DIGITAL ACCESS TO SCHOLARSHIP AT HARVARD
DASH.HARVARD.EDU

HARVARD LIBRARY
Office for Scholarly Communication

Following celebrities' medical advice: meta-narrative analysis

Citation
Hoffman, Steven J., and Charlie Tan. 2013. "Following celebrities' medical advice: meta-narrative analysis." BMJ : British Medical Journal 347 (1): f7151. doi:10.1136/bmj.f7151. http://dx.doi.org/10.1136/bmj.f7151.

Published Version
doi:10.1136/bmj.f7151

Permanent link
http://nrs.harvard.edu/urn-3:HUL.InstRepos:11879749

Terms of Use
This article was downloaded from Harvard University's DASH repository, and is made available under the terms and conditions applicable to Other Posted Material, as set forth at http://nrs.harvard.edu/urn-3:HUL.InstRepos:dash.current.terms-of-use#LAA

Share Your Story

The Harvard community has made this article openly available.
Please share how this access benefits you. Submit a story .

Accessibility

BMJ

BMJ 2013;347:f7151 doi: 10.1136/bmj.f7151 (Published 17 December 2013)

RESEARCH

CHRISTMAS 2013: RESEARCH

Following celebrities' medical advice: meta-narrative analysis

OPEN ACCESS

Steven J Hoffman *assistant professor*[1 2], Charlie Tan *medical student*[3]

[1]Department of Clinical Epidemiology & Biostatistics and McMaster Health Forum, McMaster University, 1280 Main Street West, MML-417, Hamilton, Ontario, Canada L8S 4L6; [2]Department of Global Health & Population, Harvard School of Public Health, Boston, MA, USA; [3]Michael G DeGroote School of Medicine, McMaster University, Hamilton, Ontario, Canada

Abstract

Objective To synthesise what is known about how celebrities influence people's decisions on health.

Design Meta-narrative analysis of economics, marketing, psychology, and sociology literatures.

Data sources Systematic searches of electronic databases: BusinessSource Complete (1886-), Communication & Mass Media Complete (1915-), Humanities Abstracts (1984-), ProQuest Political Science (1985-), PsycINFO (1806-), PubMed (1966-), and Sociology Abstracts (1952-).

Inclusion criteria Studies discussing mechanisms of celebrities' influence on people in any context.

Results Economics literature shows that celebrity endorsements act as signals of credibility that differentiate products or ideas from competitors and can catalyse herd behaviour. Marketing studies show that celebrities transfer their desirable attributes to products and use their success to boost their perceived credibility. Psychology shows that people are classically conditioned to react positively to the advice of celebrities, experience cognitive dissonance if they do not, and are influenced by congruencies with their self conceptions. Sociology helps explain the spread of celebrity medical advice as a contagion that diffuses through social networks and people's desire to acquire celebrities' social capital.

Conclusions The influence of celebrity status is a deeply rooted process that can be harnessed for good or abused for harm. A better understanding of celebrity can empower health professionals to take this phenomenon seriously and use patient encounters to educate the public about sources of health information and their trustworthiness. Public health authorities can use these insights to implement regulations and restrictions on celebrity endorsements and design counter marketing initiatives—perhaps even partnering with celebrities—to discredit bogus medical advice while promoting evidence based practices.

Introduction

Celebrities frequently give medical advice and people often follow it. Whether motivated by good intentions or financial rewards, celebrities can generate much publicity for health campaigns by virtue of their visibility, public interest, and perceived newsworthiness. When journalist Katie Couric televised her colonoscopy on NBC's *Today Show* in 2000, colorectal cancer screenings by 400 American endoscopists

Correspondence to: S J Hoffman hoffmans@mcmaster.ca

Extra material supplied by the author (see http://www.bmj.com/content/347/bmj.f7151?tab=related#webextra)

Full search protocol and results

Video on bmj.com (see also http://bmj.com/video)

