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Psychosocial Implications of Prenatal Telehealth Genetic Counseling: A Systematic Review

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Abstract

Introduction: Telehealth is a growing service delivery model in clinical genetics and genetic counselling. Despite its popularity, telehealth genetic counseling (TGC) is often not incorporated into prenatal genetic services.

Methods: A literature review was conducted to identify peer-reviewed, original research articles, that examined the psychosocial implications of prenatal TGC. The PubMed database was used with the following key terms: “Telehealth Genetic Counseling”, “Prenatal Genetics Telehealth” and “Telegenetics”.

Results: The search returned 82 articles; only five articles assessed the psychosocial implications of prenatal TGC. The TGC delivery methods varied among studies, but results consistently revealed positive responses, most notably patient satisfaction.

Conclusions: Further use and research of TGC are needed to better understand the social implications of this service delivery model for prenatal populations. This information is essential to guide clinical care for prenatal populations.

Background

Telehealth has been defined as, “the delivery of health care services, where distance is a critical factor, by all health care professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of health care providers...”

Telehealth in genetics, often called telegenetics, has more recently been utilized to increase patient access. Other documented benefits include cost reduction and patient satisfaction.

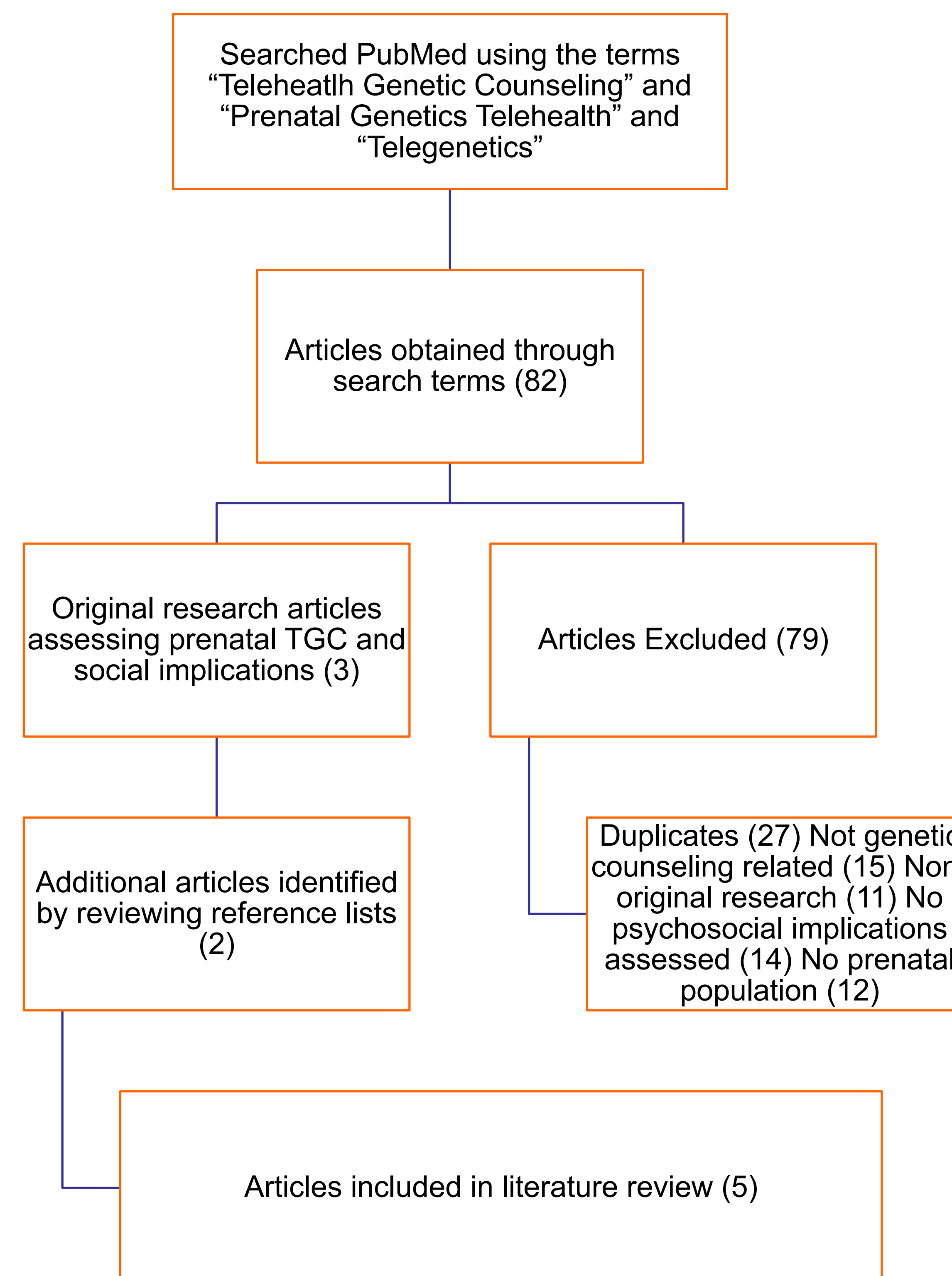
While TGC is utilized throughout many specialties, it is not commonly used for prenatal indications such as advanced maternal age, abnormal maternal serum screening and abnormal prenatal ultrasound.

