Potentially changing health behaviour using nappy ‘nudges’

Abstract
The aim of this study was to investigate whether or not a website (www.health-e-space.com) could be used as a conduit to influence the public to change healthcare-related behaviours. The environmental and financial issues surrounding the use of disposable and reusable nappies was used as an example to investigate if providing information in a certain way could ‘nudge’ people to consider the possibility of using reusable nappies at the cost of convenience. An online survey was completed by staff and students at Moray College, Elgin. A total of 188 surveys were completed. The study found that showing responders the health-e-space website was an enabling process with 73.4% stating the website encouraged them to think about using reusable nappies in the future. Of those who said that they would use disposable nappies prior to viewing the online information, 39.1% said that they would now use reusables, with 30.5% willing to consider using this type of nappy. Of those who did not know if they would use reusables, after viewing the site, 36.4% said they would now use reusables, and 54.5% said they would now consider this method. Being able to tailor and bring together in one place ‘kitemarked’ information and links to online health care information which the user may find useful (a form of personalization) is a novel and promising way of promoting self-care through education and empowerment which could ultimately help make health care more sustainable.

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In a previous article in this journal, the authors reported on how using the ‘wisdom of the crowd’, gathered through social websites, can help to improve breastfeeding rates (Guy et al, 2010). Web 2.0 technologies have opened up possibilities of a whole new way of delivering healthcare (Eysenbach, 2008). In a recent review, it was found that 80% of internet users looked for health information online (Fox, 2011). Online technology such as the website www.health-e-space.com provides a patient-tailored, health professional-led site which aims to educate the public and health professionals in Moray, Scotland on a range of health matters. It also aims to empower and enable the public to take a much more active part in the management of its health. Discussion and involvement of the public with health professionals then becomes a ‘process’ rather than a ‘monologue’ (Currie and Cumming, 2003). This philosophy sits comfortably within the policy of self-care from the Department of Health (DH) (2006), the Scottish Government’s action plan Better Health, Better Care (Scottish Government, 2007) and the growing belief in Scotland that the use of the internet can help facilitate and deliver this agenda (Scottish Government, 2008).

Healthcare provision
In a recent presentation, NHS Scotland (2009) made the stark statement that:

‘if we continue to carry on delivering health care as we are currently doing then a new 50 bed care home will be required every 2 weeks for the next 20 years, a new 300 bed district general hospital will be required every 3 years for the next 20 years, and by 2020 virtually all school leavers will need to be recruited into the care sector’.

The term ‘paradigm shift’ has been used to explain how a crisis within a scientific theory or model creates a ‘tipping point’ (Gladwell, 2001; Brooks, 2010) beyond which evidence which has slowly been building up can no longer be ignored and a new way of describing the world emerges which replaces the established dogma (Gladwell, 2001; Brooks, 2010). Arguably, healthcare provision is at that ‘tipping point’ in delivery, with healthcare becoming increasingly expensive, making current models of treatment ultimately unsustainable. If health care is to meet the needs of the public and be free at the point of delivery, there needs to be a change in how healthcare is provided—from treatment to prevention—as well as an increasing emphasis on individuals taking responsibility for their own health (self-care/empowerment) (DH, 2010).

New methods of promoting health care are therefore desperately needed (DH, 2010). Applying Chris Anderson’s (2007) ‘Long Tail’ concept (a business model which recognizes that we have moved from the ‘information age’, to the ‘recommendation age’, in which people want choice, not a ‘one-size fits all’ solution), it is clear that digitalization offers new ways of delivering healthcare in keeping with the cultural shift from the paternalistic, disease-focused models of the past to patient-centred, co-created methods of care.
It is now possible to bring to a computer or smartphone not only professional information on a health matter, but also patients’ perspectives in social health and wellness communities, links to other relevant information including health-e-tools, appropriate commercial commodities, and other health device and application integration.

In a recent study assessing how many deaths in the US were due to personal choices, e.g. smoking, overeating, or unsafe sex, Keeney (2008) concluded that 55% of deaths for people aged 15 to 64 years could be attributed to personal decisions. These figures can be contrasted with those taken a century ago, in which only 5% of deaths were brought on by personal decisions (infectious diseases accounting for most of the rest) (Keeney, 2008). As Wired magazine summed it up (Goetz, 2009), people are not dying of stupidity—they are dying of ignorance.

