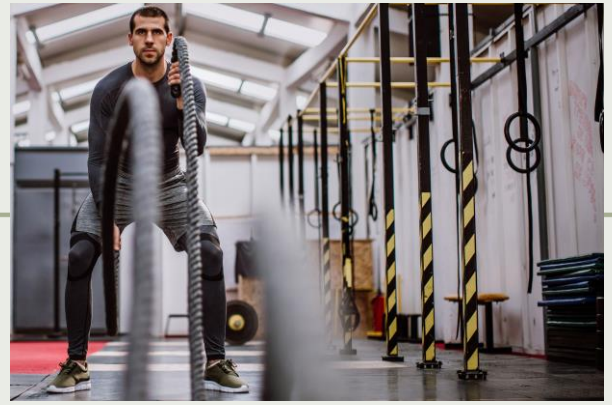



Physical activity during treatment for substance use disorder: What a systematic review tells us

Florence Piché (Phd student)[1,2], Catherine Daneau[3], Chantal Plourde[3], Stéphanie Girard[3], Ahmed Jérôme Romain[1,2]

1)Université de Montréal, 2)Centre de recherche de l'Institut universitaire en santé mentale de Montréal, 3)Université du Québec à Trois-Rivières[3]

Statement of conflict interest

None to disclose

Introduction: Substance Use Disorder (SUD)

- Prevalence worldwide in 2019: 2%
  (Institute for Health Metrics and Evaluation, 2022)
- Diagnostics with DSM-V or ICD-11
  (American Psychiatric Association, 2013; World Health Organization, 2019)
- Consequences on
  - Mental health
  - Physical health
- Mortality ↓ 15–20 years compared with the general population
  (Hayes et al., 2011; Nordentoft et al., 2013)
- Most prevalent death are from physical health condition (Heiberg et al., 2018):
  - Cardiovascular disease
  - Cancer
  - Chronic respiratory disease
  - Diabetes

Physical activity

Introduction: Physical activity

- What else?
  - Benefits for general population and other mental disorders like (Ashdown-Franks et al., 2020)
    - Schizophrenia
    - Bipolar disorder
    - Depression
  - **No adverse events ****

- Existing reviews have limitations:
  - Emphasis on tobacco because of how much study there is which reduces generalization of result (Colledge et al., 2018; Wang et al., 2014)
  - Focus only on one substance for inclusion criteria (e.g., alcohol; Hallgren et al., 2021; Manthou et al., 2016)
  - Outcomes mostly related to SUD symptoms when physical activity could have an impact on general health (Dowla et al., 2022; Thompson et al., 2020)

Objectives

Our two research questions:

1. What are the characteristics of physical activity interventions (frequency, duration, type, and intensity) during SUD treatment?

2. What are the benefits of physical activity interventions during SUD treatment?

Methods

- Inclusion criteria by PICOS
  - **Population:** Adults following treatment in SUD for psychoactive substances **(exception of tobacco)**
  - **Intervention:** Physical activity in person and chronic (more than one session)
  - **Comparison:** Not necessary
  - **Outcomes:** All outcomes related to impact of physical activity
  - **Study:** Only quantitative design was included.

- Keywords: Physical activity X SUD X Treatment
  - Free text and MeSh term
- 7 databases:
  CINAHL, Cochrane Library, PsycINFO, Medline, SCOPUS, SPORTDiscus and Google Scholar.
- Search in July 2020 and updated in May 2022
- Search, extraction, risk of bias was done by 2 authors disagreement was resolved by discussion with a third researcher