Aims

- Objectively identify current literature surrounding TGC for prenatal indications.
- Review and compare the identified psychosocial implications.

Methods

Systematic Review Schematic Flow Diagram



References are available upon request. This data has been previously published in the *Journal of the International Society for Telemedicine and eHealth*, <https://journals.ukzn.ac.za/index.php/JISfTeH/article/view/720>.

Results

| Studies | Participants | | Evaluation | | Results | |
|-----------------------------|--|---|---|--|-----------|--|
| | First Author (Year) Country | Indication(s) for Genetic Counseling | Included in Analysis | Satisfaction | Anxiety | Satisfaction (Satisfied/Not Satisfied) |
| Sangha (2003) Canada | Positive triple screen for Down syndrome | N=24 Clinic visit group (n=12) Telephone group (n=12) | Question, “I feel satisfied with the genetic counseling session that I received, and I feel that all my questions were answered.” | Pre- and post-counseling anxiety questionnaires | Satisfied | Decreased |
| Hunter (2005) Canada | Advanced maternal age | N=577 Randomized to the individual counseling, group counseling, or decision aid group | Intervention Satisfaction Questionnaire (ISQ) | Traditional State and Trait Anxiety Inventory (STAI) | Satisfied | Decreased |
| Lea (2005) United States | Paediatric, adult, and reproductive ^a | N=26 A total of 105 participants (including 3 prenatal) were surveyed with a 25% response rate | Patient Satisfaction Evaluation Form | NA | Satisfied | NA |
| Abrams (2006) United States | Abnormal maternal serum screening and advanced maternal age | N=80 Counselled on-site (n=73) Counselled by video-conferencing (n=7) | Survey created to assess satisfaction with the genetic counseling experience | NA | Satisfied | NA |
| Otten (2016) Netherlands | Presymptomatic cardiogenetic, presymptomatic oncogenetic and prenatal ^b | N=128 Prenatal online counseling (n=6) Prenatal conventional | Clinical Genetics Satisfaction (CGS) Indicator and Telemedicine Satisfaction | Abbreviated State and Trait Anxiety Inventory (STAI) | Satisfied | Decreased |

NA=Not Assessed

^a Reproductive indications included preconception and prenatal; prenatal indications were not further described

^b Prenatal indications were described as urgent; no further information was provided.

Discussion & Conclusions

The systematic review was limited due to the number of studies included, limited populations utilized, and overall variability in study design.

Results among the studies are consistent with positive psychosocial implications. These findings are not anticipated to be related to apparent sub-optimal use of prenatal TGC.

Further research on this topic is necessary to better care for prenatal populations.