



Background





- Male factor contributes to nearly 60% of all cases of infertility¹.
- Social media platforms enfranchise infertile men to take an active role in their condition
- Social media provides anonymity absent from face-to-face encounters
- Health information online is readily accessible, yet it escapes the scrutiny of scientific publication guidelines.
- Urological conditions as a whole suffer from a spread of misinformation on social media

Objective

- Identify popular male infertility content on social media
- Assess the accuracy and quality of male infertility content on social media

Methods

- BuzzSumo, a social media analytics tool was used to identify the most shared male infertility content online
- Data from 4 different social media platforms:





- Engagement is defined as the total number of interactions that users have with a particular article link "liking," "commenting," and "sharing" on social media
- Top 10 search terms (>1,000 engagements)
- Top 10 article links (>100 engagements)
- Content of links were graded for accuracy and labeled as: accurate, misleading or inaccurate
- Inter-rater reliability was calculated with Cohen's κ
- Binary logistic regression was used to compare user engagement with graded accuracy of article links. Statistical significance was set at $p < 0.05$

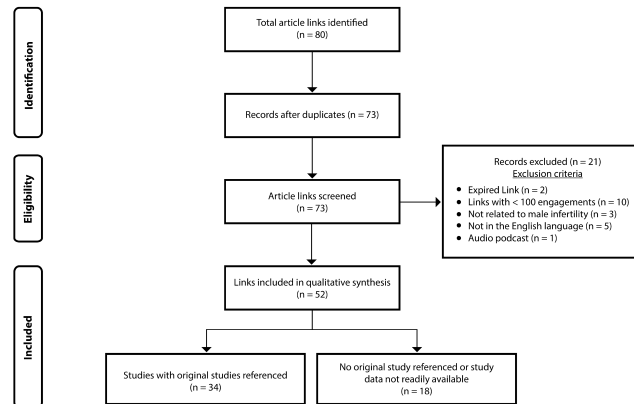


Fig. 1. Methodology for content assessment using a quantitative social media analytics tool.

Table 1. Article Link Sources and Accuracy

Source website	Misleading/Inaccurate	Accurate	Total
Scientific peer-reviewed journal	2	2	4
Medical center or hospital	0	1	1
News organization	9	10	19
Alternative media (e.g., blog)	12	16	28

A total of 52 article links were identified. Accuracy of article links were graded by two separate reviewers based on scientific studies referenced within the article.

Table 2. Search Term Engagements by Social Media Platform

Search Term	Number of Engagements*				Total
	Facebook	Twitter	Pinterest	Reddit	
Sperm count	173,600	2,005	4	34,210	209,819
Sperm quality	57,010	247	0	7,400	64,657
Male fertility	61,300	1,261	8	417	62,986
Fertility in men	7,386	391	8	45,620	53,405
Male infertility	18,200	1,209	1	27	19,437
Sperm testosterone	7,261	594	3	4	7,862
Semen analysis	1,652	28	3	0	1,683
Sperm motility	1,011	121	0	23	1,155
Total	327,420	5,856	27	87,701	421,004

*Engagements – defined as the sum of "likes," "comments," and "shares" of given article.

Table 3. Statistical comparison of engagement by platform with graded accuracy of article links.

Engagement by platform (accurate vs. misleading/inaccurate)	OR	p
Facebook	0.746	0.388
Twitter	0.507	0.477
Pinterest	2.624	0.105
Reddit	0.071	0.789
Total	0.061	0.805



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Results

- 8 search terms and 52 article links in final analysis
- 56% of articles were graded as accurate and 44% as misleading or inaccurate ($\kappa=0.743$)
- No significant difference was found in engagements between accurate versus inaccurate/misleading links
- 15 peer-reviewed research studies comprised the primary citations used by 34 of the 52 total articles links
- Of the 34 links with scientific evidence, 17 (50%) referenced the same two original research studies and captured twice as many engagements as the remaining 13 studies combined
- Studies relying upon animal or insect models comprised 24% of total engagements, and 90% of these links were graded as misleading
- Among all 15 peer-reviewed studies, 26% had sample sizes <100 subjects

Discussion

- Male infertility content on social media is widely shared, but sensationalism predominates
- 90% of male infertility content online comes from non-peer-reviewed sources
- News organizations and alternative media (e.g., blogs and marketing websites)
- A few studies are tokenized and amplified to guide discussion on social media, despite crucial limitations
- Scientific and medical establishment have limited traction with a sensationalized consumer culture
- Online health interventions should be designed to offer users men's health information that is both accurate, engaging, and tailored to the general public

Reference

1. Quallich SA. Male factor infertility: an area of health disparity. J Nurse Pract 2016;12:e235-6.