Results

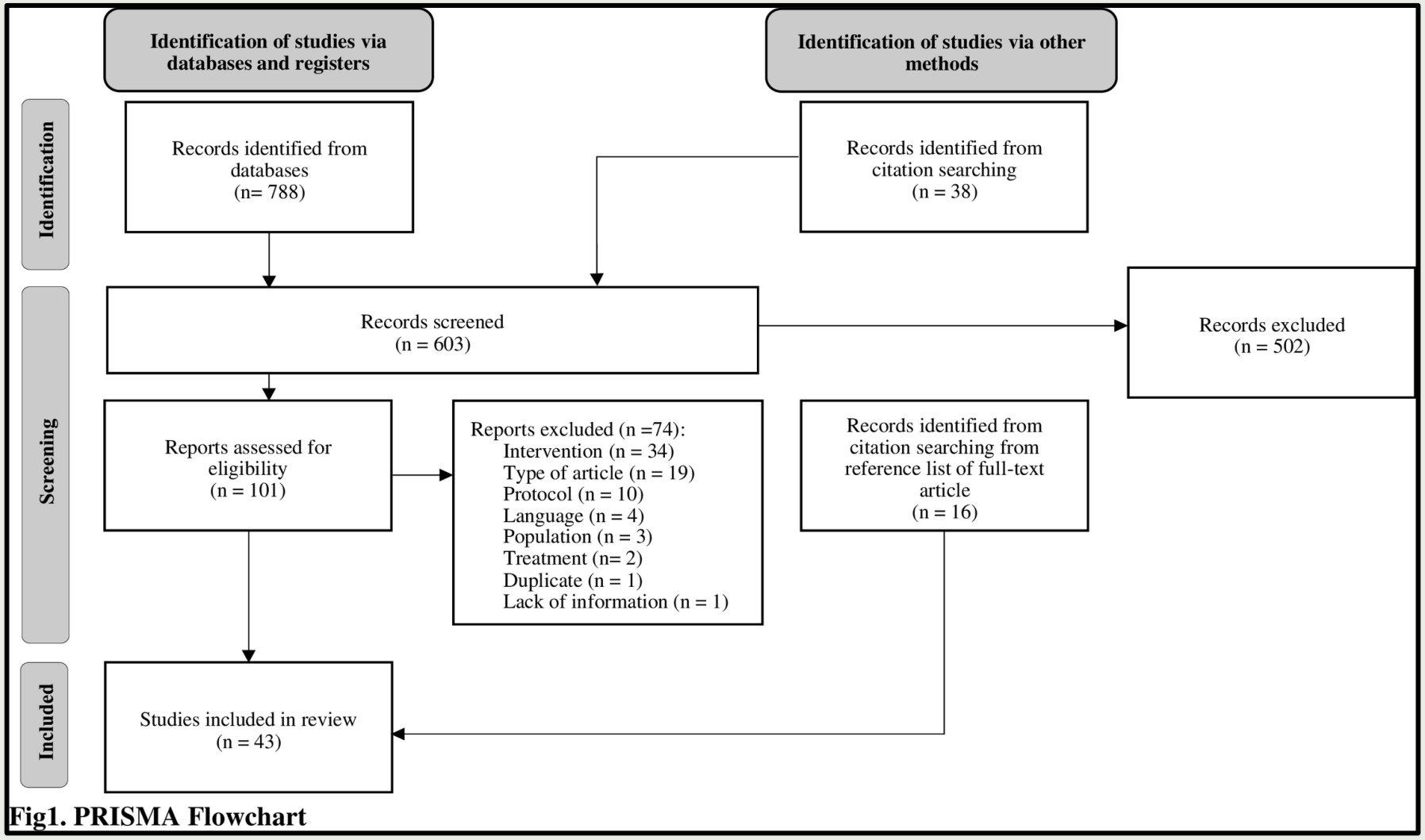
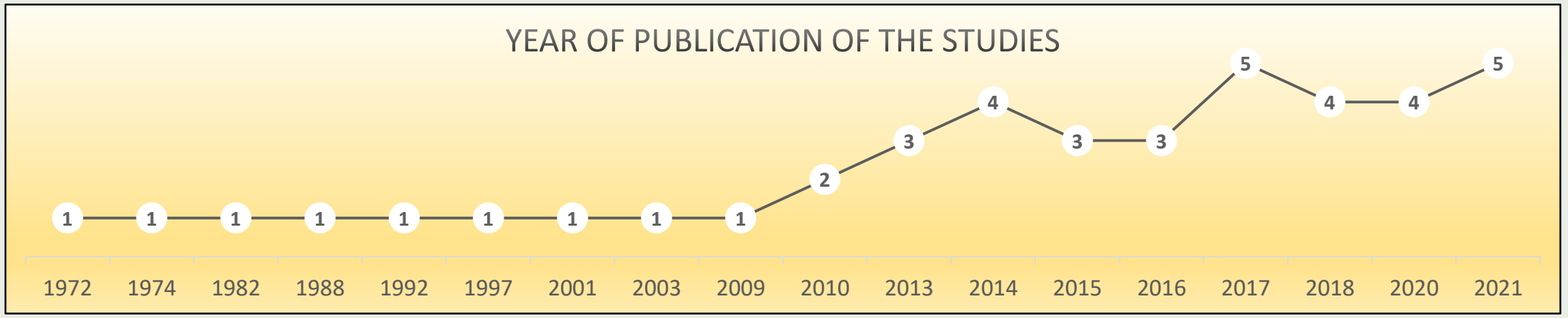
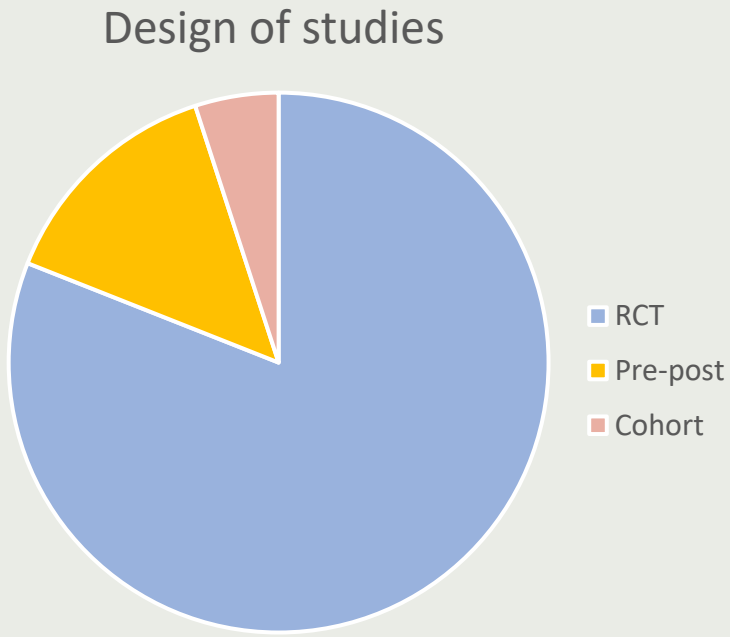