Delivery of health care using the internet may be able to mitigate against the effect of these ‘poor’ health decisions. However, there is no such thing as a neutral education process (Freire, 1970) and therefore health professionals must arguably accept the role of nudging people to make beneficial health care decisions under the umbrella of libertarian paternalism (Thaler and Sunstein, 2009). Libertarian paternalism in health care means being free to make choices while being nudged away from the worst ones (as decided by the health professional) by the way in which choices are presented.

Health information online
The website www.health-e-space.com went live in 2008, offering information on health topics ranging from acne to urinary incontinence. However, the website is still early in its development and at present has a particular focus on pregnancy health, with antenatal and postnatal care advice easily accessible as this is where the expertise of the designers lie. With time it will cover all the medical disciplines. This information has been co-created by health professionals and focus groups organized by the Moray Maternity Liaison Committee. The Committee was formed in 1993 following recommendations from the Clinical Resource and Audit Group and the Scottish Management Efficiency Group Working Group on Maternity Services (Bostock, 1993), to form a statutory committee to promote cooperation between professionals and consumers at a local level. The content of the website was then peer reviewed by members of the Liaison Committee.

With a focus on pregnancy health, and antenatal and postnatal care, women are given the website address at their antenatal booking appointment by the community midwives. One core section of the website is the ‘After You Had Your Baby’ section, which was developed using focus groups to discuss the content. It became clear that users wanted to know about nappies, nappy care, colour of faeces, benefits and disadvantages of disposables vs. reusables on the environment and on the baby’s skin and where good reusables could be obtained locally.

In response to the focus group feedback, this section includes advice on how to save money, how to minimize the effect on the environment and how to maximize comfort. In addition, advice is offered regarding preparation for a nappy change and what to expect to find in the nappy. Advice is also provided on the use of disposable or reusable nappies. Broadly speaking, disposable nappies are convenient, but reusable nappies tend to be better for the environment. Disposable nappies take up landfill space and the commonly cited upper time estimate for decomposition is 500 years. Depending on how they are used and laundered, reusables have the potential to save up to 40% of the environmental impact (Environmental Agency, 2008), while it has been estimated that parents can save up to £500 by using reusable nappies instead of disposables (Lancaster City Council, 2010). As to the effect on the health of babies’ skin there does not seem to be a clear advantage of one over the other, with frequency of changing being the most important factor (Lancaster City Council, 2010).
The aim of this study was to see if providing information in a certain way made people consider the possibility of using reusable nappies (being cheaper than disposable nappies and having a better impact on the environment) at the expense of the convenience on disposable nappies.

Method

Participants
The Principal at Moray College was approached to invite students at the college to participate in this study. Moray College offers courses ranging from non-advanced courses to degree qualifications to people ranging from 16 to over 50 years of age. The purpose of the study was explained and the Principal passed on the request and information relating to the study to staff and pupils.

Questionnaire
A voluntary, online survey was devised using Survey Monkey to evaluate the effectiveness of the health-e-space website in educating and nudging and persuading the public about the advantages of using reusable nappies. A link to the site was included at the appropriate point in the survey. The survey was in two parts, the first part to be completed before looking at the website, and the second part to be completed after looking at the website.

The first part consisted of six questions about the respondents’ current situation:
- To which age group do you belong?
- Which sex are you?
- Have you had any experience using nappies?
- What nappies have you used in the past?
- If you were to have a child have you thought about if you would use disposable or reusable nappies?
- What factors influence your decision?

The second part of the survey set out to assess the usefulness of the site by asking the following questions:
- Has viewing the website opened your mind up to the possibility of using reusable nappies?
- If yes why?
- If no why?
- If maybe why?

The final question included a free text option asking users for any other comments.

The questionnaire was piloted on Facebook before being sent out by email to students and staff at the college, Facebook being one of the most popular social networking sites currently used in the UK. A total of 15 people completed the Facebook pilot study, with 73.3% aged 21 to 25 years. Twelve out of the 15 people surveyed had prior experience of using nappies with 66.7% initially choosing to use disposable nappies. After viewing the website 93.3% of those who completed the pilot survey would not change their mind, which indicated a need to improve the website to make the information clearer to members of the public.

