SCREENING FOR DEPRESSION IN PERSISTING PAIN PATIENTS HAS NEGLIGIBLE EFFECTS ON DEPRESSION AT SIX-MONTH FOLLOW-UP

Brendan Mouatt[1], Hayley B Leake[1,2], Tasha R Stanton[1], G. Lorimer Moseley[1], Hopin Lee[3,4], Aidan G Cashin[5], Laura E Simons[6], Felicity A Braithwaite[1]

[1]IIMPACT IIMPACT in Health, University of South Australia, Kaurna Country, Adelaide, Australia; [2]Centre for IMPACT, Neuroscience Research Australia, Sydney, New South Wales Australia; [3]Centre for Statistics in Medicine, Nuffield Department of Orthopaedics, Rheumatology, and Musculoskeletal Sciences, University of Oxford, Oxford, England; [4]School of Medicine and Public Health, University of Newcastle, Callaghan, Australia; [5]School of Health Sciences, Faculty of Medicine & Health, University of New South Wales, Sydney, Australia; [6]Department of Anesthesiology, Perioperative, and Pain Medicine, Stanford University School of Medicine, Stanford, CA, US.

KEY POINTS

- Screening for depression in people with persisting pain is recommended in clinical practice to ensure appropriate referral for psychological support.
- We assessed whether screening for depression using the Patient Health Questionnaire – 9 (PHQ-9), compared to no screening, influenced depression at 6-months follow-up in people with persisting pain (n=1779).
- We found no benefit of screening for depression or referral for psychological care on depression symptoms.

BACKGROUND & AIMS

Persisting pain is influenced by a myriad of psychological factors, and as such, screening for depression is a component of guideline care. It is assumed that screening, and subsequent psychological treatment for those with clinically important depression, improves mood outcomes. Whether the act of screening with a depression scale influences depression itself has not been explored.

The Patient Health Questionnaire – 9 (PHQ-9), a nine-item questionnaire, is commonly used to screen for depression symptoms. The PHQ-9 has established cut-offs to trigger referral to specialist psychological care.

We had two aims:

→ **to determine whether screening for depression with the PHQ-9, compared to no PHQ-9 screening, influences depression six months later in people with persisting pain.**

→ **to explore whether referral for psychological care and receipt of psychological care mediated any effects of screening on depression at follow-up.**

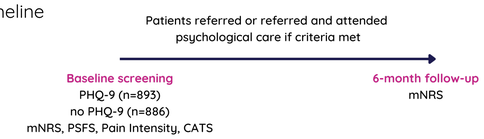
METHODS

PARTICIPANTS:
1779 people with persisting pain (>3 months) presenting to primary care. Data was obtained from seven clinics in Australia, USA, and the UK.

GROUPS:
Participants were randomised to either complete (n=893) or not complete (n=886) the PHQ-9 at baseline. All participants completed a single-item mood numerical rating scale (mNRS). See Figure 1 for study timeline.

- **Exposure: The PHQ-9** (score range 0-27; higher score = worse depression)
- **Outcome: A single-item mNRS:** 'How would you rate your general mood this past week?'; anchors: 0='very bad, as depressed as I could be', 10='excellent' (baseline & follow-up)
- **Mediator:** Referral to and attendance for psychological care
- **Potential confounders: Disability:** Patient specific functional scale (PSFS), **Pain intensity:** 100mm VAS, **Catastrophising:** The Catastrophising Thoughts About Pain Scale (CATS); see Table 1 for more details.

Figure 1: Study timeline



DATA ANALYSIS
A single item mood question (mNRS) was used to assess depression at 6 months follow-up. Prior to analysis, the mNRS was determined to strongly correlate with the PHQ-9 **(r=0.83, p<0.01)** and thus, was considered a valid measure of depression.

Causal mediation analysis was used to estimate the average direct effect (ADE) of screening on depression at 6-months by blocking the effect of referral for and attendance to psychological care (ACME) and controlling for disability, pain intensity, and catastrophising at baseline (Figure 2).

