The role of digital technologies in sexual health

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(University of Southampton & Solent NHS Trust)
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<tbody>
<tr>
<td>Formative experiences</td>
<td>Second World War</td>
<td>Cold War</td>
<td>End of Cold War</td>
<td>9/11 terrorist attacks</td>
<td>Economic downturn</td>
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<td></td>
<td>Rationing</td>
<td>Post-War boom</td>
<td>Fail of Berlin Wall</td>
<td>PlayStation</td>
<td>Global warming</td>
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<td></td>
<td>Fixed-gender roles</td>
<td>“Swinging Sixties”</td>
<td>Reagan / Corbachev</td>
<td>Social media</td>
<td>Global focus</td>
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<td></td>
<td>Role</td>
<td>Apollo Moon landings</td>
<td>Thatcherism</td>
<td>Invasion of Iraq</td>
<td>Mobile devices</td>
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<td></td>
<td></td>
<td>Youth culture</td>
<td>Live Aid</td>
<td>Reality TV</td>
<td>Energy crisis</td>
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<td></td>
<td></td>
<td>Woodstock</td>
<td>Introduction of first PC</td>
<td>Google Earth</td>
<td>Arab Spring</td>
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<tr>
<td></td>
<td></td>
<td>Family-oriented</td>
<td>Latch-key kids</td>
<td>Craigslist</td>
<td>Produce own media</td>
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<tr>
<td></td>
<td></td>
<td>Rise of the teenager</td>
<td>rising levels of divorce</td>
<td>Clactonbury</td>
<td>Cloud computing</td>
</tr>
<tr>
<td>Percentage in U.K.</td>
<td>3%</td>
<td>33%</td>
<td>35%</td>
<td>29%</td>
<td>Currently employed</td>
</tr>
<tr>
<td>workforce*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>in either part-time jobs or</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>new apprenticeships</td>
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<tr>
<td>Aspiration</td>
<td>Home ownership</td>
<td>Job security</td>
<td>Work-life balance</td>
<td>Freedom and flexibility</td>
<td>Security and stability</td>
</tr>
<tr>
<td>Attitude toward</td>
<td>Largely disengaged</td>
<td>Early information</td>
<td>Digital Immigrants</td>
<td>Digital Natives</td>
<td>“Technoholics” — entirely</td>
</tr>
<tr>
<td>technology</td>
<td></td>
<td>technology (IT) adaptors</td>
<td></td>
<td></td>
<td>dependent on IT; limited</td>
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<tr>
<td>Attitude toward</td>
<td>Jobs are for life</td>
<td>Organisational — careers are defined by employers</td>
<td>Early “portfolio” careers — loyal to profession, not necessarily employer</td>
<td>Digital entrepreneurs — work “with” organisations not “for”</td>
<td>“Technoholics” — entirely dependent on IT; limited grasp of alternatives</td>
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<td>career</td>
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<td>Career multitaskers — will move seamlessly between organisations and “pop-up” businesses</td>
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<tr>
<td>Signature product</td>
<td>Automobile</td>
<td>Television</td>
<td>Personal Computer</td>
<td>Tablet/Smart Phone</td>
<td>Google glass, graphene, nano-computing, 3-D printing, driverless cars</td>
</tr>
<tr>
<td>Communication media</td>
<td>Formal letter</td>
<td>Telephone</td>
<td>E-mail and text message</td>
<td>Text or social media</td>
<td>Hand-held (or integrated into clothing) communication devices</td>
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<td>Communication</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Facetime</td>
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<tr>
<td>preference</td>
<td>Face-to-face</td>
<td>Face-to-face ideally, but telephone or e-mail if required</td>
<td>Text messaging or e-mail</td>
<td>Online and mobile (text messaging)</td>
<td>Online — would prefer face-to-face if time permitting</td>
</tr>
<tr>
<td>Preference when making</td>
<td>Face-to-face meetings</td>
<td>Face-to-face ideally, but increasingly will go online</td>
<td>Online — would prefer face-to-face if time permitting</td>
<td>Mobile (text messaging)</td>
<td>Face-to-face</td>
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<tr>
<td>financial decisions</td>
<td></td>
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<td></td>
<td></td>
<td>Solutions will be digitally</td>
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<td>crowd-sourced</td>
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*Percentages are approximate at the time of publication.
BIRTHDAYS THEN:
LOOK AT ALL THESE PRESENTS!

