



THE IMPACT OF EXERCISE ON PHYSICAL HEALTH OUTCOMES IN INCARCERATED WOMEN: A SYSTEMATIC REVIEW

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OBJECTIVES

By the end of the presentation, attendees will...

1. Recognize effective exercise prescriptions for women in prison.
2. Understand the benefits of exercise on the physical health outcomes for women in prison.
3. Understand the potential benefits of exercise on mental health outcomes for women in prison.



INTRODUCTION

- The majority of female prisoners enter prison in poor physical health.¹
- Institutional factors, including the prison environment itself, may affect women's physical health.¹
- Women in prison experience higher rates of mental and physical illness compared to the general population and also men in prison.²



INTRODUCTION

- Promotion of physical activity may improve the health status of women in prison.³
- Need to determine the most effective intervention programming to meet the needs of this population.⁴



PURPOSE

- Current research indicates a lack of physical activity programs available for women in prison.
- The purpose of this systematic review was to assess exercise interventions that promote physical wellness for this population.



METHODS

Search Engines:

- CINAHL, Cochrane, ProQuest, PTNow, PubMed, and ScienceDirect

Search Limits:

- English, peer-reviewed, humans, adults(18+), 2009-2021



SEARCH TERMS

(Exercise **AND** "Physical Activity")

AND

(Prison **OR** Prisoner **OR** Jail **OR** Inmates)

