Geosocial Dating Applications Mirror the Increase in Sexually Transmitted Diseases

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The UK, Iceland and Scandinavia have the top 5 incidence rates of chlamydia in Europe (1). In recent years the Danish National Institute of Health (SSI) has reported an increasing incidence of sexual transmitted diseases (STDs) (2–4). In the late 1990s gonorrhoea was an uncommon STD in Denmark, but, for unknown reasons, the incidence has increased by almost 5-fold since then. Chlamydia infections have also been increasing, as has syphilis, possibly indicating increased sexual activity and unsafe sex (5). These changes seem to occur mainly in younger individuals. Similar patterns have been observed in neighbouring countries; Sweden and Norway. Concerns have also been voiced in the USA over the increasing rates of STDs in populations not traditionally associated with high risk. According to the Centers for Disease Control and Prevention (CDC), more cases of STDs were recorded in 2015 than ever before. Given the increase in antibiotic resistance and emergence of the so-called "super gonorrhoea" was listed as one of the most urgent infectious public health threats in the USA (6). Taken together, these observations indicate a sudden change in incidence of STDs in many societies.

Several explanations have been proposed: waning fear of HIV, decreased use of condoms, reduced social health initiatives, improved surveillance systems, and the introduction of more sensitive tests (6). In addition, we hypothesize; that the emergence of social media, especially location-based (geosocial) dating applications may play a significant role in the sudden rapid increase in STDs.

Only few health professional have expressed their concerns regarding the impact of social media, e.g. Whitney Engeran-Cordova, Senior Director, Public Health Division for the AIDS Health Foundation in the USA stated that: "Mobile dating apps are rapidly altering the sexual landscape by making casual sex as easily available as ordering a pizza"(7).

In the first decade of the millennium, the introduction of smartphones has drastically changed the cultural norms and behaviour of individuals. Our internet access has moved from stationary personal computers to handheld devices, such as smartphones, making us constantly connected to the internet. Today mobile applications are generally perceived as a necessary part of daily communication, social life, and relationships. Geosocial dating applications were introduced to the app stores around the 2010s. These so-called "dating apps" are unique compared with traditional online dating sites, in that they enable users to connect in real-time based on geographical proximity. Geosocial dating applications, such as Tinder® and Happn®, have become a popular and well-accepted way to connect single people in both the heterosexual and homosexual communities. Others are more specifically aimed at the LGBTQ (lesbian, gay, bisexual, transgender and queer) community or subgroups, such as Grindr® and Scissr®. These apps function like a web-based catalogue: single people within a pre-set radius are listed with their chosen profile pictures. Users then "like" or discard potential contacts by swiping. If both swipe "like", their phones will be notified, enabling them to connect in a private chat room.

In 2012, Tinder was the one of the first apps to break into the heterosexual market. The company claims to have more than 57 million users in 190 countries. On a daily basis 1.6 billion swipes are made, matching 2.6 million users, and resulting in 1 million dates per week globally (8). According Tinder, in 2015, the single largest age group, making up more than half their entire user base, is in the age range 18–24 years. According to recent research by Stanford University sociologist Michael Rosenfeld, online dating is now the primary way for heterosexual as well as homosexual people to meet partners. For heterosexuals, online dating exceeded all other ways of meeting partners in the beginning of the 2010s and, for homosexuals, in early 2000. This trend is expected to increase even further (9).

Recently, social media has been suspected to play a role in local outbreaks of syphilis, gonorrhoea and chlamydia in Rhode Island (USA) (10). In 2012 to 2014, a syphilis outbreak in New Zealand was associated with the usage of Grindr (11), and similar observations have been published in the UK (12). Studies in men who have sex with men (MSM) have reported significant increases in gonorrhoea and chlamydia among app users compared with non-app users (13).

It is essential to understand today's sexual behaviour from a wider perspective (14). We suggest that geosocial dating applications are likely to influence incidence rates of STDs more broadly, and should be included as a risk factor in future studies of incidence of STDs, as well as in the assessment of individual patients' risk profiles.

REFERENCES

1. European Centre for Disease Prevention and Control. Chlamydia infection. Annual epidemiological report for 2018. [Date accessed: Nov 26, 2020]. Available from: https://www.ecdc.europa.eu/sites/default/files/documents/AER-for-2018-STI-chlamydia.pdf.

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2. Danish National Institute of Health (SSI). Chlamydia, statistics. 2019 [cited 2019 Dec 8]. Available from: https://www.ssi.dk/sygdomme-beredskab-og-forskning/sygdomsovervaagning/k/klamydia---opgoerelse-over-sygdomsforekomst-2018.
3. Danish National Institute of Health (SSI). Gonorrhea, statistics. 2019 [cited 2019 Dec 8]. Available from: https://statistik.ssi.dk//sygdomsdata#!/?sygdomskode=GONO&show=Graph&datatype=Individual.
4. Danish National Institute of Health (SSI). Syphilis, statistics. 2019 [cited 2019 Dec 8]. Available from: https://statistik.ssi.dk//sygdomsdata#!/?sygdomskode=SYPH&show=Graph&datatype=Individual.
5. Annual Epidemiological Reports. European Centre for Disease Prevention and Control. 2019 [cited 2020 Feb 16]. Available from: https://www.ecdc.europa.eu/en/annual-epidemiological-reports.
6. STDs continue to rise in the U.S. Press release. Center for Disease Control and Prevention. 2019 [cited 2020 Feb 24]. Available from: https://www.cdc.gov/nchhstp/newsroom/2019/2018-STD-surveillance-report-press-release.html.
7. New AHF Billboard Campaign Addresses STD Risks From Popular Dating Apps. AIDS Helathcare Foundation. 2015 [cited 2020 Feb 24]. Available from: https://www.aidshealth.org/2015/09/new-ahf-billboard-campaign-addresses-std-risks-from-popular-dating-apps/.
8. Iqbal M. Tinder Revenue and Usage Statistics. Business of Apps. 2018 [cited 2019 Aug 12]. Available from: https://www.businessofapps.com/data/tinder-statistics/.
9. Rosenfeld MJ, Thomas RJ, Hausen S. Disintermediating your friends: How online dating in the United States displaces other ways of meeting. Proc Natl Acad Sci USA. 2019; 116: 17753–17758.
10. Whitman E. Social media, hookup apps blamed for spikes in syphilis, gonorrhea, other stds in Rhode Island. International Business Times. 2015 [cited 2019 Oct 12]. Available from: https://www.ibtimes.com/social-media-hookup-apps-blamed-spikes-syphilis-gonorrhea-other-stds-rhode-island-1937164.
11. Stylianou G. Phone app link to gay syphilis epidemic. Stuff 2012. [accessed Jan 4, 2020]. Available from: http://www.stuff.co.nz/the-press/7545452/Phone-app-link-to-gay-syphilis-epidemic.
12. Simms I, Wallace L, Thomas DR, Emmett L, Shankar AG, Vinson M, et al. Recent outbreaks of infectious syphilis, United Kingdom, January 2012 to April 2014. Eurosurveillance 2014; 19: 20833.
13. Wang H, Zhang L, Zhou Y, Wang K, Zhang X, Wu J, et al. The use of geosocial networking smartphone applications and the risk of sexually transmitted infections among men who have sex with men: a systematic review and meta-analysis. BMC Public Health 2018; 18: 1178.
14. Holloway IW, Dunlap S, del Pino HE, Hermanstyne K, Pulsipher C, Landovitz RJ. Online social networking, sexual risk and protective behaviors: considerations for clinicians and researchers. Curr Addict Reports 2014; 1: 220–228.