Ó Ś 10 Favouro control. Favouro milioalth	
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Meta-analysis showed significant decreases in both SBP and DBP in the mobile healthcare intervention group compared to the control group, with reductions of 3.73 mmHg (P<0.001; 95% CI: 2.39 to 5.08) (Fig. a) and 2.84 mmHg (P<0.001; 95%CI: 1.75 to 3.94) (Fig. b),

mHealth analysis suggested communication between institutions and individuals was more effective in lowering BP than communication between medical staff

Blood pressure monitoring at 3, 6, 9, and 12 months post-mHealth showed continued effectiveness (Fig. d).

# Conclusion

**Bass Connections in Global Health**