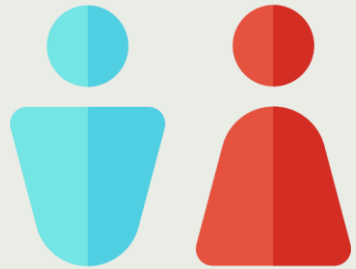
Fig1. PRISMA Flowchart

Characteristics of source of evidence





Characteristics of the population



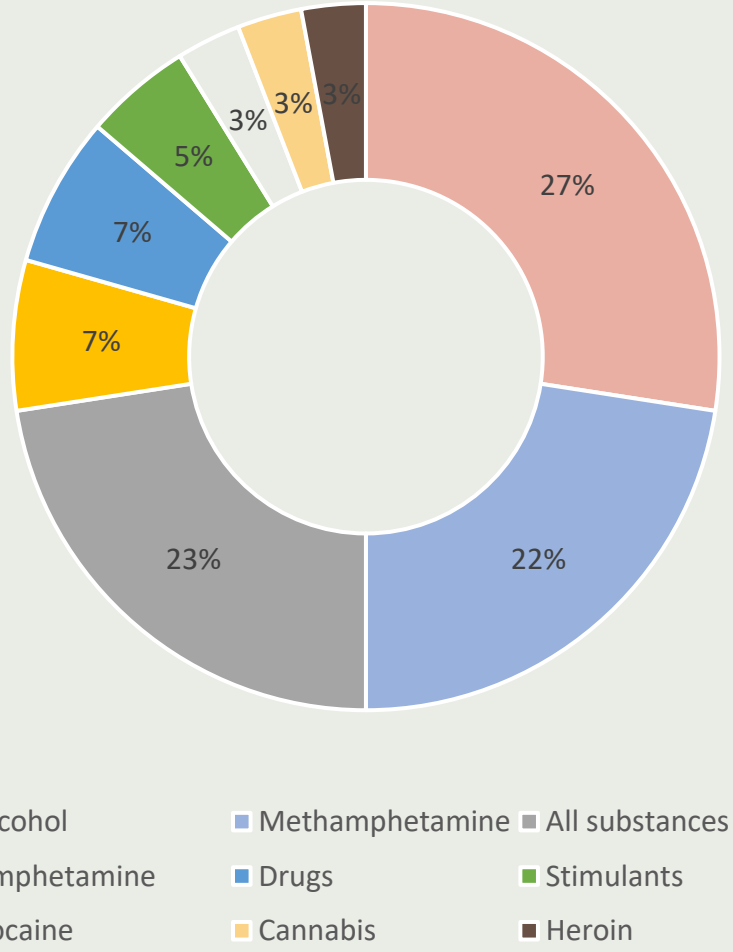
Men and women: 58% (k=25)

Only women: 12% (k=5)

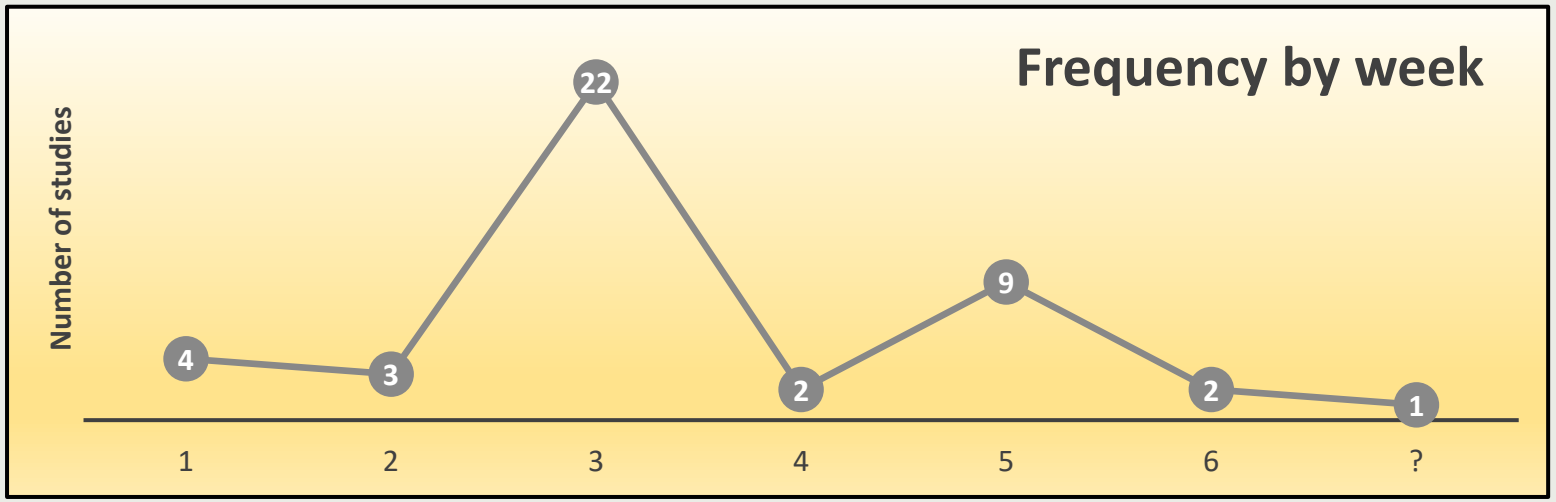
Only men: 23% (k=10)