AND

Health

AND

Intervention



SELECTION CRITERIA

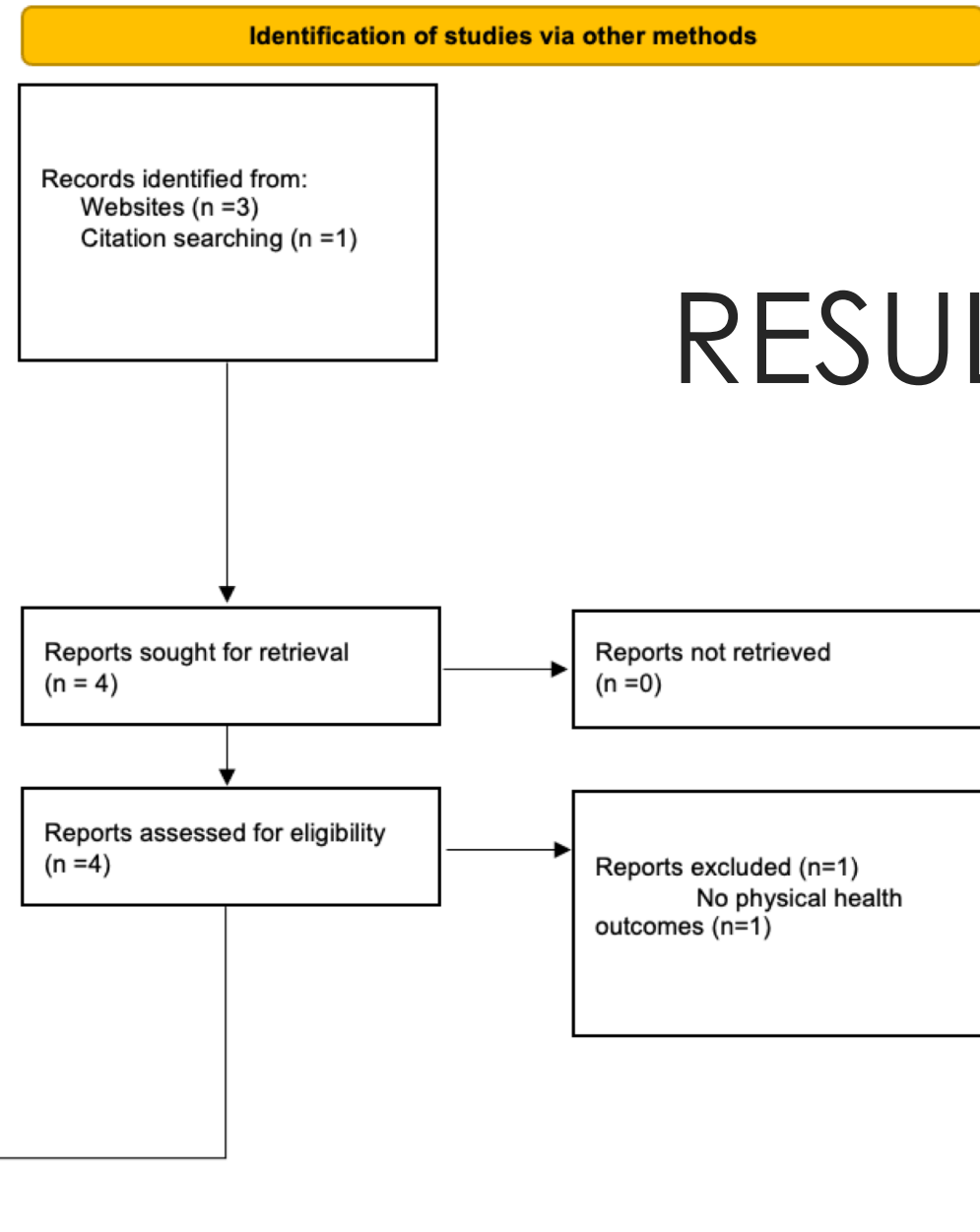
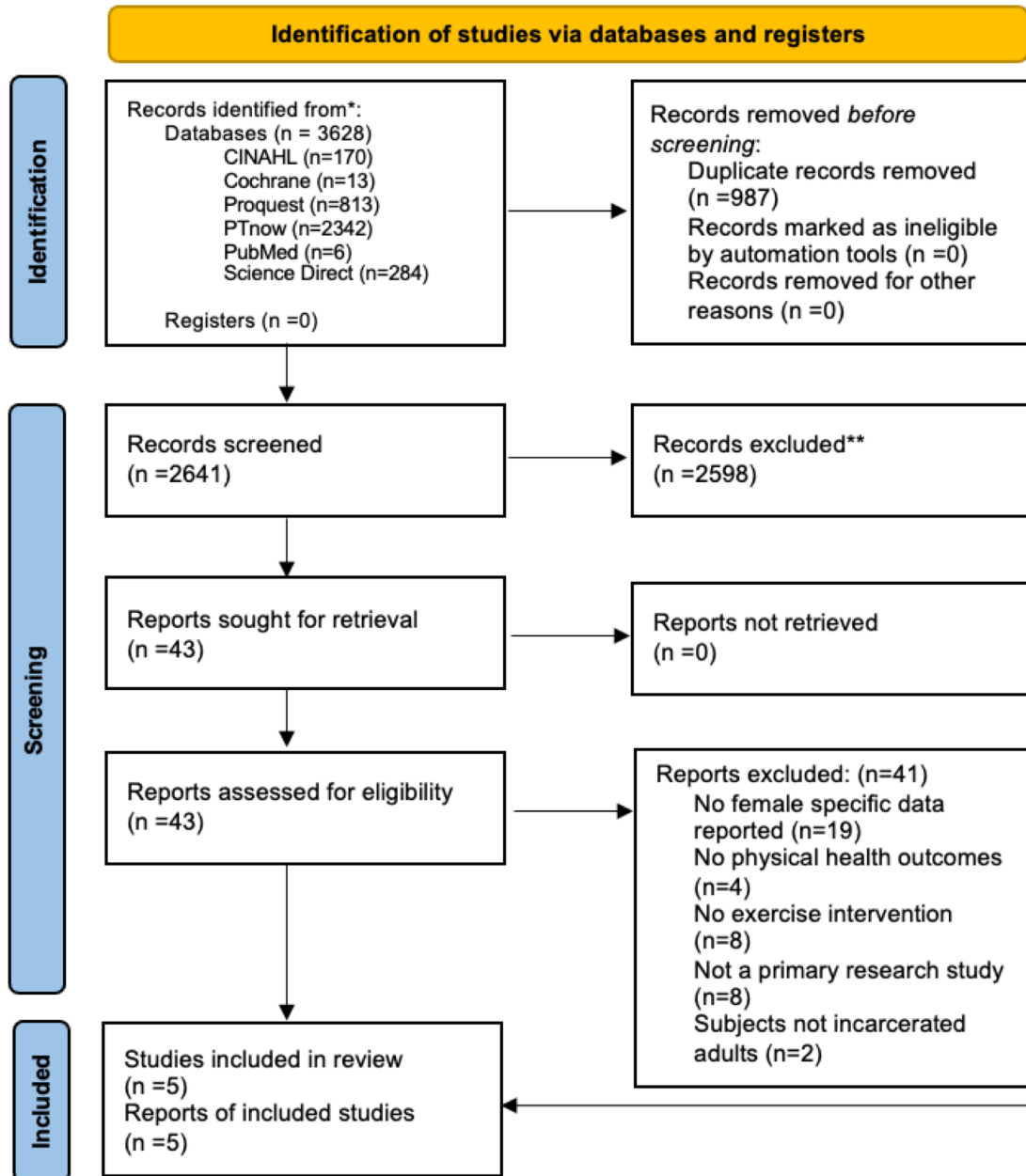
Selection Criteria

