

Fertility Increases and Reproductive Stabilization in Women of Childbearing Age Prescribed GLP1-RA Medications for Metabolic Conditions and Cosmetic Interests: A Scoping Review

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Abstract

- This scoping review is intended to synthesize the scientific understanding of GLP-1RA medications on female fertility. As of abstract submission, 48 articles were used in this analysis. This includes data on patients who were using GLP-1RA medications for a variety of metabolic conditions, as well as for cosmetic weight loss. Though difficult to track, the growing market of cosmetic use for appetite suppression and weight loss amongst healthy individual underscores the importance of exploring the medication's effects.
- Further research is essential. Cosmetic consumption is difficult to track and likely underreported. Meanwhile physician prescription, insurance claims, and patient reported consumption of the drug class has risen significantly. A growing patient population is using GLP-1RA medications with limited evidence of the long-term consequences and hormonal effects.
- The effect on reproductive aged women and their offspring remains relatively unknown. It is essential to identify drug effects on women who have recently discontinued the medication and those are currently or are planning to become pregnant, by spontaneous or other method.

Introduction

- Use of GLP-1 receptor agonists (GLP-1RAs) has surged over 700% in four years. Drugs like Semaglutide, Liraglutide, and Tirzepatide are increasingly used to treat metabolic conditions such as Type 2 diabetes, non-alcoholic fatty liver disease, and PCOS. Cosmetic use for appetite suppression and weight loss is also growing, especially among reproductive-aged women
- GLP-1RA MOA: Mimick bodily GLP-1, acts as receptor agonist
- Effects: decreased appetite and increased satiety, demonstrated cardiovascular benefit, gastric immobility, demonstrated effects on adipose metabolism, kidney function, muscle activity, and pancreatic hormone secretions