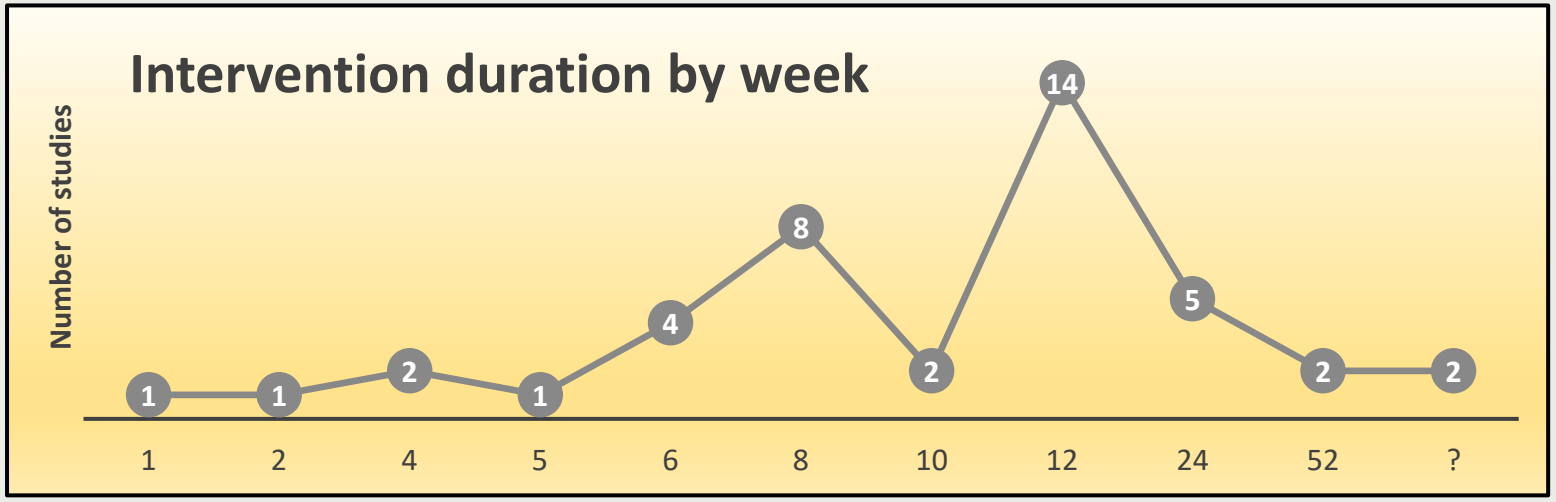
?

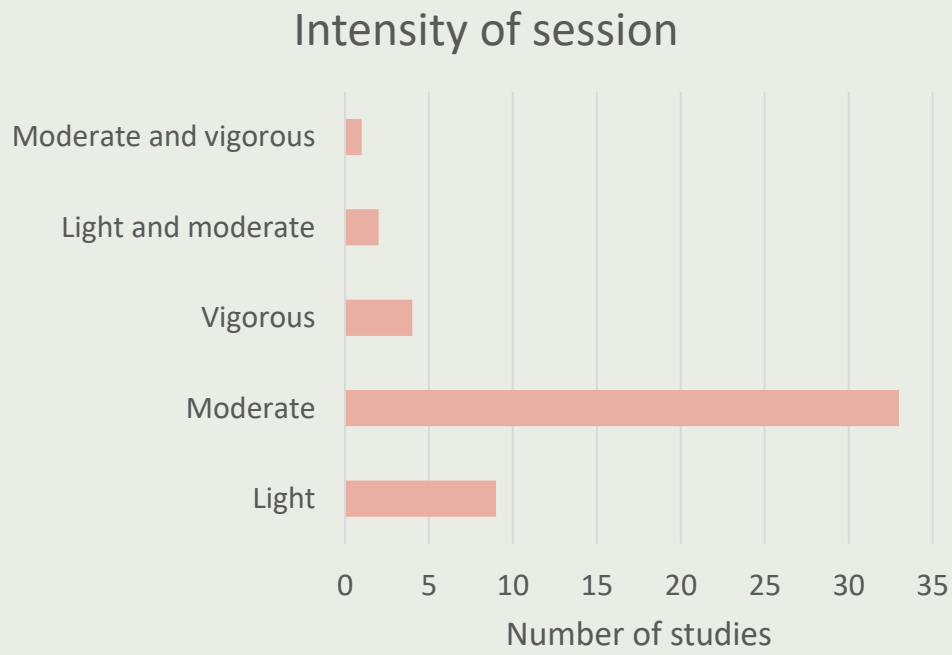
Not specified: 7% (k=3)



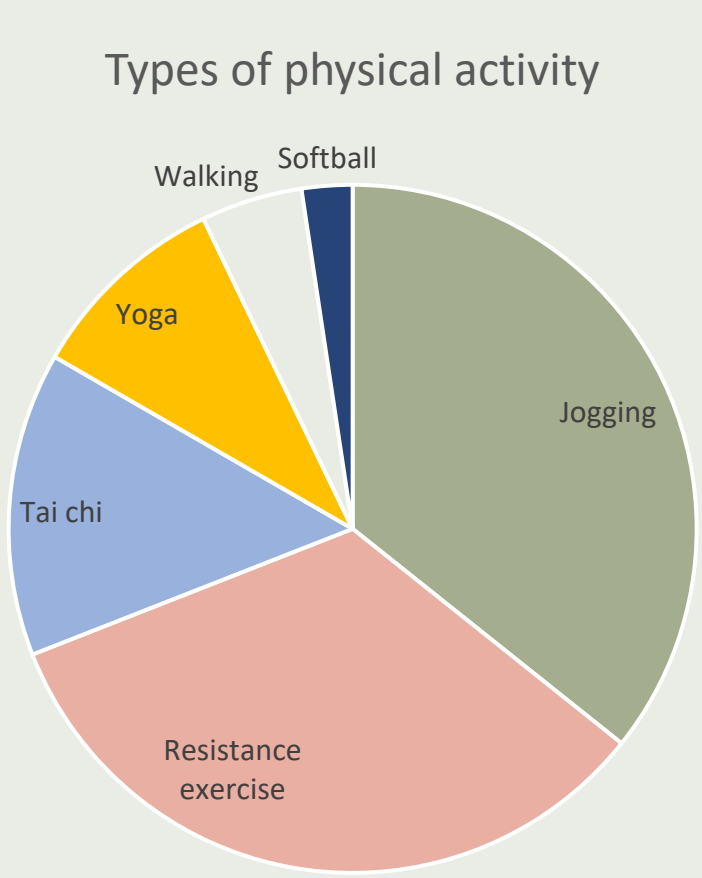
Physical activity intervention characteristics during SUD treatment