The nappy section of the website was modified to contain three separate sections entitled ‘cost’, ‘environment’ and ‘comfort’. Responders were directed to the three sections. Staff and students at Moray College were emailed a short briefing along with an invitation to participate in the survey. Students who attended the social area at the college throughout the school day were also shown the website and asked to complete the survey. The survey was available online for a period of 2 weeks from 15 November to 29 November 2010.

Results
Once the modified website was ‘live’, a total of 188 surveys were completed over the 2-week period. Of these, 130 respondents (69.1%) were female and 58 respondents (30.9%) were male. A wide range of people completed the survey with ages ranging from 15 to 45 years with the majority of respondents aged between 16 and 18 years (33%) (Table 1, overleaf).

Of the respondents, 69.7% had prior experience of using nappies either on family members or friends’ children—42.6% had experience with disposable nappies, 5.3% with reusable nappies and 23.4% had experience with both types of nappy. When asked which nappy they would initially choose to use if they were to have a child now, 128 respondents (68.1%) chose disposables, 24 (12.8%) chose reusables, 25 said they’d use both (13.3%) and 11 (5.9%) did not know (Figure 1).

It was clear immediately that the initial factor which influenced choice was convenience, with 137 respondents (72.9%) citing convenience as the main reason for their choice. This was followed by cost (32.4%). Only 9.6% indicated that health professionals would influence their decision.

After viewing the nappy section of the website, 83 respondents (44.1%) said they would use reusable nappies—an increase of 31.3%. The main reasons given for respondents to change their mind were the reduced impact of reusable nappies on the environment and the cost-effectiveness of using them. Participants responded that:

*The website didn’t so much open my eyes, as already a fan of reusables, but strengthened my resolve*.  


‘I would like to see more done to promote the convenience and ease-of-use of modern reusable nappies, as many of my friends have not realized it’s just as easy as a disposable these days.’

‘Disposable nappies were definitely more beneficial in preventing nappy rash, however, I acknowledge we need to address the issue of environmental damage so would certainly be an issue that we would all have to readdress.’

Those who would continue to use disposable nappies (28.7%) indicated that this was due to convenience with reasons such as:

‘Time and money are more important factors than the impact on the environment for most mums.’

‘Having previously used both types of nappies, I found the convenience and time saved for disposable nappies made it easier to cope with a busy working life while caring for my children.’

‘Reusable nappies are an expensive initial payment which not everyone would be able to afford. The use of disposable nappies spreads the cost over the duration of usage time. Ok, more money is spent but some may find this preferable to lump sum payments.’

While reusable nappies have less of an effect on the environment and are less costly, the continual inconvenience of washing them led 29.3% of people to remain undecided. However, in those who initially said they would use disposables, 39.1% (n = 50) would consider using reusables with 30.5% (n = 39) undecided after viewing the website. In those who were undecided at the beginning, 36.4% (n = 4) would use reusables and 54.5% (n = 6) still remained undecided. After viewing the website, 26.6% of participants said that they would still not use reusable nappies.

Discussion

Leroy Hood’s (2003) vision of P4 health (predictive, personalized, preventative and participatory) has started to become a possibility. This vision can be broadened to fit comfortably within the aegis of e-health, a term which has only been around since the start of the millennium (Eysenbach, 2001). With current models of healthcare becoming unsustainable, new methods of promoting health care are desperately needed (DH, 2010). The potential benefits of health education and health care delivery using the internet are gaining recognition and it is a tool which should be more readily utilized (Fraser and Dutta, 2008; Tapscott and Williams, 2008). Nevertheless, it must be recognized that these technologies (Nuffield Council on Bioethics, 2010: 24, 192):

‘have the potential for changing the relationship between individuals and healthcare providers ... by making it increasingly possible (and in some cases expected) for people to get access to information, diagnosis and medication without going through a primary healthcare provider, and to take more individual responsibility for the management of their health care and records.

‘They pose ethical dilemmas because their application can bring widely-held ethical values into conflict’. 