The pros and cons of celebrity health advice

No commercial reuse: See rights and reprints http://www.bmj.com/permissions Subscribe: http://www.bmj.com/subscribe

increased by 21% the next month.[1] Following actor-singer Kylie Minogue's diagnosis of breast cancer, bookings for mammograms rose by 40% in four Australian states.[2] Twice as many screenings for cervical cancer were conducted in England during March 2009 compared with the same month one year earlier, corresponding to reality TV star Jade Goody's death from the disease.[3]

Many celebrities have mobilised their influence for good. Actor Michael J Fox's foundation has raised over $350m (£215m; €260m) for research into Parkinson's disease,[4] whereas singer Sir Elton John's charity has raised more than $300m towards research into HIV/AIDS.[5] But the messages espoused by celebrities can also conflict with those recommended by health professionals, public health authorities, and the best available research evidence. British television presenter Sir Michael Parkinson⇓ promoted an unsupported self diagnosis technique for prostate cancer based on his own experiences: "The test is if you can pee against a wall from two feet, you haven't got it."[6] Having breast cancer at age 36, actor Christina Applegate promoted magnetic resonance imaging for early detection; yet the US National Cancer Institute does not endorse such investigations for those at average risk of breast cancer.[7] Actor Suzanne Somers advocates her own brand of medicine, including bioidentical hormones to reverse aging and proteolytic enzyme therapy for pancreatic cancer, despite her therapies lacking evidence of effectiveness.[8 9]

People are trusting celebrities with their health. While celebrities sometimes encourage healthy behaviours of proven benefit, at other times they spread misinformation and harmful practices. The potential years of life lost and wasted healthcare dollars from all the useless products and bogus treatments that celebrities sometimes promote at the expense of evidence based practices, make this phenomenon a critical challenge worthy of serious address.

In this meta-narrative analysis we synthesised insights from systematic searches of the economics, marketing, psychology, and sociology literatures, and additional targeted searches, to explain how celebrities gain credibility as medical advisers and how the public falls under their influence when making important decisions about health.

Methods

We searched the electronic databases BusinessSource Complete (1886-), Communication & Mass Media Complete (1915-), Humanities Abstracts (1984-), ProQuest Political Science (1985-), PsycINFO (1806-), PubMed (1966-), and Sociology Abstracts (1952-). Included studies discussed mechanisms of celebrity influence on people in any context and were reviewed to inform discipline specific narratives accounting for celebrities' substantial influence as medical advisers. In crafting each narrative we prioritised empirical evidence and established theories from each discipline. One researcher (CT) implemented the literature searches and assessed the studies for inclusion or exclusion. (See supplementary file for the full search protocol and results.)

Results

Our searches of the economics, marketing, psychology, and sociology literatures revealed multiple narratives about the mechanisms through which celebrities may influence people's health decisions (box). The most compelling narratives are presented below.

Narratives from economics

Celebrity endorsements as signals—When celebrities endorse a product or idea, they differentiate it from others. According to signalling theory, signals are markers that convey key information about an object or individual and aid decisions.[10] Consumers of health information may find decision making difficult when health professionals, friends, family, and online resources contradict each other. To help in this task, people naturally look for signals that indicate one source as being more credible and effective than another.[10] Owing to the vaulted status of celebrities in society, their endorsements act as signals of superiority that distinguish the endorsed item from competitors, encouraging people to change their health behaviours accordingly.

Celebrities leading the herd—Celebrities are often early leaders of herd behaviours, whereby people naturally tend to make decisions based on what others have done in similar situations.[11 12] Wanting to follow in their favourite celebrities' footsteps, many will ignore their personal information and imitate the celebrity health choices they observe.[11] This behaviour initiates an informational cascade: the celebrity's decisions are passed to others, who make the same choices.[12] As the number of followers increases, the herding effect lengthens and strengthens, spreading from person to person and changing health behaviours along the way.[12] For instance, actor Angelina Jolie's⇓ preventive double mastectomy after testing positive for the BRCA1 gene mutation led to a heightened interest in genetic testing.[13] However, since BRCA mutations are rare, testing is only recommended for women with a high risk or family history of breast cancer.[14] Jolie's announcement may have catalysed a herd seeking the test, including many for whom it is neither appropriate nor cost effective.