BIRTHDAYS NOW:
LOOK AT ALL THESE NOTIFICATIONS...
Frequency of Internet Use by Teens

% of teens ages 13 to 17 who use the internet with the following frequencies


PEW RESEARCH CENTER
Households with internet access, 1998 to 2016, Great Britain

%
Figure 1: Daily internet use by adults, 2006 to 2016, Great Britain

Source: Office for National Statistics
3 out of 4 adults access the internet ‘on the go’

- Mobile or smartphone: 71%
- Laptop or netbook: 62%
- Tablet computer: 52%
- Desktop computer: 40%
Figure 4: Internet activities by year, 2007, 2015 and 2016, Great Britain

- Sending or receiving emails
- Finding information about goods and services
- Reading online news newspapers or magazines
- Internet banking
- Looking for health-related information
Figure 5: Internet activities by age group, 2016, Great Britain

- Finding information about goods and services
- Social networking
- Reading online news or newspapers
- Internet banking
- Looking for health-related information
The pie chart shows the distribution of UK Facebook users, internet users, and the UK population. The chart indicates that Facebook has 27,806,860 users in the UK, which constitutes a significant portion of the UK's total population of 62,348,447.

The bar chart illustrates the breakdown of Facebook users by age group in the UK. The age group 20-29 has the highest number of Facebook users, followed by the 30-39 age group. The 13-19 age group also shows a substantial number of users, indicating high engagement among younger demographics.
Social networking site use by age group, 2005-2013

% of internet users in each age group who use social networking sites, over time

- All internet users
- 18-29
- 30-49
- 50-64
- 65+

Dates:
- Feb-05
- Aug-06
- May-08
- Apr-09
- May-10
- Aug-11
- Dec-12
- May-13
- Sep-13

Percentage:
- 90%
- 78%
- 73%
- 65%
- 45%
- 8%
- 6%
- 1%

Titles:
- Black line: All internet users
- Red line: 18-29
- Green line: 30-49
- Purple line: 50-64
- Blue line: 65+
Sexual health & Technology
Key facts

World-wide:
• ~340 mil cases of STI per year (1mil per day)
• STIs rank in the top 5 disease categories for which adults in developing countries seek healthcare (as common as malaria)

England:
• 434,456 new STI cases in England (2015) – 3.4% decrease from 2014
• Peak age: 19-20 for women and 20-23 for men
• 10% of treated young people will be re-infected within 1 year
• Hard-to-reach populations (MSM and BME) most affected
Hard-to-reach

Erosion of gay-community venues
• Traditional gay-spaces enjoyed by straight individuals
• Low visibility of gay-friendly health services (disclosure)
• Austerity pushes people to stay at home (chemsex)
• Gay bars and pubs replaced by virtual hook-up apps and sex clubs

Black and ethnic minority groups
• Barriers to doctor-patient communication (language)
• Physical barriers to accessing healthcare
• Embarrassment
• Services are seen as culturally insensitive
World Health Organisation calls for “comprehensive education and behavioural support for sexual health using the most effective communication channels” (WHO, 2016)

Public Health England to address health inequalities by developing culturally appropriate models of service provision and health promotion. (PHE, 2015)
Sexual Health Interventions

- Community-based
- School-based
- Clinic-based
- Digital
Health Promotion: websites
HIV prevention: Self-sourced PrEP

I Want PrEP Now

Learn the facts and get educated about PrEP
Health Promotion: Video-blogs

Welcome to Wirral Brook Virtual Tour

Types of contraception

- Expert advice for teenage girls about what types of contraception are available and where they can find the right kind to suit them.
- About emergency contraception

Views: 96,801
Comments & Ratings:
- 0 comments
- 3 ratings

Credits:
- Thanks for the use of Zero as background archive footage. Scripted and directed by Big Pig Wipeout

Media last reviewed: 27/05/2015
Next review due: 27/02/2018
Health Promotion: Social Media
Crowdsourcing

Public health Protocol

Comparing the effectiveness of a crowdsourced video and a social marketing video in promoting condom use among Chinese men who have sex with men: a study protocol

