



## Background

Stair walking is a type of physical activity that is common in everyday life, as stairs are prevalent in many homes and workplaces. Walking up and down stairs offers many health benefits such as increased balance, improved cardiorespiratory fitness, and lower risk for diabetes and high blood pressure.

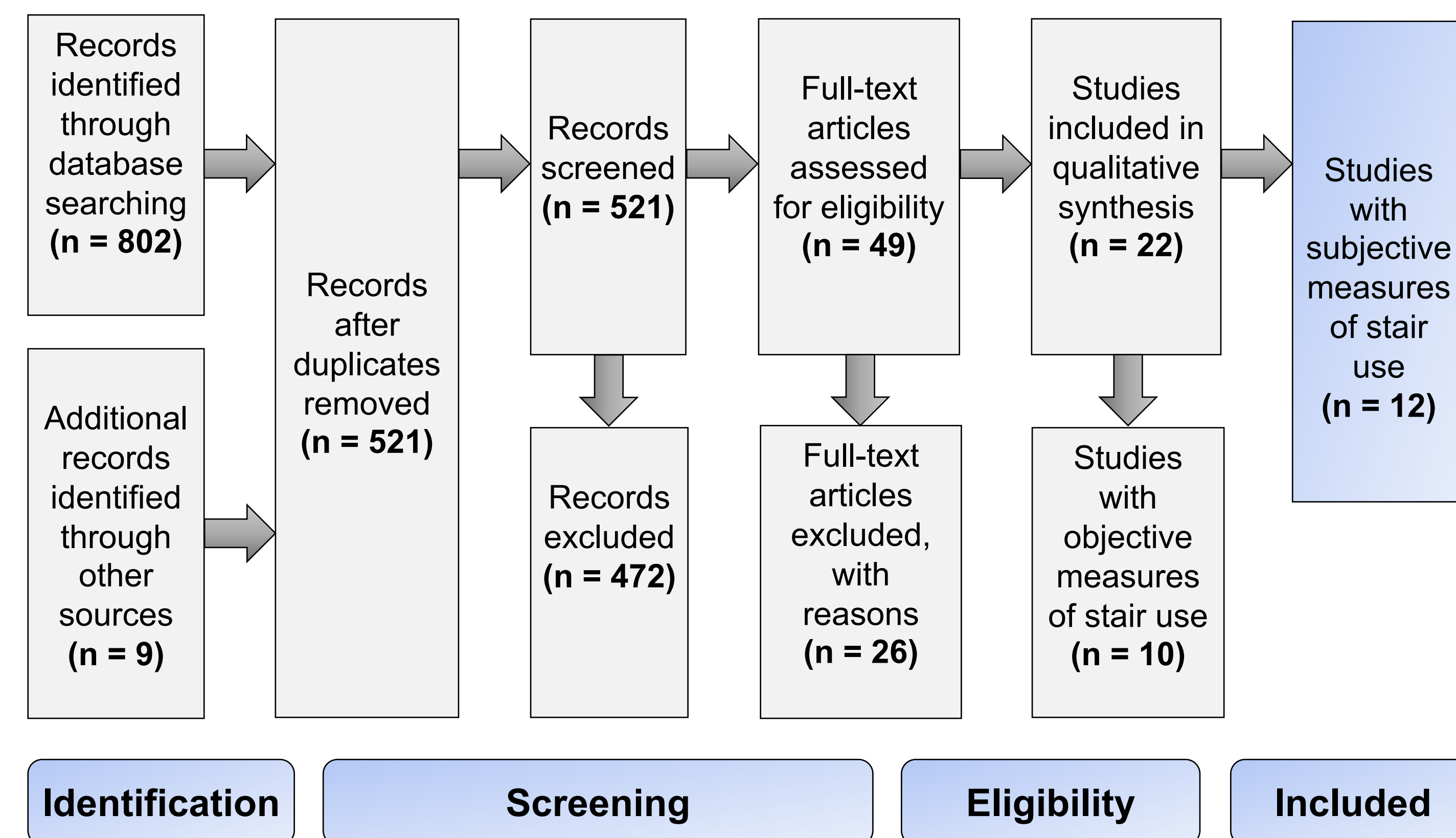
Self-reported measures of stair walking is the most common way that limited mobility for stair use is measured. There is a large body of research that documents associations between physical activity and psychological health. However, the relationship between stair use and psychological outcomes is rarely addressed in research.