Narratives from marketing

Meaning transfer from celebrities to consumers—Celebrities may be successful medical advisers because consumers see in them attributes they respect and want to emulate. This desire stems from a process marketing researchers call meaning transfer. For many people, celebrities represent important social or cultural meanings that become associated with ideas or products they endorse.[15] People in turn consume endorsed items in hopes of acquiring these traits.[16] Tobacco companies are infamous for using celebrities to sell their products. Through fostering close relations with movie studios and prominently featuring stars in advertisements,[17 18] companies transfer the attractive and sophisticated image of celebrities to their cigarettes. The strategy works: smoking in movies has been found to alter perceptions of and susceptibilities towards smoking among adolescents.[19 20]

Halo effect—Celebrity credibility significantly influences an endorsement's effectiveness.[21 22] In acting as medical advisers, many celebrities often have, or portray themselves to have, an authentic connection to the promoted behaviour or product.[23] Even celebrities without a genuine connection have been perceived as credible. This credibility may stem from the halo effect of celebrities' success, which biases people's judgments of celebrities' other traits and gives them a cloak of generalised trustworthiness that extends well beyond their industry or expertise.[24] Celebrities are in turn perceived to have greater credibility than their non-celebrity counterparts, such as doctors, despite having less medical knowledge and experience.

No commercial reuse: See rights and reprints http://www.bmj.com/permissions Subscribe: http://www.bmj.com/subscribe

Mechanisms by discipline explaining influence of celebrities

Economics

Signals—Endorsements by celebrities act as markers that differentiate endorsed items from those of competitors

Herd behaviour—Celebrities activate people's natural tendency to make decisions based on how others have acted in similar situations

Marketing

Meaning transfer—People consume endorsed items to acquire the endorsing celebrities' traits, which have become associated with the product

Halo effect—The specific success of celebrities is generalised to all their traits, biasing people to view them as credible medical advisers

Psychology

Classical conditioning—The positive responses people have towards celebrities come to be independently generated by endorsed items

Self conception—People follow advice from celebrities who match how they perceive (or want to perceive) themselves

Cognitive dissonance—People unconsciously rationalise following celebrity medical advice to reduce the psychological discomfort that may otherwise result from holding incompatible views

Sociology

Social networks—Celebrity advice reaches the masses by spreading through systems of people linked through personal connections

Social capital—People follow celebrity medical advice to gain social status and shape their social identities

Narratives from psychology

Classical conditioning—The psychological process of classical conditioning occurs when people learn to associate two stimuli such that exposure to either achieves similar responses.[25] Celebrity endorsed items come to elicit the positive responses many associate with their favourite celebrities. Eventually, the items elicit the same positive sentiments even without the celebrity.[25] One recent study found that coupling an attractive and trustworthy celebrity with a product led to significantly higher product ratings; stronger or more compatible pairings led to even greater conditioning and more positive attitudes.[25] Medical advice from celebrities may be conditioned to evoke consumers' positive perceptions of celebrities, an effect that is strengthened when the advice matches the celebrity's image.

Self conception and celebrity endorsers—Advice from celebrities may have greater impact on health behaviours when it matches people's self conception, which includes the thoughts and attitudes people have of their actual self, those they would like for their ideal self, and those they use to present their social self.[26] People often use images projected by celebrities to define their self conception, which makes celebrity advice highly influential.[27 28] For celebrities viewed as inspirational, their advice may be compatible with people's ideal self such that the self esteem motive—to elevate one's actual self towards one's ideal self[27]—pushes people to follow the advice. One study found that compatibility between a celebrity endorser's image and a person's ideal self was associated with higher advertisement ratings and greater purchase intention.[29] Conversely, for celebrities who portray themselves as similar to their admirers, their advice will be compatible with people's actual self such that the self consistency motive—to maintain one's actual self[27]—may be the motivating factor.