- Women in prison
- Exercise interventions
- Outcomes:
 - Physical Health/Wellness (*primary*)
 - Mental Health (*secondary*)

Methodological Assessment Tool

- Oxford Center for Evidence-Based Medicine 2011 (OCEBM)
 - Quantitative studies
- Joanna Briggs Institute (JBI)
 - Qualitative studies





RESULTS



RESULTS

- Range of Scores
 - *Quantitative* = 2 – 4 (OCEBM)
 - *Qualitative* = 8/10 (JBI)
- Total number of subjects (n) = 119
 - Range = 12 – 33
- Programs took place over 6 -12 weeks



RESULTS

Physical Health Outcome Measures (Number of Studies)	Secondary Outcome Measures (Number of Studies)
Body-Mass Index (3)	Sleep (2)
Waist-to-Hip Ratio (1)	Energy Level & Stress (2)
Bust Circumference (1)	Mental Health (3) <i>Happiness, hopelessness, guilt</i>
Waist Circumference (1)	Resilience Scale (2)
Overall Physical Health (2)	Outlet for Anger & Frustration (2)
	Physical Manifestations of Stress (1) <i>Nail biting, hitting, throwing</i>



SUMMARY OF QUANTITATIVE RESULTS

Author, Year	OCEBM Level and Design	Intervention	Key Findings
Sumter et al. ⁵ (2009)	Level 2 Randomized Controlled Trial	Meditation and Mindfulness Activities	Decrease in sleeping difficulty, aggressive emotions, nail biting behavior, guilt, and hopelessness. Decrease in visual, ache, numbness, and chest pain symptoms
Güney et al. ⁶ (2021)	Level 3 Non-Randomized Control Cohort	Jogging, Squats, Pilates, Walking	Decrease in BMI, waist circumference. Increase in happiness and resilience.
Elwood Martin et al. ⁷ (2013)	Level 4 Case Control	Group Circuit Classes, Individual Program, and Nutrition Education	Decrease in chest size, waist-hip ratio, weight, and BMI. Improvement in energy level, sleep, and stress level.
Johnson et al. ⁸ (2018)	Level 4 Pilot Study	Pedometer, MyPlate and Education	Decrease in BMI and increase in resilience scores

QUANTITATIVE RESULTS

Statistically significant **reductions**:

- Body Mass Index (-0.40)
- Bust Size (-0.99 inches)

Statistically significant **improvements** for secondary health outcomes: (Likert Scale)

- Sleep (0.96)
- Guilt (-0.94)
- Hopelessness (-0.72)
- Nail biting (-0.35)
- Outlet for anger and frustration (-0.35)



SUMMARY OF QUALITATIVE RESULTS

Author, Year	JBI and Design	Intervention	Key Findings
Gallant et al. ⁹ (2015)	8/10 Qualitative design	Softball Program	Improvement in mental health, overall physical health and mood. Reduction in stress and anxiety. Outlet of anger and frustration



QUALITATIVE RESULTS

Qualitative **improvements** were noted:

- Overall physical & mental health, energy level, mood, anger management

Qualitative **reductions** were noted:

- Stress & anxiety



CONCLUSIONS

- Exercise interventions, whether structured or unstructured, led to improvements in physical and mental health outcomes in women in prison.
- There were no adverse effects.
- Recent research has utilized varied outcomes and interventions.



LIMITATIONS

- Limited amount of women-based research available
- Small sample sizes
- Large variability in intervention types and parameters
- Varied outcomes measured
 - Self-report measures⁵
 - Likert Scale
- Lack of control group^{7,8}



CLINICAL RELEVANCE

- Well-rounded interdisciplinary programs, including both structured and unstructured activities, are necessary.
- Physical therapists are uniquely qualified to address the needs in this population.



FUTURE RESEARCH

- Goal to implement an exercise program for women in prison at the local Lackawanna County Prison
- Research optimal exercise intervention in prison populations
- Investigate the role and impact of PTs in prison settings
- Address women's health concerns in prison, specifically related to measuring the impact of exercise on physical and mental health



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QUESTIONS?