PAN AFRICAN CLINICAL TRIALS REGISTRY (PACTR)

RESULTS SUMMARY

Exploring the Impact of Physical Activity Patterns on Burnout and Happiness Among Health Care Workers at Dongola Hospital, Sudan, 2026

Pilot randomised interventional feasibility study

Item	Details
Principal investigator	Waleed Khalid Khalafallah Khalid
Institution	College of Graduate Studies, Department of Physiology, Al Neelain University, Khartoum, Sudan
Recruitment centre	Dongola Specialized Hospital, Dongola, Northern State, Sudan
Study design	Hospital-based pilot randomised interventional feasibility study with two parallel groups
Intervention	20 minutes of moderate-intensity exercise before the clinical shift for 14 days
Control	Usual pre-shift routine
Study period	28 June 2026 to 11 July 2026
Participants	30 healthcare workers: 15 exercise and 15 control

Prepared as a consolidated results summary for PACTR reporting.

1. Participant Flow

Thirty healthcare workers were recruited and randomised after baseline assessment. Fifteen participants were allocated to the exercise group and 15 to the control group. All 30 participants were included in the final analysis. Some questionnaire items were missing or unclear, so the number of paired observations differed between individual outcomes. Missing values were not imputed.

Stage	Total	Exercise	Control
Recruited	30	—	—
Randomised	30	15	15
Included in final analysis	30	15	15

Participant Flow Diagram	
Recruited (n=30)	
↓	
Baseline assessment completed (n=30)	
↓	
Randomised (n=30)	
Exercise group Allocated (n=15)	**Control group Allocated (n=15)**
↓	↓
Included in final analysis (n=15)	**Included in final analysis (n=15)**

2. Baseline Characteristics

The mean age of the full sample was 26.1 ± 2.9 years. Sixteen participants (53.3%) were female and 14 (46.7%) were male. The sample included 18 nurses, 10 doctors and two allied healthcare professionals.

Characteristic	Control group	Exercise group
Age, years	26.33 ± 3.54 (n=15)	25.93 ± 2.09 (n=15)
Male	8 (53.3%)	6 (40.0%)
Female	7 (46.7%)	9 (60.0%)
Doctor	5 (33.3%)	5 (33.3%)
Nurse	8 (53.3%)	10 (66.7%)
Allied health	2 (13.3%)	0 (0.0%)
Body mass index, kg/m²	21.30 ± 2.78	22.68 ± 3.52
Waist-to-hip ratio	0.82 ± 0.04	0.81 ± 0.05
Moderate activity days/week	2.54 ± 2.03 (n=13)	3.07 ± 2.37 (n=15)
Moderate activity minutes/week	97.50 ± 136.99 (n=12)	175.00 ± 177.12 (n=12)

Note: Baseline physical-activity data were incomplete for some participants. Baseline significance testing was not used as the main method of assessing group comparability.

3. Adverse Events, Symptoms and Safety

Reported symptom data were available for 14 participants in the exercise group. Three of 14 participants (21.4%) reported symptoms during exercise. Symptom severity and the relationship of these symptoms to the intervention were not formally graded. Participants had been instructed to stop exercise if they developed concerning symptoms, and clinical assessment was available within the hospital if required.

4. Primary Outcome: Feasibility of the Pre-shift Exercise Programme

Feasibility was assessed using exercise adherence, reported symptoms and post-intervention acceptability responses in the exercise group.

Measure	Available participants	Result
Completed exercise days	14	12.64 ± 2.02 days; median 13.5 [12.0–14.0]
Mean adherence	14	90.3%
Reported symptoms during exercise	14	3 (21.4%)
Felt more energetic: agree/strongly agree	14	11 (78.6%)
Exercise reduced work-related stress: agree/strongly agree	14	14 (100.0%)
Would recommend pre-shift exercise	14	14 (100.0%)

The programme therefore showed high short-term adherence and high acceptability in this small pilot sample.

5. Secondary Outcome Measures

Outcome	Control change	Exercise change	Between-group p value	Summary
Emotional exhaustion	-1.33 points	-2.00 points	0.592	No significant between-group difference
Depersonalisation	-0.64 points	-0.83 points	0.829	No significant between-group difference
Personal accomplishment	+1.46 points	+1.17 points	0.527	No significant between-group difference
Subjective happiness	+0.47	+0.56	0.844	No significant between-group difference

Energy at work	Median change 0.00	Median change 0.00 [0.00–1.00]	0.108	Main between-group change comparison not significant; exercise group improved within-group (p=0.014)
Exploratory stress composite	-0.18	-0.10	0.733	No significant between-group difference

For the four individual work-related items, none of the between-group change comparisons was statistically significant: stress during most shifts (p=0.442), frequent conflict with colleagues or patients (p=0.336), mental exhaustion by the end of the shift (p=0.431), and acceptable work-life balance (p=0.525).

5.1 Blood Pressure Outcomes

Outcome	Control change (mmHg)	Exercise change (mmHg)	Between-group p value
Pre-shift systolic BP	+3.18	+2.71	0.836
Pre-shift diastolic BP	+0.33	+4.40	0.0501
Post-shift systolic BP	+4.73	+4.93	0.917
Post-shift diastolic BP	+0.20	+3.76	0.060

None of the between-group blood-pressure change comparisons was statistically significant. The exact p value for pre-shift diastolic blood pressure was 0.0501 and was not classified as statistically significant.

6. Additional Secondary Analyses

Energy was higher in the exercise group on Day 14 (Mann–Whitney U, p=0.028). A secondary baseline-adjusted linear regression also found a higher Day 14 energy score in the exercise group, with an adjusted effect of 0.52 points (95% CI 0.05 to 0.99; p=0.031). These analyses were secondary. Among 11 exercise participants with complete data, adherence was positively associated with improvement in personal accomplishment (Spearman correlation=0.622; p=0.041); other adherence correlations were not statistically significant. These exploratory analyses were not adjusted for multiple comparisons.

7. Overall Results Summary

The 14-day pre-shift exercise programme was feasible, had high short-term adherence and was well accepted in this small sample. Perceived energy showed the clearest favourable signal. However, the main between-group comparison of change in energy was not statistically significant, and there was no clear between-group effect on burnout-related domain scores, subjective happiness, work-related stress or blood pressure. These findings support feasibility but do not establish efficacy and are most useful for planning a larger and longer randomised study.

End of PACTR Results Summary