Cognitive dissonance—The desire to maintain mental consistency and avoid cognitive dissonance may account for why the medical advice of celebrities is followed. People experience psychological discomfort when their decisions, behaviours, knowledge, beliefs, or opinions conflict, which is something people naturally avoid.[30 31] For example, fans may experience dissonance if they ignore their favourite celebrity's medical advice, because this act conflicts with their adoration for the celebrity. However, following the advice can also create dissonance since endorsed behaviours may require substantial changes or investments. To reduce this dissonance, followers unconsciously modify their cognitions, such as internalising the belief that the celebrity's advice is more credible than alternatives.[32] They also adopt new beliefs or commit to actions that diminish inconsistencies, including seeking information supporting the celebrity advice.[32] People even trivialise dissonant cognitions to make the conflict seem less important, such as minimising the costs and harms of the advice.[32] In this way, people unconsciously justify following celebrities' medical advice while strengthening their attachments to the celebrity in the process.

Narratives from sociology

Celebrity advice spreads through social networks—The widespread uptake of celebrity medical advice can also be explained as a social contagion that diffuses through social networks, which are systems of people linked through personal connections.[33] One person's health decisions create externalities, by which connected people experience indirect consequences.[34] Observational studies have found these ties to have significant effects on people's health, including smoking,[35] obesity,[36] sexual activities,[37] and happiness.[38] Although celebrities' social ties to most people are weak, their newsworthiness and star quality—and the intense unidirectional interactions super fans have with them, known as parasocial relationships—allow them to feature prominently within social networks and achieve great influence as medical advisers to the masses.

Commoditising celebrity and acquiring social capital—Celebrity has become commoditised in contemporary society as something that can be bought and sold.[39] People "purchase" celebrity by acquiring celebrities' products, mimicking their lifestyles, and heeding their medical advice. These parasocial relationships have been conceptualised as a means of acquiring celebrities' social capital: the benefits and resources accrued through social relationships.[40] For people seeking to raise their social status, one strategy is to imitate the behaviours of celebrities.[41] Celebrities and their coveted status, in this sense, have become resources in forming consumers' social identities, used to shape the ways people see themselves and want others to see them.[39] Following celebrity medical advice may be a method for consumers to gain social capital and participate in the practices that make celebrities "special," thereby elevating them in society.

Discussion

Celebrities have substantial sway as health advisers. There are strong biological, psychological, and social bases accounting

No commercial reuse: See rights and reprints http://www.bmj.com/permissions Subscribe: http://www.bmj.com/subscribe

for why people follow celebrities' medical advice. Celebrities can thereby be helpful or threaten the public's health. Their power can be harnessed to disseminate information based on the best available research evidence, or it can be abused to promote useless products and bogus treatments.

Health professionals can counter the negative influences of celebrities by speaking to their patients about the validity of celebrity advice and sources of reputable health information. Those times when patients mention the latest celebrity endorsement should be seen as meaningful opportunities to start important educational conversations rather than as annoyances. Doing so not only informs patients about the kinds of health behaviours that are truly beneficial, but also encourages them to place more trust in their trained health professionals.

The medical community can also improve its efforts to increase public understanding of health issues and to discredit the most egregious examples of celebrity advice. One method may be to enact restrictions on celebrity endorsements to ensure promoted messages are supported by research evidence. Requiring celebrities to disclose conflicts of interest, such as financial compensation, is one option. Another is to actually work with celebrities. By partnering with celebrities in productive ways to disseminate science and share basic critical appraisal skills, celebrities can be used as powerful tools for health literacy and health promotion. Public health authorities can take inspiration from previous partnerships that have leveraged the clout of celebrities for good. Chef Jamie Oliver collaborated with government officials and charities to make school meals healthier in the United Kingdom, an effort found to have had a lasting effect on students' educational performance.[42] Actor Glenn Close is a recognised advocate for mental illness.[43] Model Christy Turlington released a commercial with the US Centers for Disease Control and Prevention urging viewers to refrain from smoking.[44] Collaborations with celebrities can be further complemented by counter marketing and social media efforts to discredit incorrect messages from celebrities while spreading evidence based advice.