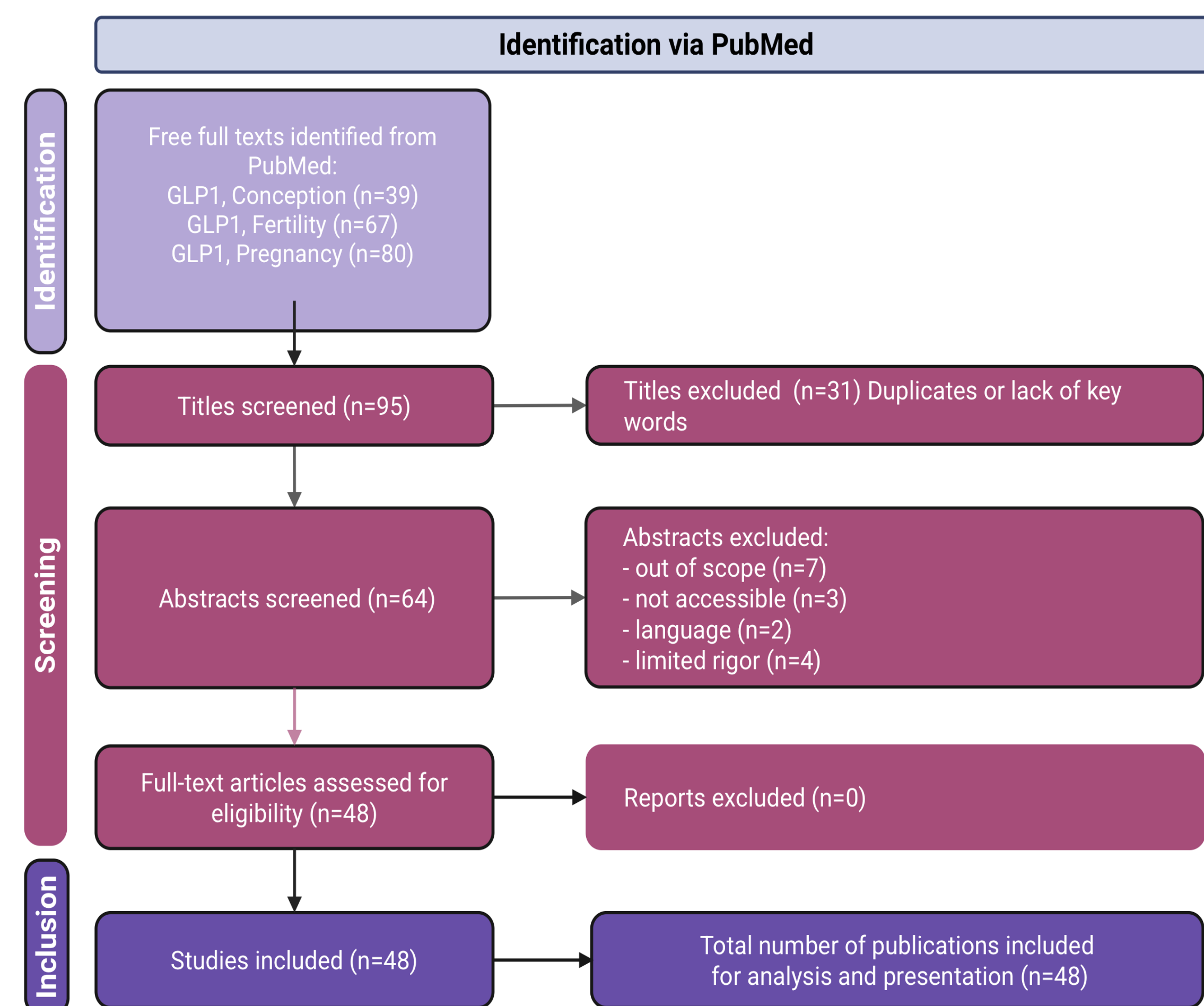
Methodology

Key Words: GLP-1 + Fertility, GLP-1 + Pregnancy, GLP-1 + Fertility + Female, GLP-1 + Conception