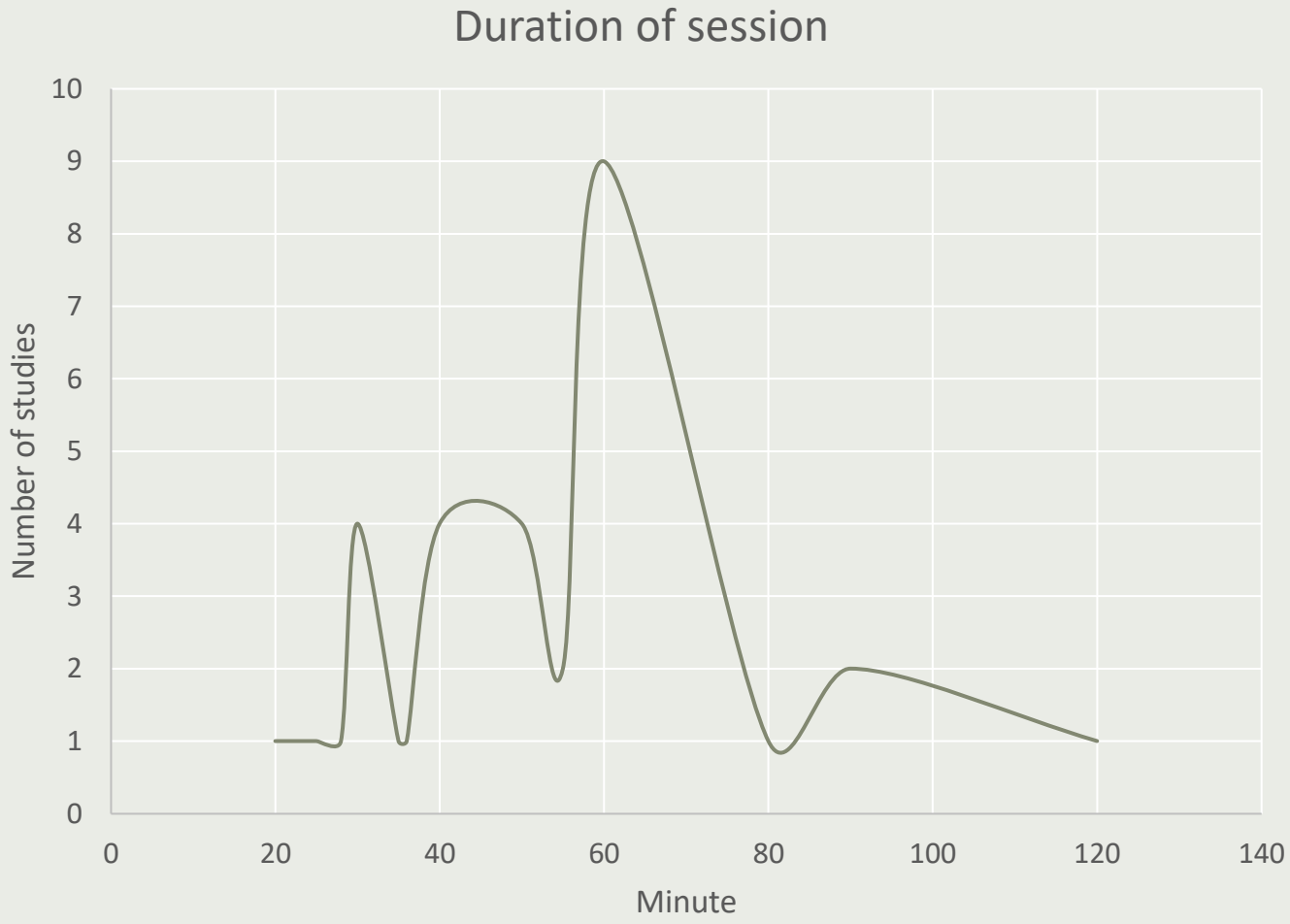






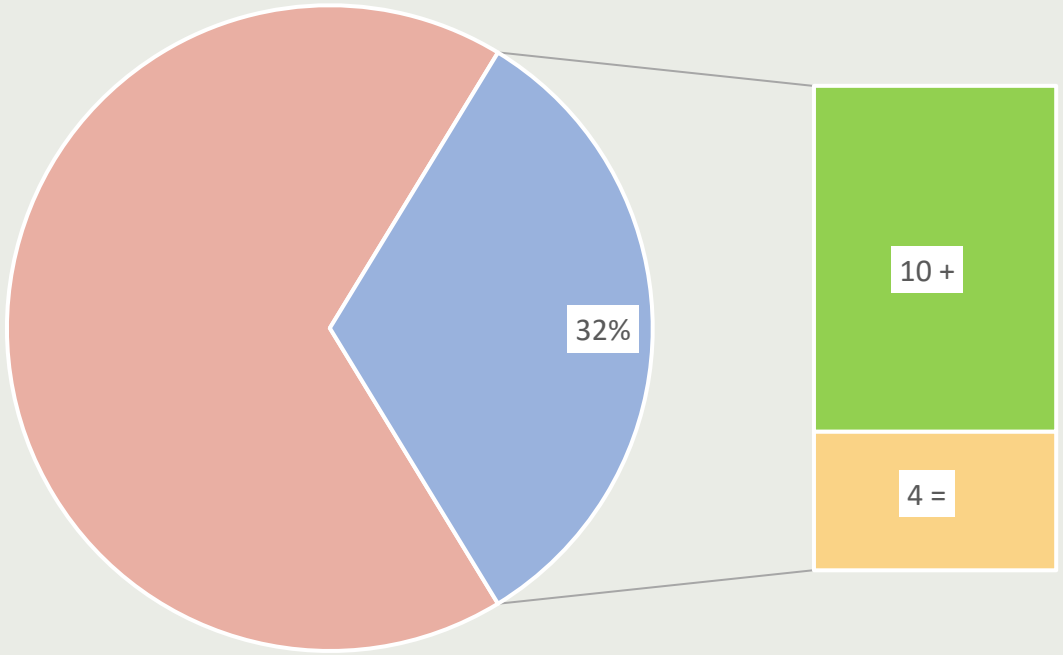
Physical activity intervention characteristics during SUD treatment