Ultimately, there is a need to fundamentally rethink and better understand where people obtain their health information and what makes them act on it. Understanding why people follow celebrities' medical advice and developing strategies to exploit the implicated biological, psychological, and social processes to promote evidence based practices represents a good start. Doing so may require fostering constructive relationships with celebrities, allowing them to become important partners in improving health.

We thank Julia Belluz, Timothy Caulfield, Jennifer Edge, Farrah Mateen, Ray Moynihan, Daniel Rosenfield, and Anna Song for feedback on earlier drafts of this manuscript.

Contributors: SJH conceived the study, led its methodological design, and cowrote the manuscript. CT led implementation of the literature searches, assessed the studies for inclusion or exclusion, and cowrote the manuscript. Both authors approved the final version of the manuscript and take responsibility for the integrity of the findings. SJH is the guarantor.

Funding: SJH is supported by the Canadian Institutes of Health Research and the Trudeau Foundation. Both authors were independent from sources of funding in designing, researching, writing, and submitting this report.

Competing interests: All authors have completed the ICMJE uniform disclosure form at www.icmje.org/coi_disclosure.pdf (available on request from the corresponding author) and declare: no support from any organisation for the submitted work; no financial relationships with any organisations that might have an interest in the submitted work in the previous three years; no other relationships or activities that could appear to have influenced the submitted work.

Ethical approval: Not required.

Data sharing: No additional data available.

Transparency: The guarantor affirms that the manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned have been explained.

