The Scientific Newsletter

N°98 • March 2015

« *Health promotion by new technologies: what works?* »

Editorial

As new technologies emerge there is optimism that some could be used effectively in health promotion. For example, a report by PricewaterhousCoopers outlines that the application of mHealth could save 99 billion in health care costs. A number of questions still remain however including how to best design and use the new technologies, and for whom should they be used.

Brown and colleagues outline that using texts and social media can be cheap, tailored, and yield direct contacts. An interesting challenge for the future will be to assess when new methods are appropriate, to determine the conditions determining their effects, and how to best test these effects.

Brirlouez and colleagues describe a prevention worksite program for a Malaysian university. The intervention group received emails over a 10 week period with links to downloadable modules. Subsequently many of the participants were motivated to change. Hopefully this work will facilitate a further study aimed at applying new technologies to impact hard to reach unmotivated people.

Schwinn and colleagues evaluated a web-based family-involvement health promotion program for adolescent girls, and included 67 mother-daughter dyads. Dyads participating in the program reported better mother-daughter communication, and other important outcomes. This innovative approach shows how family health promotion can profit from new technologies. It will be interesting to see if this approach can be transferred to other health domains in other countries.

There is little doubt that new technologies have potential in the area of health promotion. Yet, what will be the most effective behavior change strategies needed to make them optimally effective? In relation to the use of websites, other sites are just one click away and dropout rates are high. T counter this, user and stakeholder involvement in required in the development of effective sites. Adding innovations - such as videos, blogs and gamification are all promising - but the magic 'involvement' bullet using technology has not been found yet. While health is a priority for many people, it is an issue only considered now and then by many others. Despite the promise of new technology there remains a lot of work to do!

Hein de Vries
Professor in Health Communication, Department of Health Promotion,
Maastricht University, The Netherlands

« Health Promotion & new technologies »

Onikia N. Brown
Alabama Cooperative Extension System, Department of Nutrition, Dietetics, and Hospitality Management, Auburn University, USA

Health promotion is an important factor to help increase positive health behaviors. According to the World Health Organization, "Health promotion is the process of enabling people to increase control over, and to improve, their health. It moves beyond a focus on individual behaviour towards a wide range of social and environmental interventions"[1].

Effective health promotion combines acceptable messages with new technologies to target positive health behaviors. Technologies like blogs, podcasts, wikis, and social networking sites are social media tools that permit the exchange of user-generated material and information. Text messaging allows individuals to send messages via a wireless device. The use of these emerging technologies in health promotion has increased knowledge and positive health behaviors in various populations[2-4].

Texting is very popular; 73% of adult mobile phone owners text, sending or receiving an average of 41[5] messages per day[6].Additionally, 74% of online adults use social networking sites, with 40% of cell phone owners accessing social networking sites on their phone[7].The use of text messaging ("texting") and social media are relatively new practices to health promotion. These technologies provide new mediums for promoting positive health behaviors. However, the decision to use texting and social media within health promotion depends largely on the target population.

Involving the target population in the creation and distribution of health messages will increase the acceptability and appropriateness of the message and mode of communication. The input from the target population provides guidance regarding the types of messages, how often the messages should be sent, and the time-of-day when messages should be sent. Texting and social media tools have been used in research interventions as behavior modification reminders,providing advice, tips, information, and assisting with disease management. Texting and social media tools have also been implemented in various populations, but no two populations are alike. Thus, more research is needed to support the acceptability and effectiveness of texting and social media tools on health promotion.

The benefits of using texting and social media tools for health promotion are:

1. The low cost to send/receive text messages or participate in a social medium;
2. Provide discreet messages that can be personalized/ tailored; and
3. Provide direct contact to the intended individual.

Although many individuals text and participate in social media tools, some limitations to using texting and social media tools for health promotion do exist. Some of the limitations include:

1. Some subject matter are not generalizable (i.e. sex health, caloric intake);
2. Usage/skills vary by population; and
3. "Data usage" cost may deter participation.