## Purpose

The purpose of this research is to review the existing literature that documents evidence between self-reported measures of stair climbing and psychological outcomes, mainly in regard to mental health.

## Methods

**Table 1: PRISMA Flow Diagram of Selected Articles**



A systematic literature review was conducted using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) method to summarize psychological aspects of self-reported stair use.

Databases searched included Pubmed, Psycinfo, and Web of Science. "Paffenbarger Physical Activity Questionnaire" and "Walking Impairment Questionnaire" were terms searched along with 12 psychological outcomes: anxiety, depression, cognitive, cognition, dementia, fear of falling, memory, Mini-Mental State Examination, Minnesota Multiphasic Personality Inventory, mood, vitality, and Wechsler Intelligence Scales.

After duplicates were removed, abstracts were screened for evidence that the study used stair walking as a type of physical activity and had at least one psychological outcome. A total of 23 studies were included in the analysis. A total of 10 papers reported stair use objectively, while 12 studies reported stair use subjectively.

## Results

### Fear of falling and perceived difficulty using stairs

- The fear of falling is a greater concern during stair descent compared to stair ascent, while the feelings of fatigue are a more common fear during stair ascent.
- The two strongest factors identified that contributed to the fear of falling were a prior fall that resulted in a fracture and the need for assistance during stair climbing.

### General symptoms of anxiety and depression

- For studies that found associations between depression and stair use, there may be increased levels of depression for walking up stairs compared to walking down stairs.
- The largest study in this review measured associations between mobility and depression, anxiety, confusion, and forgetfulness. Mobility problems most often occurred in those who were older, obese, impoverished, women, poorly educated, African American, or lived alone.

### Effects of training programs

- The influence of exercise training on perceived stair walking difficulty was examined in one study of patients with peripheral artery disease (PAD). Quality of life specific to PAD was improved.