1 Cram P, Fendrick AM, Inadomi J, Cowen ME, Carpenter D, Vijan S. The impact of celebrity promotional campaign on the use of colon cancer screening: the Katie Couric effect. *Arch Intern Med* 2003;163:1601-5.
2 Chapman S, McLeod K, Wakefield M, Holding S. Impact of news of celebrity illness on breast cancer screening: Kylie Minogue's breast cancer diagnosis. *Med J Aust* 2005;183:247-50.
3 Lancucki L, Sasieni P, Patnick J, Day TJ, Vessey MP. The impact of Jade Goody's diagnosis and death on the NHS Cervical Screening Programme. *J Med Screen* 2012;19:89-93. doi:10.1258/jms.2012.012028
4 Our impact. The Michael J Fox Foundation for Parkinson's Research. 2013. www.michaeljfox.org/foundation/where-does-your-money-go.php
5 About EJAF. Elton John AIDS Foundation. 2013. http://ejaf.org/about-ejaf/
6 Carter C. Michael Parkinson reveals he has prostate cancer. Telegraph. 2013. www.telegraph.co.uk/culture/10165268/Michael-Parkinson-reveals-he-has-prostate-cancer.html
7 MRI's emerging role in breast cancer screening. Harvard Medical School. 2007. www.health.harvard.edu/newsweek/MRIs-emerging-role-in-breast-cancer-screening.htm
8 Pattimakiel L, Thacker HL. Bioidentical hormone therapy: clarifying the misconceptions. *Cleve Clin J Med* 2011;78:829-36. doi:10.3949/ccjm.78a.10114
9 Chabot JA, Tsai WY, Fine RL, Chen C, Kumah CK, Antman KA, et al. Pancreatic proteolytic enzyme therapy compared with gemcitabine-based chemotherapy for the treatment of pancreatic cancer. *J Clin Oncol* 2010;28:2058-63. doi:10.1200/JCO.2009.22.8429
10 Spence M. Job market signaling. *Q J Econ* 1973;87:355-74. doi:10.2307/1882010
11 Banerjee AV. A simple model of herd behavior. *Q J Econ* 1992;107:797-817. doi:10.2307/2118364
12 Bikhchandani S, Hirshleifer D, Welch I. A theory of fads, fashion, custom, and cultural change as informational cascades. *J Polit Econ* 1992;100:992-1026.
13 Norton A. More women consider gene test after Angelina Jolie mastectomy revelation. HealthDay. 2013. http://consumer.healthday.com/health-technology-information-18/genetics-news-334/more-u-s-women-consider-gene-test-after-angelina-jolie-news-survey-679159.html
14 Nelson HD, Huffman LH, Fu R, Harris EL; U.S. Preventive Services Task Force. Genetic risk assessment and BRCA mutation testing for breast and ovarian cancer susceptibility: systematic evidence review for the U.S. Preventive Services Task Force. *Ann Intern Med* 2005;143:362-79.
15 Choi SM, Rifon NJ. Who is the celebrity in advertising? Understanding dimensions of celebrity images. *J Pop Cult* 2007;40:304-24. doi:10.1111/j.1540-5931.2007.00380.x
16 McCracken G. Who is the celebrity endorser? Cultural foundations of the endorsement process. *J Consum Res* 1989;16:310-21.
17 Lum KL, Polansky JR, Jackler RK, Glantz SA. Signed, sealed and delivered: "big tobacco" in Hollywood, 1927-1951. *Tob Control* 2008;17:313-23. doi:10.1136/tc.2008.025445
18 Lambert A, Sargent JD, Glantz SA, Ling PM. How Philip Morris unlocked the Japanese cigarette market: lessons for global tobacco control. *Tob Control* 2004;13:379-87.
19 Sargent JD, Dalton MA, Beach ML, Mott LA, Tickle JJ, Ahrens MB, et al. Viewing tobacco use in movies: does it shape attitudes that mediate adolescent smoking? *Am J Prev Med* 2002;22:137-45.
20 Sargent JD, Beach ML, Adachi-Mejia AM, Gibson JJ, Titus-Ernstoff LT, Carusi CP, et al. Exposure to movie smoking: its relation to smoking initiation among US adolescents. *Pediatrics* 2005;116:1183-91.
21 Spry A, Pappu R, Cornwell TB. Celebrity endorsement, brand credibility and brand equity. *Eur J Mark* 2011;45:882-909. doi:10.1108/03090561111119958
22 Goldsmith RE, Lafferty BA, Newell SJ. The impact of corporate credibility and celebrity credibility on consumer reaction to advertisements and brands. *J Advert* 2000;29:43-54.
23 Moynihan R. Celebrity selling. *BMJ* 2002;324:1342.
24 Leuthesser L, Kohli CS, Harich KR. Brand equity: the halo effect measure. *Eur J Mark* 1995;29:57-66. doi:10.1108/03090569510086657
25 Till BD, Stanley SM, Priluck R. Classical conditioning and celebrity endorsers: an examination of belongingness and resistance to extinction. *Psychol Market* 2008;25:179-96. doi:10.1002/mar.20205
26 Sirgy MJ. Self-concept in consumer behavior: a critical review. *J Consum Res* 1982;9:287-300. doi:10.1016/0167-4870(88)90029-3
27 Sirgy MJ. Using self-congruity and ideal congruity to predict purchase motivation. *J Bus Res* 1985;13:195-206. doi:10.1016/0148-2963(85)90026-8
28 Escalas JE, Bettman JR. You are what they eat: the influence of reference groups on consumers' connections to brands. *J Consum Psychol* 2003:13:339-48. doi:10.1207/S15327663JCP1303_14
29 Choi SM, Rifon NJ. It is a match: the impact of congruence between celebrity image and consumer ideal self on endorsement effectiveness. *Psychol Mark* 2012;29:639-50. doi:10.1002/mar.20550
30 Festinger L. A theory of cognitive dissonance. Stanford University Press, 1957.
31 Jarcho JM, Berkman ET, Lieberman MD. The neural basis of rationalization: cognitive dissonance reduction during decision-making. *Soc Cogn Affect Neurosci* 2011;6:460-7. doi:10.1093/scan/nsq054
32 Simon L, Greenberg J, Brehm J. Trivialization: the forgotten mode of dissonance reduction. *J Pers Soc Psychol* 1995;68:247-60. doi:10.1037/0022-3514.68.2.247
33 Newman MEJ. The structure and function of complex networks. *Siam Rev* 2003;45:167-256. doi:10.1137/S003614450342480
34 Christakis NA. Social networks and collateral health effects. *BMJ* 2004;329:184-5.

