



How accurate and comprehensive are currently available mobile medical applications (apps) for sexually transmitted and genital infections: a comprehensive review

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Introduction

Around 90% of young British people, a group at high risk of sexually transmitted infections (STIs), own a smartphone. Seeking sexual health advice online is common and provision of STI apps is increasing. **The UK lacks a robust framework for quality control of mobile medical apps and potential for misinformation is substantial.** We undertook a comprehensive review of the content and accuracy of contemporary apps for STIs (except HIV) and related genital infections aimed at members of the public.

Methods

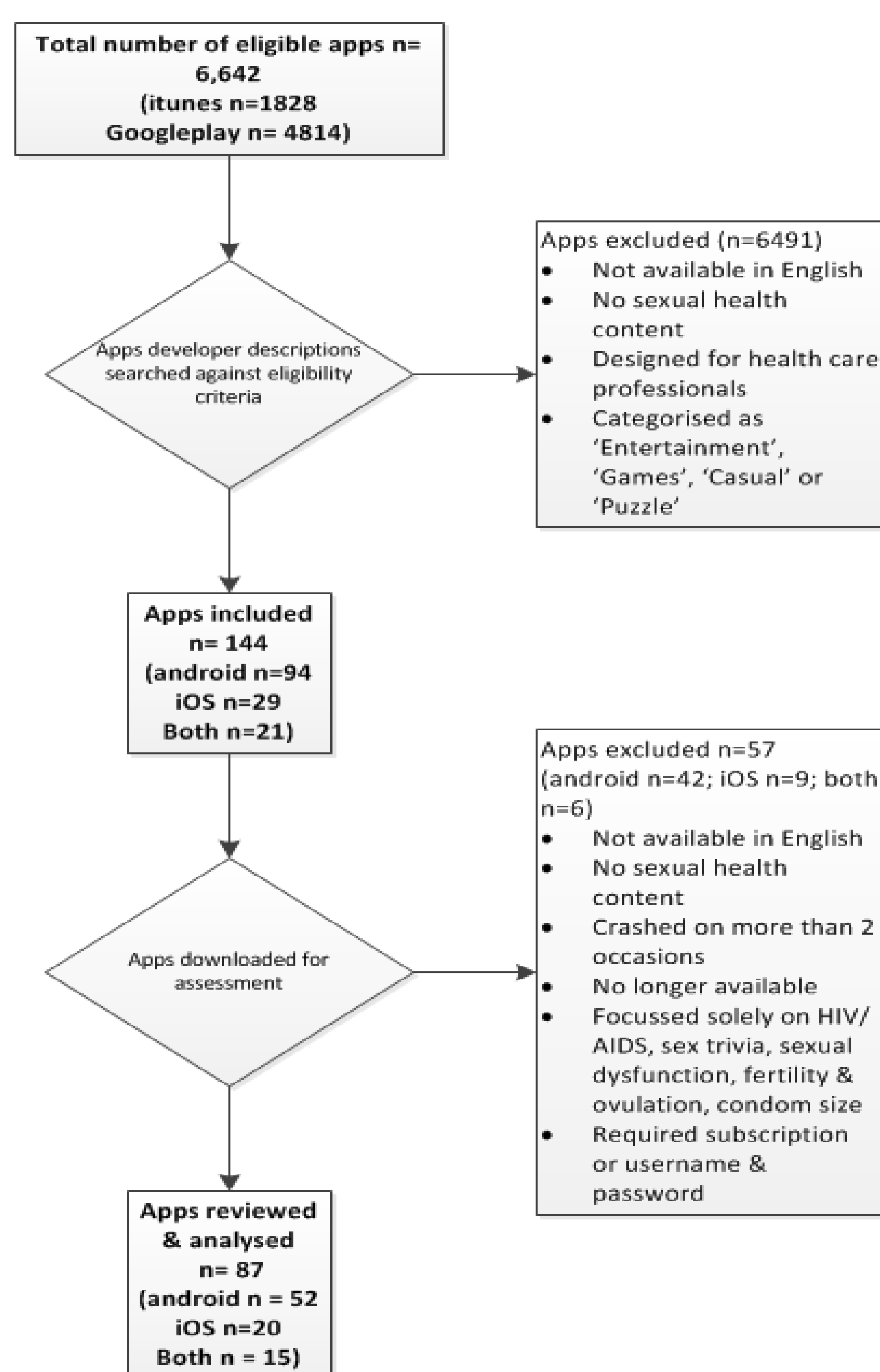
Two researchers searched Google Play and iTunes stores for free and paid apps on STIs and genital infections, testing, diagnosis and management, between 10/09/2014 - 16/09/2014. Inclusion and exclusion criteria were established, a data extraction form was developed. Two researchers assessed eligible apps according to:

1. **Comprehensiveness and accuracy of information on individual STIs/genital infections, and their diagnosis and management**, compared with professional associations' information leaflets, and National Health Service STI information webpage content. Parameters that were assessed for comprehensive & accuracy of content: safe sex; testing; diagnosis; information about STIs/infection; management; partner notification; ePrescribing; contraception; service provision; chlamydia; gonorrhoea; syphilis; genital warts; HPV; genital herpes; pubic lice; *Trichomonas vaginalis*; vaginal candidiasis; bacterial vaginosis; non-specific urethritis; pelvic inflammatory disease; epididymitis; overall content accuracy.

2. **Nineteen modified Health on The Net (HON) Foundation principles** (quality standards for apps (Huckvale K, Car M, Morrison C, Car J. *Apps for asthma self-management: a systematic assessment of content and tools. BMC Med* 2012;10:144)).

Results

144/6642 apps met eligibility criteria (Android n=94; iOS n=29; both n=24):



Content was highly variable: 34/87 (39%) covered 1 or 2 infections; 16/34 (47%) were ebooks, predominately about genital herpes or candidiasis; 40/87 (46%) covered multiple STIs; 5/87 (6%) focussed solely on accessing STI testing.

Accuracy: 13/87 (15%) were fully, 46/87 (53%) mostly and 28/87 (32%) partially accurate. Apps available on both platforms had a greater degree of accuracy than single platform apps. Despite being the commonest bacterial STI in the UK, only 1 app provided fully accurate and comprehensive information on chlamydia.

25/87 (29%) contained 1 or more instance of potentially harmful information. Examples include:



HON Criteria: only 29% of apps met 6 or more of the 19 HON criteria.

Conclusions

Although the initial search for apps about STIs and genital infections found thousands of hits, only a small proportion of these were eligible when taking the perspective of a member of the public seeking sexual health advice on these conditions – and these were very hard to identify.

The marked variation in content, quality and accuracy of available smartphone apps, combined with the relatively high proportion that contain harmful information, significantly risks undermining the potential health benefits of an eHealth approach to sexual health promotion and information. It remains unclear whether a validation/accreditation process for all mobile medical apps is necessary or whether educating the public in terms of assessing content and accuracy of apps would be a better approach.

About eSTI²

eSTI² (Electronic Self-Testing Instruments for Sexually Transmitted Infections) is a multi-institutional research consortium. It aims to develop a polymicrobial, rapid and accurate STI diagnostic self-test, embedded within online care pathways for management and partner notification to reduce the public health impact of STIs. This work was supported by the UK Clinical Research Collaboration (Medical Research Council) Translation Infection Research Initiative Consortium (grant number G0901608).