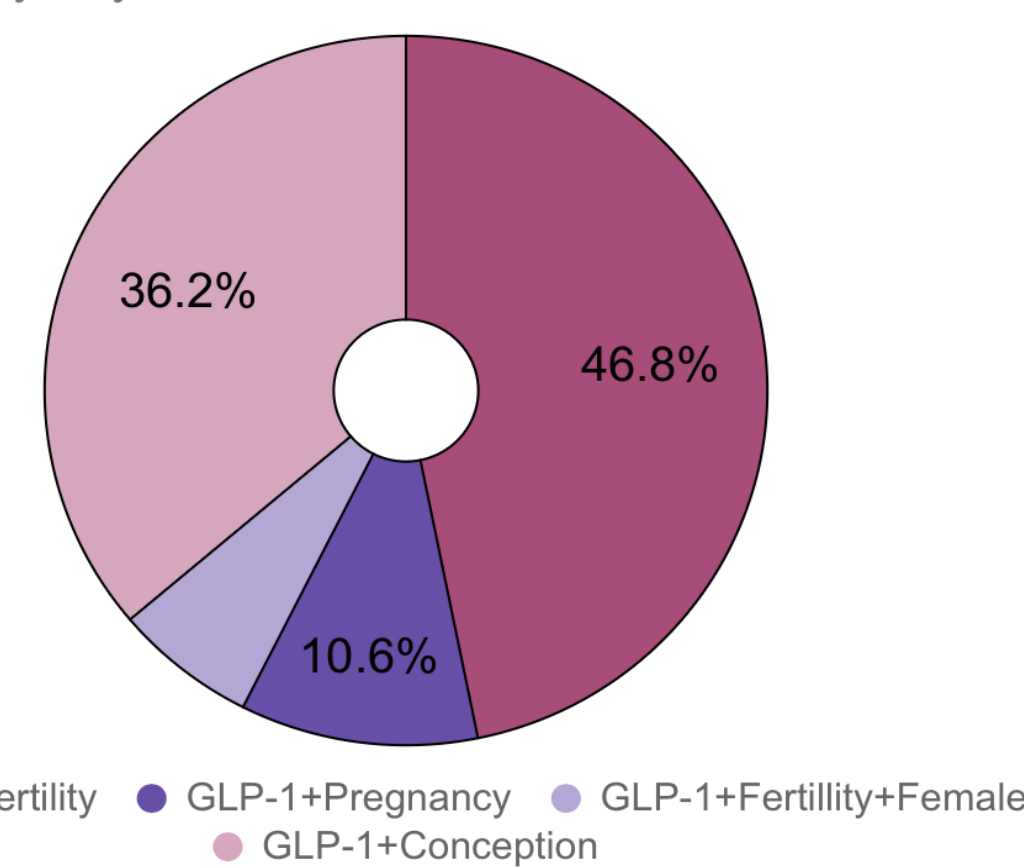
Inclusion criteria: Inclusion of key words, full article access, impact score >1.5