No commercial reuse: See rights and reprints http://www.bmj.com/permissions Subscribe: http://www.bmj.com/subscribe

What is already known on this topic

Medical advice from celebrities can have a substantial influence on people, motivating the adoption of new behaviours and altering attitudes and beliefs on health issues

Celebrities can both promote and dissuade healthy behaviours, depending on whether the best available research evidence supports or contradicts their advice

What this study adds

There are strong biological, psychological, and social bases for people's adoration of celebrities and trust in their medical advice

Health professionals can counter the negative influences of celebrities by speaking to their patients about the validity of the celebrities' advice and sources of reputable health information, especially when patients ask about the latest celebrity endorsement

The medical community can use celebrities' influence for good by partnering with them in productive ways, including counter marketing initiatives that discredit bogus medical advice while promoting evidence based practices

35 Christakis NA, Fowler JH. The collective dynamics of smoking in a large social network. *N Engl J Med* 2008;358:2249-58. doi:10.1056/NEJMsa0706154
36 Christakis NA, Fowler JH. The spread of obesity in a large social network over 32 years. *N Engl J Med* 2007;357:370-9. doi:10.1056/NEJMsa066082
37 Bearman PS, Moody J, Stovel K. Chains of affection: the structure of adolescent romantic and sexual networks. *Am J Sociol* 2004;110:44-91. doi:10.1086/386272
38 Fowler JH, Christakis NA. Dynamic spread of happiness in a large social network: longitudinal analysis over 20 years in the Framingham Heart Study. *BMJ* 2008;337:a2338. doi:10.1136/bmj.a2338
39 Cashmore E. Celebrity culture. Routledge, 2006.
40 Portes A. Social capital: its origins and applications in modern sociology. *Annu Rev Sociol* 1998;24:1-24. doi:10.1146/annurev.soc.24.1.1
41 Kurzman C, Anderson C, Key C, Lee YO, Moloney M, Silver A, et al. Celebrity status. *Sociol Theor* 2007;25:347-67. doi:10.1111/j.1467-9558.2007.00313.x
42 Belot M, James J. Healthy school meals and educational outcomes. *J Health Econ* 2011;30:489-504. doi:10.1016/j.jhealeco.2011.02.003
43 Our mission. Bring change 2 mind. 2013. http://bringchange2mind.org/pages/our-mission
44 Christy's TV spot. Centers for Disease Control and Prevention. 2012. www.cdc.gov/tobacco/youth/celebrities/christy/telly/

Accepted: 10 November 2013

Cite this as: *BMJ* 2013;347:f7151

This is an Open Access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 3.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: http://creativecommons.org/licenses/by-nc/3.0/.

Figures

NEWS

Chat show host raises awareness after revealing he is being treated for prostate cancer

Parky speaks out following cancer shock

By James Preston
jamesp@baylismedia.co.uk

BROADCASTING legend Sir Michael Parkinson has spoken of his determination to raise awareness about prostate cancer following his diagnosis with the illness.

The 78-year-old said the cancer had been spotted early before it had the chance to spread during a procedural test and he went public to 'get the message across' and help raise the profile of a topic many men find difficult to discuss.

"I believe that the only positive use of celebrity and fame is if you can actually use it to do something

le. Why should they be? Women aren't like that."

He urged any man who notices a change, particularly when going to the toilet, to consult a doctor and added doctors had told him men should get checked out if they cannot hit the wall of a urinal at a pub when urinating from two feet away.

"I have been lucky because of the job I do as I have had to have at least two medicals a year to get insurance for the

Parkinson's lore: "The test is if you can pee against a wall from two feet, you haven't got it"

DAILY Mirror

Wednesday May 15, 2013

mirror.co.uk 50p

Corrie Ken in court over rape of girl, 15

SEE PAGE 9

'Why I'm happy to have had my breasts removed'

BY ANGELINA JOLIE

DEVOTED Angelina and her partner Brad Pitt

HOLLYWOOD STAR BRAVELY REVEALS HER DOUBLE MASTECTOMY ORDEAL: PAGES 4&5

Someone like you

No commercial reuse: See rights and reprints http://www.bmj.com/permissions Subscribe: http://www.bmj.com/subscribe