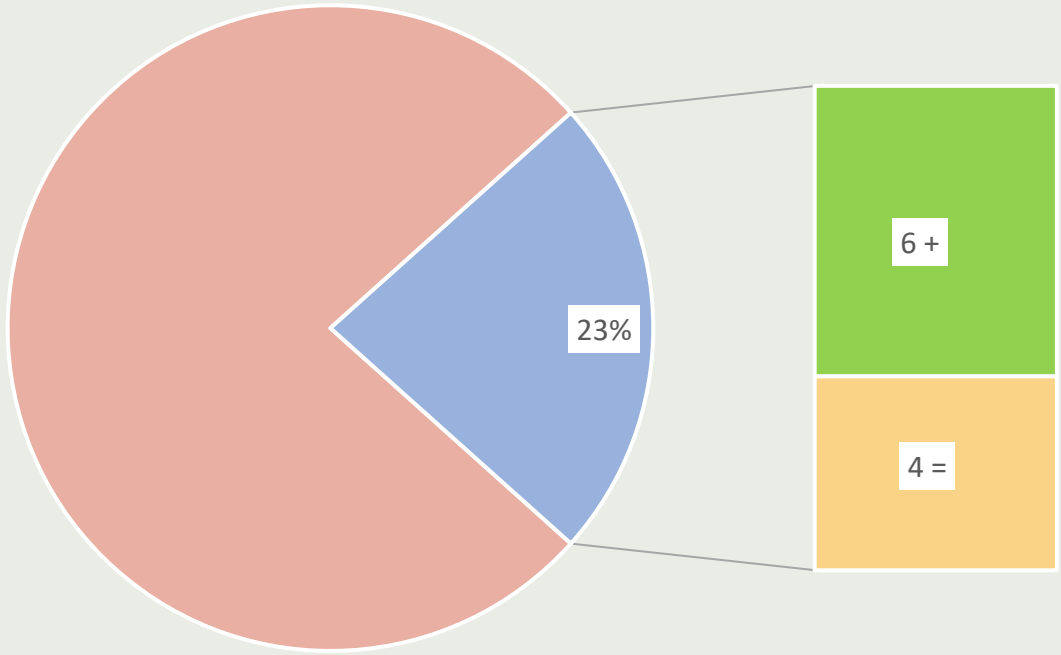


Physical activity outcomes during SUD treatment

Aerobic capacity



Muscular capacity



The percentage of studies that assessed the outcome

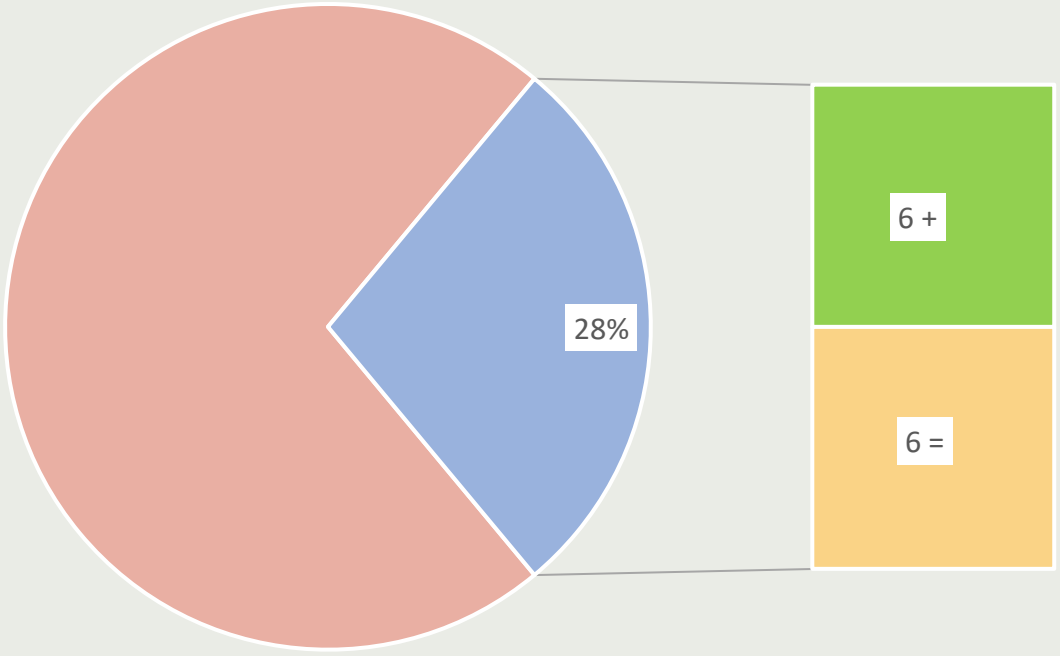
The percentage of studies that did not assessed the outcome