### Self-reported number of stairs walked and mental health disorders

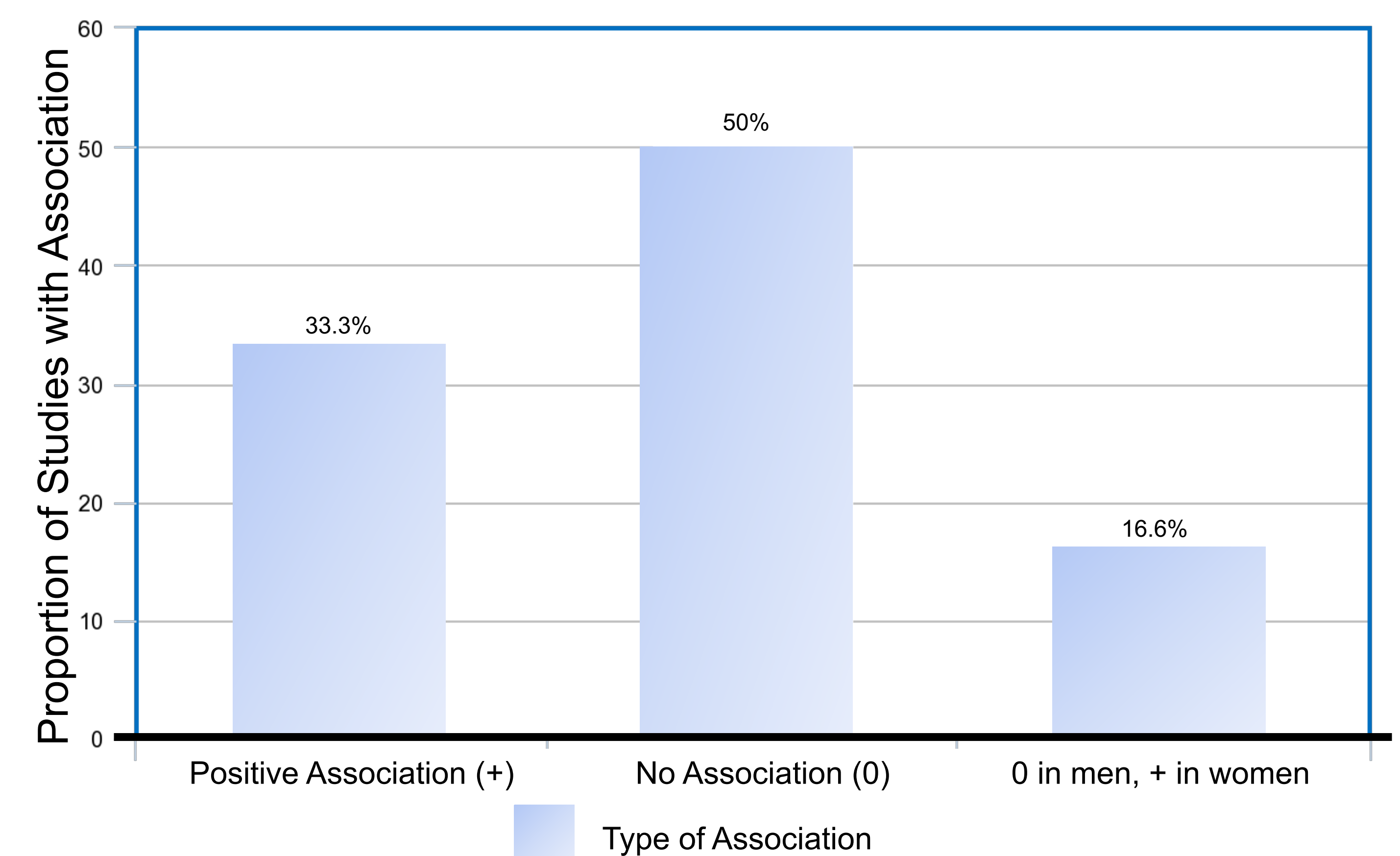
- The Paffenbarger Activity questionnaire has been in studies about mental health disorders. One question in the questionnaire asked "How many flights of stairs do you climb each day?" In the studies identified, stair climbing activity was unrelated to depression and suicide.
- The questionnaire was also used to measure associations between various types of physical activity and incidence of vascular dementia and Alzheimer disease. While there was no association between Alzheimer disease and physical activity, there was a significantly lower risk of dementia.

**Table 1: Characteristics of Included Studies**

Category	n = studies identified
<b>Sample Size</b>	
< 300	2
300-800	3
> 800	7
<b>Study Design</b>	
Cross-sectional	7
Prospective	5
<b>Measure of Stair Use</b>	
Difficulty walking stairs	8
Number of stair flights per day	3
Day stair use frequency	1
<b>Psychological Measure</b>	
Depression and/or anxiety	6
Dementia	1
Fear of falling	2
SF-36: fatigue well-being	1
Perceived fatigue	1
Suicide	1

## Results (cont.)

**Table 2: Measure of Associations Between Stair Walking and Mental Health Outcomes**



## Discussion

Stair climbing may be a low cost way to increase levels of physical activity, especially in older adults. Places where stairs are prevalent provide an opportunity for individuals to incorporate small amounts of physical activity into daily life.

Limited mobility, fear of falling, and leg pain or disease contribute to stair avoidance, which is commonly seen in older adults. Stair avoidance may lead to challenges in accomplishing activities of daily life.

### Limitations

- The small number of studies, especially randomized experiments, precludes drawing any strong conclusions.

- Most participants in most of the studies engaged in only small amounts of stair climbing activity. This made it more difficult to reach statistically significant results.

### Recommendations

Further research may consider:

- How to decrease stair avoidance in older adults
- What factors contribute to the fear of falling during stair use
- Developing interventions that increase self-efficacy for stair walking
- Whether stair use has casual effects on psychological outcomes

## Conclusion

Overall, the small body of evidence found in this review suggests that:

- Some older adults are fearful of falling when walking down stairs
- Stair use was negatively related to symptoms of anxiety and depression but not to depression diagnosis or suicide
- There is little evidence that stair use has negative psychological consequences.