Chuncheng Liu¹, Jessica Mao¹, Terrence Wong¹, Weiming Tang¹, Lai Sze Tso¹, Songyuan Tang¹, Ye Zhang¹, ², Wei Zhang¹, Yilu Qin¹, Zihuang Chen³, Wei Ma⁴, Dianming Kang⁵, Haochu Li¹, ⁴, Meizhen Liao⁵, Katie Mollan⁶, Michael Hudgens⁶, Barry Bayus⁶, Shujie Huang², Bin Yang², Chongyi Wei⁷, Joseph D Tucker¹

Author affiliations +
Health Promotion: Phone Applications

GLOBAL INITIATIVE LAUNCHED ON GAY APP HORNET TO MODERNISE SAFE SEX MESSAGE

Blue Ribbon Boys is a campaign that sees qualified Hornet users granted a blue ribbon icon on their profile photo, signifying their personal commitment to sexual health regardless of their HIV status.
Geo-positioning or Geo-targetting

- Targeted advertisement on phones
- Outbreak area
Video consultations: Web-chats
Screening: STI home-sampling
Screening: STI home-sampling

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<tr>
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<th>Number positive</th>
<th>% positive of samples returned</th>
<th>% samples ineligible for testing</th>
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<tbody>
<tr>
<td>Chlamydia</td>
<td>53</td>
<td>4.9%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Gonorrhoea</td>
<td>13</td>
<td>1.2%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Syphilis</td>
<td>1</td>
<td>-</td>
<td>17.3%</td>
</tr>
<tr>
<td>HIV</td>
<td>1</td>
<td>-</td>
<td>17.0%</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>5</td>
<td>0.9%</td>
<td>14.6%</td>
</tr>
<tr>
<td>Hepatitis C</td>
<td>0</td>
<td>0%</td>
<td>14.6%</td>
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What is the evidence so far?
• 19 RTCs (interactive sites, CDs, video-blogs)
• Moderate effect on sexual health knowledge
• No effect on safe sex intentions
• No effect on biological outcomes
Use of social media for sexual health promotion: a scoping review

Elia Gabarron\textsuperscript{1,2}\textasteriskcentered and Rolf Wynn\textsuperscript{2,3}

• 51 studies (Facebook, YouTube, Twitter)
• Moderate effect on sexual health knowledge
• Increase in STI testing, condom use and service utilisation
• Reduction in chlamydia and gonorrhoea
• Facebook page (signs, symptoms, prevention etc)

• 23% increase in condom utilisation

• 54% reduction in positive chlamydia cases
Clustered RCT (Facebook page with SH news)

Increased, more consistent condom use (68% vs 56%)

But, no effect seen over six months!
Targeted Facebook Advertising is a Novel and Effective Method of Recruiting Participants into a Human Papillomavirus Vaccine Effectiveness Study

Asvini K Subasinghe, BSc (Hons), PhD, Margaret Nguyen, BMedSci, MD, [...] and Suzanne M Garland, FRANZCOG, MBBS, MD, FRCPA,

• Facebook advertisement promoting the HPV vaccine
• 50% unvaccinated women received the vaccine after targeted advertising (vs 19% from standard advertising)
• Facebook is a cost-effective way of recruiting participants
• Digital interventions increase knowledge about STI
• But do not necessarily lead to changes in behaviours

• Interventions conducted on social media boost STI testing and condom use, but the effect is gone after a few months

• Users need to be actively involved in the process of developing digital interventions to increase engagement and persuasiveness

• Visual appearance is equally as important as the content
Upcoming digital interventions

- Portal for STI test results (instead of texts)
- Online Partner Notification
- Portal for medication management for HIV+
- Online booking for appointments (piloted)
- Telephone-consultations for stable herpes patients (piloted)
- Video-consultations for stable HIV patients (and asymptomatic)
- Chlamydia treatment via post
- Vending machines with HIV tests in key spots
- Access to online pharmacies and medication (self-help)
- Personalised care – Highly-targeted Health Promotion
Personalised Care
The Future of the NHS
Aim: To assess HPV vaccine acceptability in MSM