Exclusion Criteria: Duplicates, inability to access full-text, Impact score <1.5

Methods - PRISMA Flow Diagram

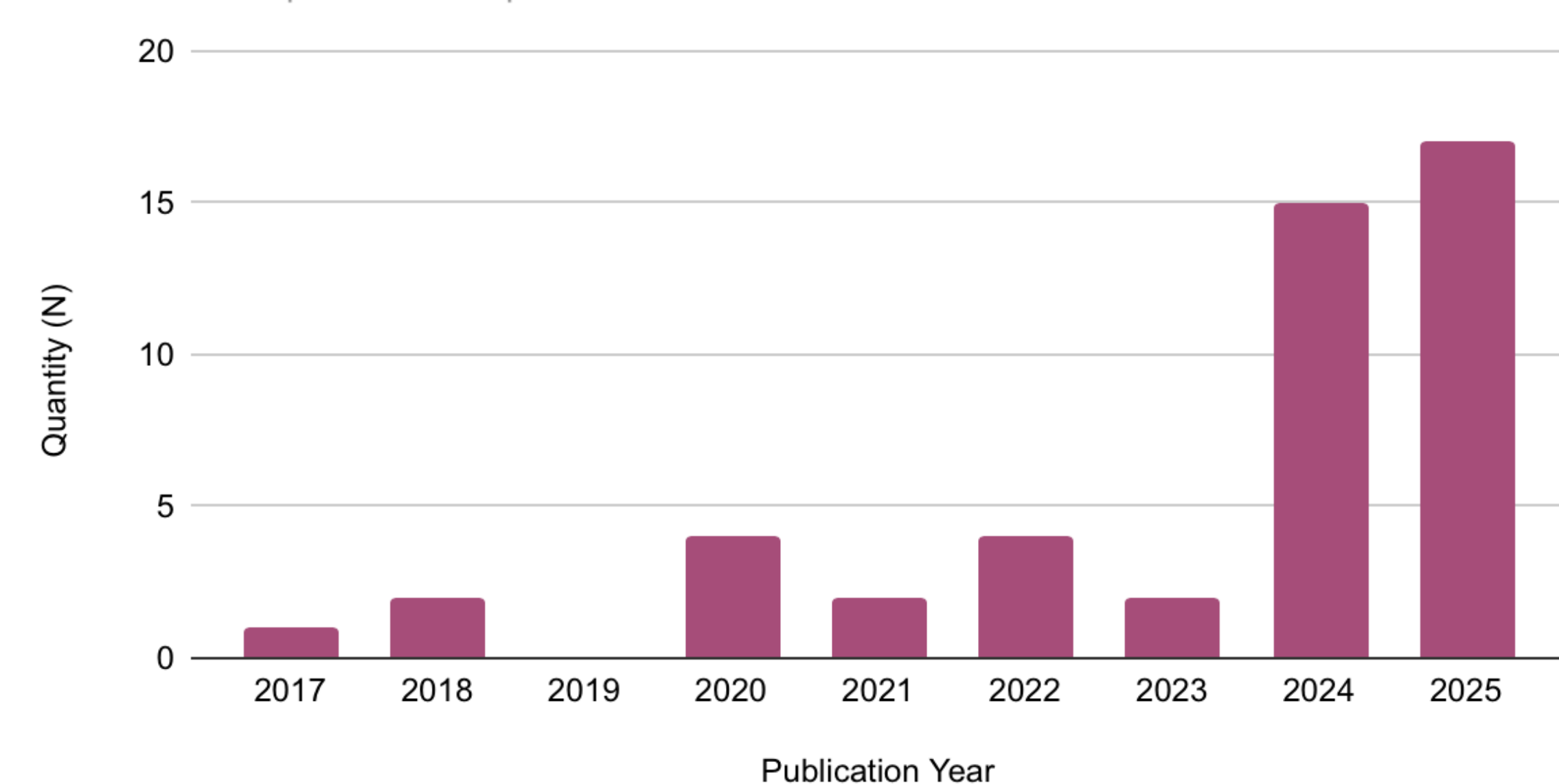


Publications by Key-Words



Publications by Year

Referenced in presentation per methods



Results

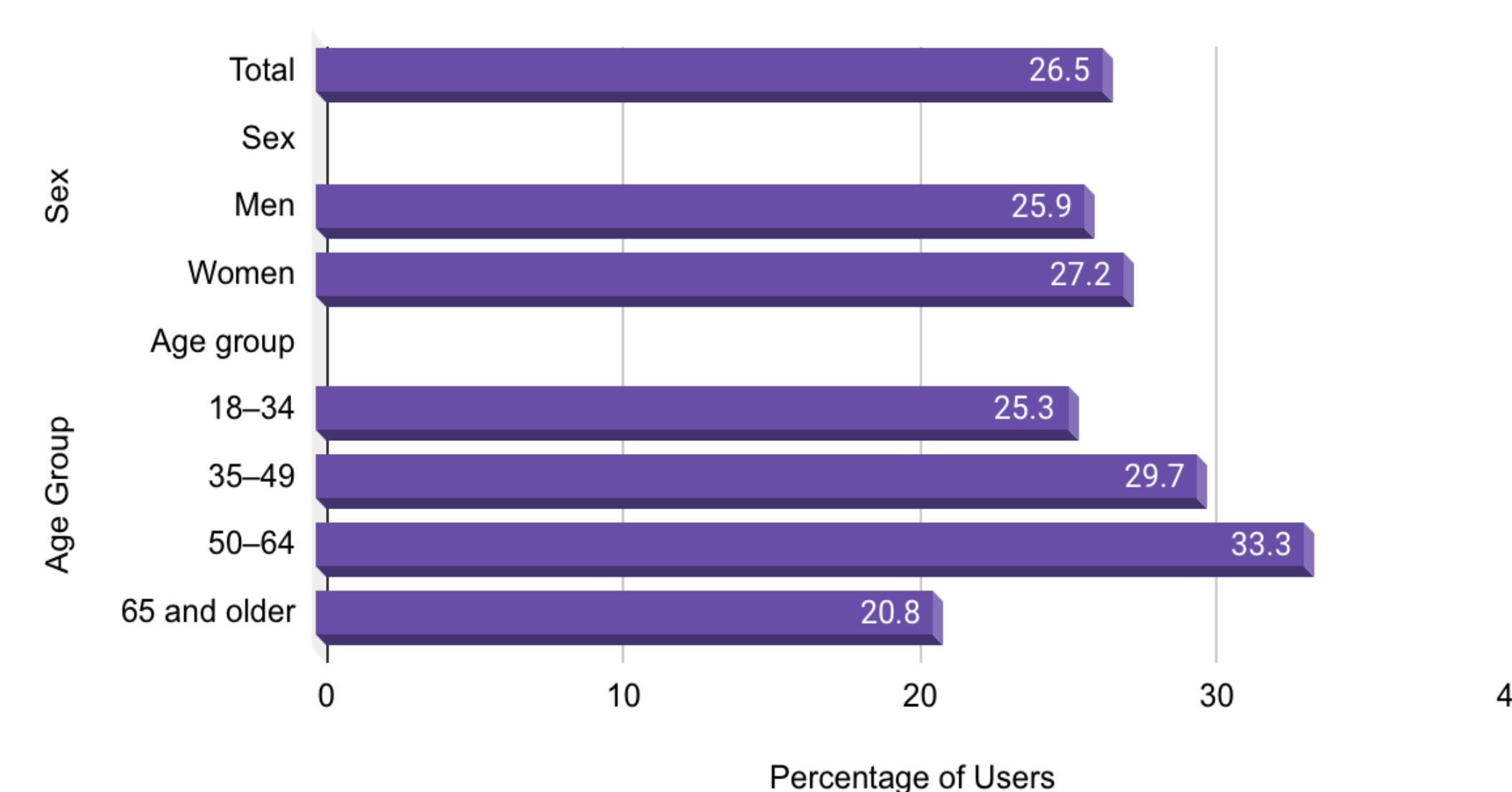
- More patients are using GLP1-RA medications for medical and cosmetic interests
 - >600-700% increase in GLP-1 prescriptions, source pending between 2018 and 2024
 - Online purchases of GLP-1 RA medications or ordering through compounding pharmacies was not included in any article referenced for this presentation due to lack of centralized tracking system.
- Increasing fertility, spontaneous pregnancy (planned and unplanned) increases on medication
 - Notably when used in combination with other medications for diabetes management, such as Metformin
- Increased numbers of consumers/patients = increased number of reproductive age consumers
 - Medication use increase across all age groups from 18 through 65 and older
- Increased off-label or online purchases of compounded medication = less ability to monitor outcomes