When determining the best method of health promotion, consideration is required on how these benefits and limitations of using texting and social media relate to the target population.

In general, texting and social media are acceptable forms of communication by the majority of the population. These medium can also be acceptable and effective novel approaches to health promotion. "The keys to effective social media outreach are identifying target audience(s), determining objective (s), knowing outlets and deciding on the amount of resources (time and effort) that can be invested"[8]. Interventions using texting and social media are mostly short-term (3-6 months). Additional research is needed to determine the effectiveness of texting and social media tools on long-term health promotion and long-term health behavior change.

References

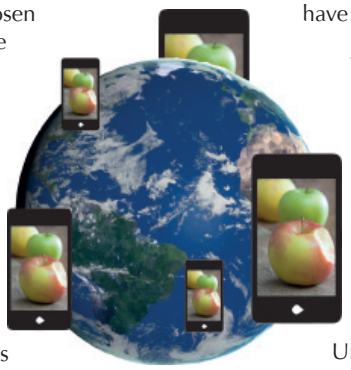
1. World Health Organization. Health Topics. http://www.who.int/topics/health_promotion/en/. Accessed January 13, 2015.
2. Weitzel JA, Bernhardt JM, Usdan S, Mays D, Glanz K. Using Wireless Handheld Computers and Tailored Text Messaging to Reduce Negative Consequences of Drinking Alcohol. Journal of Studies on Alcohol & Drugs. 2007;68(4):534-537.
3. Free C, Knight R, Robertson S, et al. Smoking cessation support delivered via mobile phone text messaging (txt@stop): a single-blind, randomized trial. Lancet. 2011;378(9785):49-55.
4. Park LG, Howie-Esquivel J, Chung ML, Dracup K. A text messaging intervention to promote medication adherence for patients with coronary heart disease: a randomized controlled trial. Patient Educ Couns. 2014;84(2):261-8.
5. Brown, ON, O'Connor LE, Saviano D. Mobile MyPlate: A Pilot Study Using Text Messaging to Provide Nutrition Education and Promote Better Dietary Choices in College Students. J A< Coll Health. 2014; 62(5):320-7.
6. PewResearch Internet Project. Americans and Text Messaging. http://www.pewinternet.org/2011/09/19/how-americans-use-text-messaging/. Accessed January 10, 2015.
7. PewResearch Internet Project. Social Networking Fact Sheet. http://www.pewinternet.org/fact-sheets/social-networking-fact-sheet/. Accessed January 10, 2015.
8. Centers for Disease Control and Prevention. The Health Communicator's Social Media Toolkit. July 2011.

Emails and web sites to communicate prevention messages in the workplace

Eric Birlouez
Agronomist and Sociologist, Professor of History and Sociology of Food, France

It is accepted that many people find it difficult to adopt healthy behaviours such as healthy diet, tobacco or alcohol use, physical activity or managing body weight. To convince their fellow citizens to change their "poor" habits, Malaysian researchers[1] explored the efficacy of new communication channels – web sites and emails – in delivering information and useful tips on cancer prevention in the workplace. This is a huge challenge in Malaysia, particularly as cancers have become one of the leading causes of death and prevention efforts are rare. Thus, 73% of adults eat less than five portions of fruits and vegetables daily and 60% have little to no physical activity.

Employees from a public Malaysian university were randomly divided into two sample groups (one out of every three employees was chosen from the list of personnel): one intervention group and one control group. Each individual chosen was asked his/her consent to participate in the study. In this study, 174 subjects were included in the intervention group (51% acceptance) and 165 subjects in the control group (60% acceptance).



Website modules suggest specific goals for participants

Researchers created a specific web site for this study. There were 10 downloadable modules. Each module provided information and practical tips as well as suggesting specific goals in terms of diet, physical activity, managing body weight and other behaviours to prevent cancer. The intervention group received one email each week for ten weeks. Each message included a link to the web site in order to download a module. Over the course of the study, each subject from this group received two 10-minute phone calls to re-motivate them to go to the site and read the modules. In contrast, members of the control group received neither emails nor phone calls.