The number of studies that saw an improvement in outcome

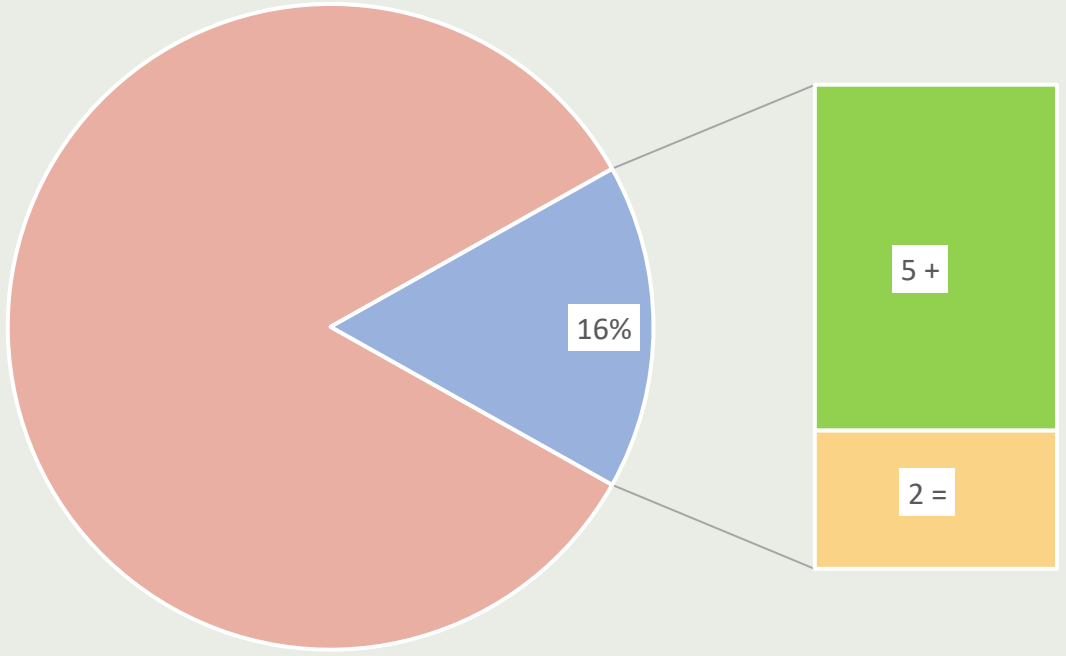
The number of studies that saw no improvement in outcome

Physical activity outcomes during SUD treatment

Depressive symptoms



Anxiety symptoms



The percentage of studies that assessed the outcome

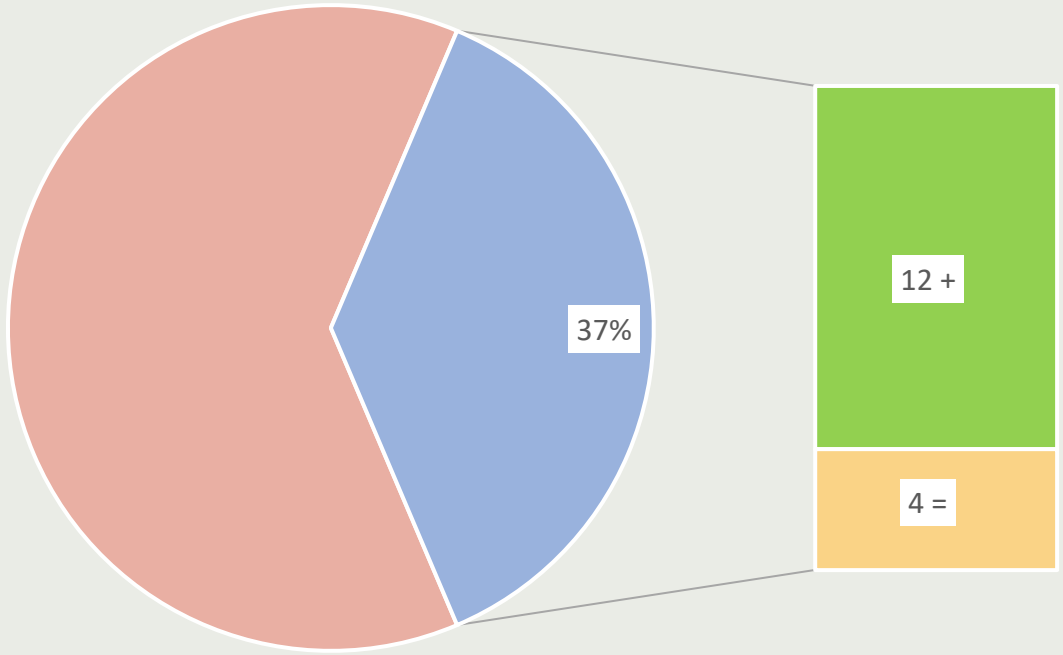
The percentage of studies that did not assessed the outcome

The number of studies that saw an improvement in outcome

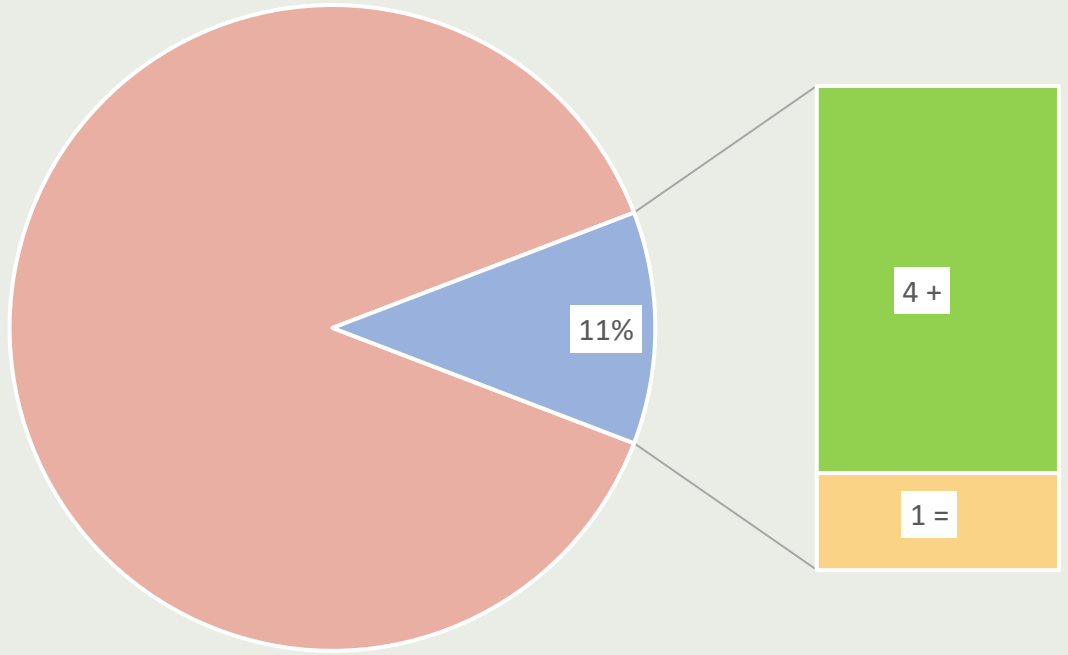
The number of studies that saw no improvement in outcome