Needed to recruit:
- Sample size: 800 gay/bisexual men (power)
- Below the age of 26 (vaccine licenced <26)
- From small/medium towns across the UK
- At the beginning of sexual activity (HPV exposure)
Men recruited during Brighton Pride

1200 leaflets handed out

~100 boys kissed as incentive
Outcome:

- 16 completed surveys
- Only 9 were below the age of 26
- Spend £115 on printing (plus my time)
- A massive hangover
GAY/BI MEN:
VACCINATIONS AGAINST SEXUALLY TRANSMITTED INFECTIONS SURVEY

Vaccinations for gay/bisexual men
Community

Create Call to Action  Share  

44 likes 0 this week
Post reach of 1 this week
View Pages Feed
See posts from other Pages
Invite friends to like this Page

Vaccinations for gay/bisexual men
Published by Tom Nadarzynski on 15 July 2015
Targeting

AUDIENCE DETAILS

Location: United Kingdom
Age: 16–26
Gender: Male
Language: English (UK) or English (US)
People who match: Interested in: Men

GB - 16-26
POST ENGAGEMENT

AUDIENCE DEFINITION

Your audience is defined.

Specific

Potential reach: 41,000 people

ESTIMATED DAILY REACH

Facebook: 3,300-8,800 people on Facebook

This is only an estimate. Numbers shown are based on the average performance of adverts targeted to your selected audience.

→ 1 Advert
1,594 Results: Post Engagements

£0.19 Cost per Result

1.67% Result Rate

38,543 People Reached

£299.48 Amount Spent

Custom
Attitudes to chlamydia screening elicited using the social networking site Facebook for subject recruitment

Navera Ahmed AB, Yasmin Jayasinghe ABC, John D. Wark DE, Yeshe Fenner AF, Elya E. Moore F, Sepehr N. Tabrizi ABF, Ashley Fletcher AF and Suzanne M. Garland ABF GH
Recruiting adolescent girls into a follow-up study: Benefits of using a social networking website
Facebook Advertisements for Inexpensive Participant Recruitment Among Women in Early Pregnancy
Facebook Is an Effective Strategy to Recruit Low-income Women to Online Nutrition Education
The Tobacco Status Project (TSP): Study protocol for a randomized controlled trial of a Facebook smoking cessation intervention for young adults
• 30 studies using Facebook for recruitment
• In 12 studies FB was most effective methods
• In 5 studies FB was the most cost-effective method
• ‘Hard-to-Reach’ populations & specific conditions
Conclusion:
* Digital revolution is unstoppable
* Need for harnessing digital technologies for healthcare
* Emerging evidence for effectiveness against STIs
* Upcoming forms of E-Health and M-Health
* Personalised care for the biggest impact
The role of digital interventions in sexual health

Tom Nadarzynski, Leanne Morrison, Jake Bayley, Carrie Llewellyn

Approximately 1 million people worldwide acquire an STI each day. There is an urgent need for comprehensive education and behavioural support for sexual health using the most effective communication channels. Digital interventions such as interactive websites and mobile phone applications (apps) provide valuable opportunities to raise awareness about STIs and available sexual health services to supplement standard health education delivered at schools and within the community. These reviews suggest that digital sexual health interventions are promising, but more research is required to identify the components specifically linked with specific behavioural and biological outcomes.

It is important to emphasise that the design and delivery of sexual health interventions can differ substantially in terms of digital modules, target populations, inclusion and design of behaviour change techniques and the quality and accuracy of their content. There are differences between the target user. For example, the readability and comprehensiveness of information about sexual health should be matched with users’ levels of health literacy. Young people in particular may struggle with specific medical language such as ‘genitourinary medicine’ or ‘asymptomatic disease’. The assessment of persuasiveness of sexual health information is important as it motivates users to engage with sexual health services or to adopt particular health protective behaviours. The application of qualitative methods, such as focus groups, interviews, expert panels and ‘think aloud’ methods may enable a better understanding of specific psychological, behavioural or technological barriers to uptake and engagement with digital sexual health interventions. The person-based
Upcoming event:

The launch of “Digital Sexual Health Hub”

Date: May (TBC)
Location: University of Southampton, Highfield
Duration: 2.5h (refreshments included)

Aim: To strengthen networking and collaboration on research projects within sexual health
Thank you

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Twitter @TNadarzynski