Subjects from both groups were given questionnaires to gather data concerning their dietary habits (previous 24-hour recall), lifestyle (smoking, alcohol), anthropometric measurements (BMI, waist circumference) as well as psychosocial specifics: level of awareness concerning cancer risk factors, perceived advantages and disadvantages in decreasing dietary fats, increasing fruit and vegetable consumption and physical activity. For each of these three behaviours, their stage in the change process was defined (according to the 5-stage model proposed in the late 70' by Prochaska and DiClemente: Pre-contemplation, Contemplation, Preparation/Determination, Action and Maintenance). The study protocol was designed to collect data at the beginning of the programme, immediately after intervention and three months later.

Results highlight interest in this technology

At the beginning of the intervention, no statistically significant differences were observed between intervention and control groups for the numerous data gathered through questionnaires or measurements. Participation rate (55%) was greater than that for similar studies (usually less than 50 %). This indicates that academic staff are particularly eager to receive new health information. Among participants, women and young adults were highly present. Analysis of 23 other studies where websites and emails were used as channels for communicating prevention messages led to a similar conclusion: both sub-groups have a marked interest in this type of technology.

Workplace action required

Fifteen percent of participants were obese. This was slightly greater than the national average. Lipids represented an average 31% of caloric intake, also slightly greater than the values provided for the overall national population, and greater than national recommendations (lipid intake between 20 and 30 %). These results should also take into account the subject's work environment. University employees tend to be sedentary and during breaks, to munch on snacks distributed by vending machines in the hallways next to their offices. Participant's fruit and vegetable consumption – a mere serving of fruits per day and less than one serving of vegetables per day – was half the Malaysian Government Recommendations. These observations justify the need to take preventive action in the workplace.

Concerning the stage of change, most volunteers were in the "Preparation" (to action) stage for the three analysed behaviours: reducing fat intake, eating more fruits and vegetables and increasing physical activity. Thus, subjects had already progressed beyond the initial Pre-contemplation and Contemplation stages. This suggests a possible positive impact from the programme. Finally, this study showed that the perceived advantages and disadvantages of these three behaviours vary according to the participant's stage of change. Perceived advantages are thus lower and perceived disadvantages higher in subjects in the Pre-contemplation / Contemplation stages than in those who have progressed further in the change process (Preparation, Action and Maintenance stages).

References
1. A Workplace Email-linked Website Intervention for Modifying Cancer-related Dietary and Lifestyle Risk Factors : Rationale, Design and Baseline Findings – Ang YK, Mirnalini K & Zalilah MS, Mal J Nutr 19(1):37-51, 2013.

A web-based, health promotion program for adolescent girls and their mothers who reside in public housing: focus on F&V consumption and physical activity

Traci M. Schwinn and collaborators

Columbia University School of Social Work, New York, USA

Adolescent girls who live in public housing are at risk for poor health outcomes owing to their socio-economic status. This work tested a brief web-based , family-involvement health promotion program aimed at drug use, physical activity, and nutrition for adolescent girls, aged 10 to 12 years, who reside in public housing.

The study comprised 67 mother–daughter dyads who were randomly assigned to the intervention or control arm. Girls and mothers completed their respective baseline measures online.

Subsequently, intervention-arm dyads completed the 3-session health promotion program on a secure website:

- Session 1 focused on active listening, communication, and the benefits of family meals.
- In session 2, mothers and daughters discussed their knowledge about drugs. Mothers learned to set and enforce rules. Dyads learned strategies to make healthy and economical decisions at the grocery store and how to make healthy dinners.
- Session 3 dealt with coping skills. Drawing from a list of stressors that reflect the hardships of living in public housing, dyads identified and shared with each other sources of stress. Mothers and daughters were also exposed to a 5-step problem solving process.