Physical activity outcomes during SUD treatment

Substance use



Quality of life



The percentage of studies that assessed the outcome

The percentage of studies that did not assessed the outcome

The number of studies that saw an improvement in outcome

The number of studies that saw no improvement in outcome

Discussion/conclusion

- Caution in the use of the result
  - High presence of bias (deviation of intended intervention)
  - All participants were already in treatment and some studies have no control group
- Future researchers should
  - Better describe their intervention in physical activity
  - Better monitor physical activity
  - Considering participants with physical and mental comorbidities
- Promising evidence for benefit and feasibility for physical activity in SUD treatment for all substances

Obrigado!

- If you want to know more, our preprint is on OSF : Piché, F., Daneau, C., Plourde, C., Girard, S., & Romain, A. J. (2022). *Characteristics and impact of physical activity interventions during substance use disorder treatment excluding tobacco: A systematic review* [Preprint]. Open Science Framework. https://doi.org/10.31219/osf.io/wb26f

- Questions ?!

References

American Psychiatric Association. (2013). Addiction and Related Disorders. In DSM-V: Diagnostic and statistical manual of mental disorders (5e éd.). Amerian Psychiatric Publishing.

Dowla, R., Sinmaz, H., Mavros, Y., Murnion, B., Cayanan, E., & Rooney, K. (2022). The Effectiveness of Exercise as an Adjunct Intervention to Improve Quality of Life and Mood in Substance Use Disorder: A Systematic Review. *Substance Use & Misuse*, *57*(6), 911–928. https://doi.org/10.1080/10826084.2022.2052098

Colledge, F., Gerber, M., Puhse, U., & Ludyga, S. (2018). Anaerobic Exercise Training in the Therapy of Substance Use Disorders: A Systematic Review. *Frontiers in Psychiatry*, *9*, 644. https://doi.org/10.3389/fpsyt.2018.00644

Hallgren, M., Herring, M. P., Vancampfort, D., Hoang, M. T., Andersson, V., Andreasson, S., & Abrantes, A. M. (2021). Changes in craving following acute aerobic exercise in adults with alcohol use disorder. *J Psychiatr Res*, *142*, 243–249. https://doi.org/10.1016/j.jpsychires.2021.08.007

Hayes, R. D., Chang, C.-K., Fernandes, A., Broadbent, M., Lee, W., Hotopf, M., & Stewart, R. (2011). Associations between substance use disorder sub-groups, life expectancy and all-cause mortality in a large British specialist mental healthcare service. *Drug and Alcohol Dependence*, *118*(1), 56-61. https://doi.org/10.1016/j.drugalcdep.2011.02.021

Heiberg, I. H., Jacobsen, B. K., Nesvåg, R., Bramness, J. G., Reichborn-Kjennerud, T., Næss, Ø., Ystrom, E., Hultman, C. M., & Høye, A. (2018). Total and cause-specific standardized mortality ratios in patients with schizophrenia and/or substance use disorder. *PLOS ONE*, *13*(8), e0202028. https://doi.org/10.1371/journal.pone.0202028

Institute for Health Metrics and Evaluation. (2022). *GBD Results Tool | GHDx*. Global Heath Data Exchange. https://ghdx.healthdata.org/gbd-results-tool

International Statistical Classification of Diseases and Related Health Problems (11th ed,; ICD-11; World Health Organization, 2019).

Manthou, E., Georgakouli, K., Fatouros, I. G., Gianoulakis, C., Theodorakis, Y., & Jamurtas, A. Z. (2016). Role of exercise in the treatment of alcohol use disorders. *Biomed Rep*, *4*(5), 535–545. https://doi.org/10.3892/br.2016.626

Nordentoft, M., Wahlbeck, K., Hällgren, J., Westman, J., Ösby, U., Alinaghizadeh, H., Gissler, M., & Laursen, T. M. (2013). Excess Mortality, Causes of Death and Life Expectancy in 270,770 Patients with Recent Onset of Mental Disorders in Denmark, Finland and Sweden. *PLoS ONE*, *8*(1), e55176. https://doi.org/10.1371/journal.pone.0055176

Thompson, T. P., Horrell, J., Taylor, A. H., Wanner, A., Husk, K., Wei, Y., Creanor, S., Kandiyali, R., Neale, J., Sinclair, J., Nasser, M., & Wallace, G. (2020). Physical activity and the prevention, reduction, and treatment of alcohol and other drug use across the lifespan (The PHASE review): A systematic review. *Ment Health Phys Act*, *19*, 100360. https://doi.org/10.1016/j.mhpa.2020.100360

Wang, D., Wang, Y., Wang, Y., Li, R., & Zhou, C. (2014). Impact of physical exercise on substance use disorders: A meta-analysis. *PLoS One*, *9*(10), 1–15. https://doi.org/doi:10.1371/journal.pone.0110728