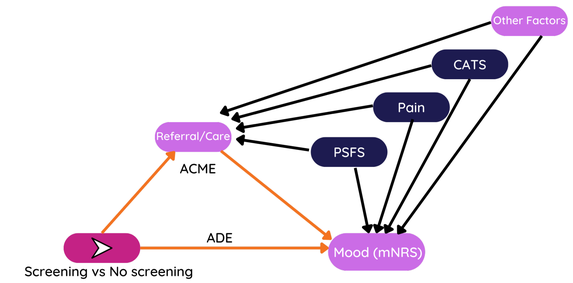


Figure 2: Directed acyclic graph for the direct effect of screening on mood.

RESULTS

Table 1: Descriptive statistics of the cohort

Characteristic	No PHQ-9 Screen	PHQ-9 Screen
Number of participants	886	893
Age	42.5 ± 11.1	43.0 ± 11.1
Sex (Female, Male)	594, 292	589, 304
Baseline Pain intensity (VAS 0-100; ↑ score = ↑ intensity)	52.5 ± 15.7	51.2 ± 15.8
Baseline PSFS (3-5 activities; NRS 0-10; ↑ score = ↑ function)	2.3 ± 2.1	2.2 ± 2.1
Baseline Catastrophising (7 items; NRS 0-10; ↑ score = ↑ catastrophizing)	40.6 ± 8.9	39.8 ± 8.5

CAUSAL MEDIATION ANALYSIS:
Participants screened with the PHQ-9 had greater depression at 6-month follow up compared to those who were not screened **(0.48 points on 11-point mNRS, 95% CI 0.34-0.79;** See Total Effect from table 2)

When attendance (n = 466; 26%) and referral (n = 645; 36%) for psychological care were treated as the mediator, the average direct effect (ADE) remained significant at **(0.41 points, 95% CI 0.23 - 0.57)** and **(0.45 points, 95% CI 0.32-0.60)** respectively (Table 2).

Attendance for psychological care partially mediated the relationship between psychological screening and increased mNRS at 6-month follow-up, **(proportion mediated = 0.14, 95% CI 0.06-0.49, p=0.024).**

Referral for psychological care did not mediate the relationship between screening and mNRS, **(proportion mediated = 0.18, 95% CI -0.21-0.43, p=0.2).**

A sensitivity analyses was conducted on the ADE of both the non-screened and screened groups with the results suggesting that the direct effects were robust to potential mediator-outcome confounding.

		Estimate	95% CI	p-value
Attendance n=466	ACME	0.07	0.02 – 0.30	0.024 *
	ADE	0.41	0.23 – 0.57	<2e-16 ***
	Total Effect	0.48	0.34 – 0.79	<2e-16 ***
	Prop. Mediated	0.14	0.06 – 0.49	0.024 *
Referral n=645	ACME	0.10	-0.08 – 0.30	0.2
	ADE	0.45	0.32 – 0.60	<2e-16 ***
	Total Effect	0.55	0.34 – 0.81	<2e-16 ***
	Prop. Mediated	0.18	-0.21 – 0.43	0.2

Significance codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.'
ACME = average causal mediation effect, **ADE =** average direct effect, **Prop. Mediated =** proportion mediated

Table 2: Effect decomposition for the effect of psychological screening (PHQ-9) on depression (mNRS) at 6 months follow-up with attendance of and referral to psychological care as the hypothesised mediator.

CONCLUSIONS

- These data suggest that screening for depression using the PHQ-9 may paradoxically increase depression for people with persisting pain, regardless of psychological referral or attendance.
- The increase in depression with screening was minimal, but, notably, there seemed to be no benefit of screening for depression and referring for psychological care in this cohort.
- Replication is required and future research is needed to assess the generalisability of these results to other populations prior to altering clinical practice.

Take a picture to **access** the poster

@BrendanMouatt
brendanmouatt@gmail.com

COI: BM is supported by a Leadership Investigator Grant from the National Health & Medical Research Council of Australia to GLM (ID 1178444).

IASP 2022 Word Congress on Pain - PWD389