Control-arm dyads received no intervention materials. All dyads completed posttest and 5-month follow-up measures. In this article, the focus is on the evolution of fruit and vegetable consumption, and physical activity before and after the promotion program.

Evaluation on F&V intake and physical activity

Fruit and vegetable intake was evaluated with 21 items from the Youth and Adolescent Food Frequency questionnaire. Mothers and daughters reported how often they consumed certain foods per week ("0 times per week" = 1 to "more than 7 times per week" = 6) – Table 1 and 2.

Physical activity was evaluated with 12 items from the Kaiser Physical Activity Survey. Eight of the items evaluated the types of activities girls and mothers typically engaged in each week. These eight items used a 5-point Likert scale ("0 times per week" = 1 to "more than 7 times per week" = 6). The other four items assessed the number of hours that girls and mothers spent on such activities as "watching TV" or "surfing on the Internet" ("less than 1," "1," "2," "3," or "more than 3 hours per week") - Table 1 and 2.

Table 1: Control group –pre-test, post-test, and 5-month follow-up F&V and physical activity data for daughters and mothers.

Outcome variable		Pretest (n=31) M (SD)	Posttest (n=31) M (SD)	5-month follow up (n=30) M (SD)
Daughter measures	Fruit intake	2.86 (1.66)	2.66 (1.47)	2.62 (1.24)
	Vegetable intake	2.31 (0.91)	2.51 (1.08)	2.20 (0.94)
	Physical activity	2.29 (0.62)	2.41 (0.70)	2.25 (0.71)
Mother measures	Fruit intake	3.30 (0.77)	3.25 (0.65)	3.31 (0.78)
	Vegetable intake	2.00 (1.20)	2.00 (1.11)	2.23 (1.14)
	Physical activity	1.27 (0.52)	1.10 (0.31)	1.37 (0.67)

Table 2: Intervention group –pre-test, post-test, and 5-month follow-up F&V and physical activity data for daughters and mothers.

Outcome variable		Pretest (n=36) M (SD)	Posttest (n=35) M (SD)	5-month follow up (n=31) M (SD)
Daughter measures	Fruit intake	2.39 (1.17)	2.35 (1.14)	2.90 (1.11)
	Vegetable intake	2.28 (0.90)	2.38 (0.81)	2.41 (0.99)
	Physical activity	2.17 (0.65)	2.19 (0.70)	2.12 (0.71)
Mother measures	Fruit intake	3.24 (0.65)	3.39 (0.71)	3.40 (0.61)
	Vegetable intake	2.16 (1.13)	2.61 (1.23)	2.35 (1.25)
	Physical activity	1.26 (0.77)	1.39 (1.02)	1.42 (0.89)

Increasing vegetable intake and physical activity among mothers with web-based health promotion program

At post-test and relative to the control arm, girls and mothers who received the health promotion program reported greater mother–daughter communication. Intervention-arm girls also reported more parental monitoring. Intervention-arm mothers reported greater closeness to their daughters, increased vegetable consumption and increased physical activity.

Increasing fruit intake among girls with web-based health promotion program

At 5-month follow-up, time by intervention interaction results showed that over time, intervention-arm girls demonstrated greater mother–daughter communication, closeness, increased fruit consumption, reduced psychosocial stress, and greater drug use refusal skills, relative to control-arm girls. Intervention-arm girls and mothers reported increased parental monitoring.

Findings suggest that a brief, web-based health promotion program for such girls and their mothers can affect positive and relatively sustained changes in health behavior and salient risk and protective factors. Girls and mothers improved their scores on measures of communication, closeness, and parental monitoring.

Girls increased their consumption of fresh fruit, and mothers increased their physical activity and consumption of vegetables.

Based on : Schwinn TM, Schinke S, Fang L, Kandasamy S. A web-based, health promotion program for adolescent girls and their mothers who reside in public housing. "Addict Behav. 2014 Apr;39(4):757-60.