Table 1. The age range of participants (n = 188)

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Participants (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;16</td>
<td>2 (1.1)</td>
</tr>
<tr>
<td>16–18</td>
<td>62 (33.0)</td>
</tr>
<tr>
<td>19–20</td>
<td>13 (6.9)</td>
</tr>
<tr>
<td>21–25</td>
<td>16 (8.5)</td>
</tr>
<tr>
<td>26–30</td>
<td>13 (6.9)</td>
</tr>
<tr>
<td>31–35</td>
<td>13 (6.9)</td>
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<tr>
<td>36–40</td>
<td>20 (10.6)</td>
</tr>
<tr>
<td>41–45</td>
<td>13 (6.9)</td>
</tr>
<tr>
<td>&gt;45</td>
<td>36 (19.1)</td>
</tr>
</tbody>
</table>

Figure 1. If you were to have a child would you use disposable or reusable nappies before looking at this website?
Key points
- The internet is a popular place for health care information and informal peer support, with advantages and disadvantages for the way people manage their health care
- The internet lends itself to being an easily accessible place for people to access postnatal advice
- The website www.health-e-space.com was able to ‘nudge’ people into considering the possibility of using reusable nappies
- The ability to personalize, educate and empower men and women via health websites may be an important addition to improving public health
- Being able to tailor online healthcare information is a novel and promising way of promoting self-care through education and empowerment which could ultimately help make health care more sustainable

This survey has demonstrated how making available easily accessible information about nappies has the potential to nudge people to make decisions that those who designed the website feel are in the best interest for society. Although the type of nappy may have little impact on skin care, websites such as as www.health-e-space.com may be a new tool to promote self-care through education, personalization and empowerment. Empowerment is a multifaceted concept and can be viewed as both an enabling process and an outcome (Anderson and Funnell, 2010). Cumming et al (2010) showed how a digital story embedded in a menopause website can be helpful in helping women overcome embarrassment and seek help for vaginal dryness.

The enabling process demonstrated by Cumming et al (2010) was addressed by the question ‘has viewing the website opened your mind up to the possibility of using reusable nappies?’ The affirmative response rate indicated the health-e-space website as an enabling process. The Nuffield Council on Bioethics (2007) has produced an intervention ladder with seven approaches to promote positive lifestyle changes from the least intrusive (providing information) to the most intrusive where choice is eliminated through legislation. The nappy nudge to promote the use of reusables aims to provide information to influence decision making—there being no such thing as neutral education without an ‘agenda’ or goal (Freire, 1970).

The free text boxes included in the survey suggest, however, that in terms of information provision, one size does not fit all and while reusable nappies may be more cost-effective and better for the environment, in the modern world the convenience of the disposable nappy will often take precedence.

Nevertheless this study raises the exciting possibility of being able to influence choice.

Limitations
The main criterion for admission of a student to any course at Moray College is the ability to benefit from attendance. This is important because the College is committed to widening access and inclusion, and life experience is considered in assessing a potential student as suitable for entry to either further or higher education, irrespective of formal qualifications. By offering non-advanced courses ranging up to degree qualifications, the College generally represents the wider population. Additionally, the wide age range of students may be useful as the more mature students may influence their children in which nappies to use, and those at a younger age may be getting this information for the first time and therefore be ‘nudged’ into making a good decision. However, the study was limited to people who were computer literate and thus the debate and issues surrounding the ‘digital divide’ need to be considered. With the increasing availability of the internet in schools and libraries this digital divide may be narrowing. The low cost of providing the information and the ease of access may also help health professionals target lower social, economic and rural groups.

Conclusions
Criticisms may be made relating to manipulating people to make health choices, but if they can help people to make good health choices and thereby save expense, the use of sites such as this one is justified. This is an exciting area of research that is one of a number of new ways of promoting self-care and ultimately making health care sustainable. The internet lends itself not only as a medium for providing postnatal advice, but also as a medium for research and surveys outside of experimental settings with ‘real’ people. The ability to personalize, educate and empower men and women via health websites and use this technology to be persuasive may be an important addition to improving public health.

The internet has revolutionized access to information, transformed consumer behaviour and is rapidly changing the nature of social relationships. By using the health-e-space website to explore the debate on which nappy type is best, preliminary evidence has been gathered that people’s beliefs can be nudged and the internet has the potential to change health behaviours.

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