48 publications utilized at the time of this poster creation and it's digital publication To ACOI.

Of these publications, new research studies and retrospective analyses are being published at an increasing rate. Publications as recent as August 2024 include case studies of women whose pregnancies are being monitored following medication use during first trimester. Larger analyses have been commenting on decreased correlations between obesity management and health risks of mothers including gestational diabetes and preeclampsia, which may also have implications about the Use of GLP-1 and associated weight loss prior to conception.

GLP-1RA Use Amongst Diabetics By Sex and Age

Based on public 2024 CDC data from the NIH



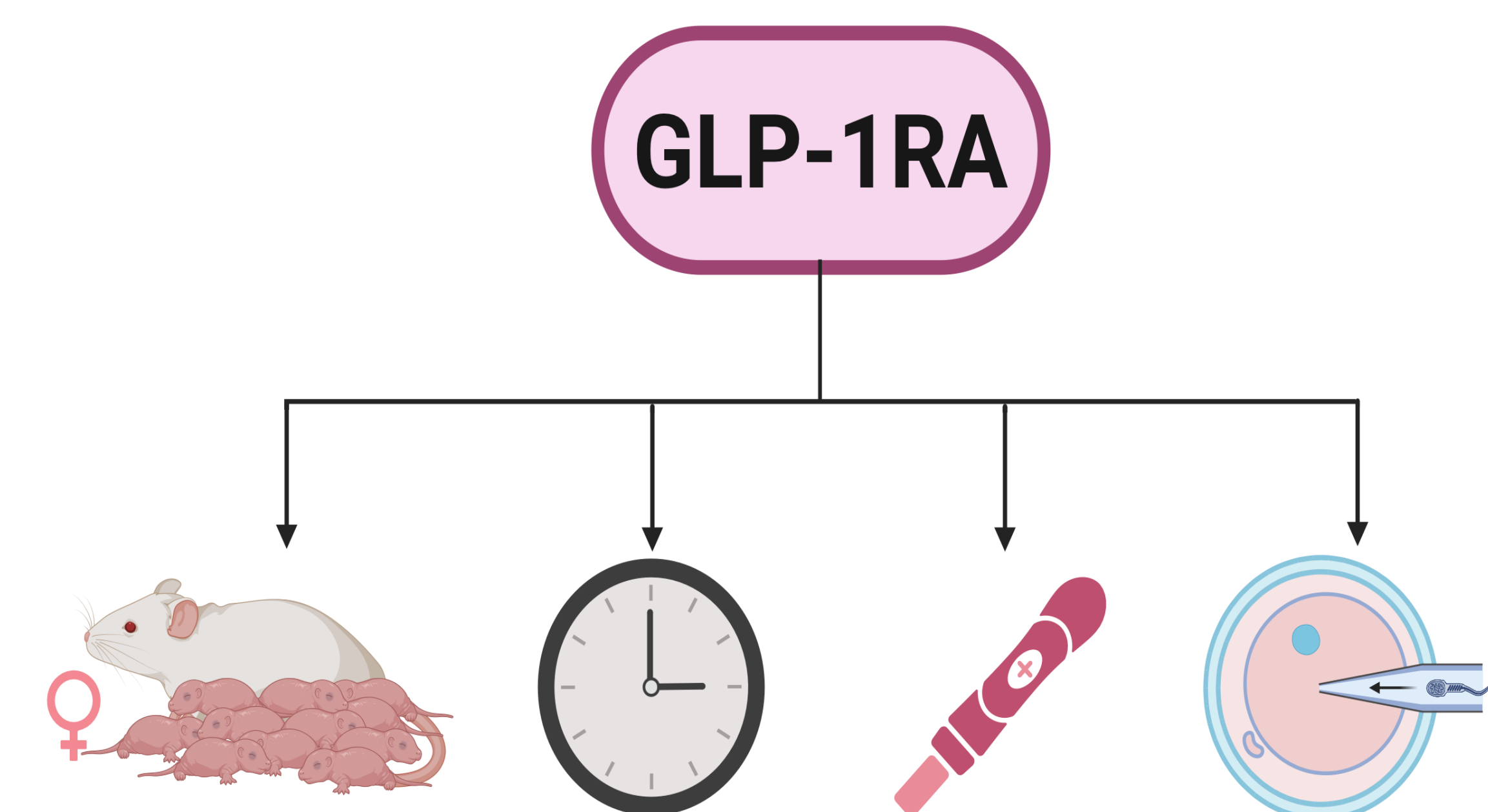
Limitations

- Methods utilized exclusion criteria that eliminated articles not available in English
- Only published articles were reviewed, limited primary data source utilization
- Unable to attain reliable reporting of "cosmetic" use of medication, therefore limited assertion that the findings are also applicable to patients consuming GLP1-RA for cosmetic interests who do not have a diagnosable condition as screened in these studies

Conclusion

- Further mammalian studies could inform the hormonal changes and consequential changes in fertility success following exposure to GLP-1 receptor agonists medications. The growing prevalence of this drug class amongst women of reproductive age creates new questions regarding its long term potential reproductive effects and the potential for GLP-1 RA medications as an adjunct or precursor to IVE treatment.
- While the current recommendations are to limit GLP1-RA exposure during pregnancy, there is limited understanding of the possible teratogenic effects in utero. As the medication prevalence continues to rise, as do rates of spontaneous and planned pregnancy on consumers, it is essential to examine the consequences of drug exposure to both mother and fetus.
- The future of metabolic stabilization and pre-treatment for IVF: Similar to other medications that have been associated with increase fertility in correlation with metabolic stabilization, GLP-1RA medications may be a successful adjunctive therapy during early preparation for IVF.
- If the observed correlation between GLP-1RA use and fertilization stabilization, as assessed by pregnancy success, strengthens, family planning discussions must take place. Inform clinical practices – contraceptive counseling or family planning considerations for patients who are considering or trying to become pregnant.

Future of GLP-1RA Research



References / Acknowledgements

- Please scan QR code for an updated list of references
- Thank you to Dr. Belovich and Dr. Adams, who have been supportive of my learning from day one, and who are two of the most inspiring women in STEM I have the pleasure to learn from.

