Review: computer generated targeted and tailored interventions are modestly effective for improving patient health behaviour

QUESTION: Are computer generated targeted and tailored interventions effective for improving patient health behaviour?

Data sources

Studies were identified by searching Medline (1966–99), HealthSTAR (1981–99), CINAHL (1982–99), Current Contents (1997–9), EMBASE/Excerpta Medica (1990–9), INSPEC (1969–99), PsycINFO (1967–99), Sociological Abstracts (1986–99), the *Cochrane Library*, Science Citation Index Expanded, Social Sciences Index, Computer Retrieval of Information on Scientific Projects, Dissertation Abstracts, internet, and LEXIS-NEXIS. Key individuals were contacted, bibliographies of articles and reviews were scanned, and key journals were hand-searched.

Study selection

English language studies were included if they were randomised controlled clinical trials or quasi-experimental studies with evidence of instrument reliability and validity; had ≥1 patient interactive feedback, reminder, or educational intervention for improving a health behaviour; and had an association between 1 intervention variable and a health behaviour. Studies of personalised interventions were not included unless a targeted or tailored intervention was also in the study.

Data extraction

Data were extracted on intervention type, delivery device, health behaviour model used in the intervention, health behaviour, sample size, and results. Intervention types were personalised (person's name on the message), targeted (customised for a subgroup of the population), and tailored (messages based on the individual's characteristics). Intervention communication delivery devices were categorised as mobile, computerised, automated telephone, and print. Study quality was assessed using a 6 item rating scale. High quality was defined as ≥5 out of 10 points.

Main results

Of 46 studies meeting inclusion criteria, 37 high quality studies (14 targeted and 23 tailored studies) were included in the analysis. The table summarises significant findings.

Conclusion

Computer generated targeted and tailored interventions are modestly effective for improving patient health behaviour.

COMMENTARY

The systematic review by Revere and Dunbar offers an interesting and succinct summary of the state of the art in computer generated outpatient health behaviour interventions. This review would be useful to nurses who are involved in developing ambulatory or community based interventions to assist patients in adopting behaviour changes.

Previous reviews have focused on selected content areas. The wider lens on delivery devices, targeted and tailored interventions, and health behaviour models used in this review was an important advancement. As the philosophy of population health becomes more integrated with primary health care, nurses should consider marketing and educational strategies that will have an effect on broad community groupings.

Although only the statistically significant findings were reported in this abstract, readers should be cautious when reviewing the actual paper because numerous improved outcomes are reported that were not statistically significant. This may lead readers to overestimate the effectiveness of the interventions.

What is the bottom line? There is a growing body of research supporting the effectiveness of computer generated interventions. More research is needed to compare tailored and targeted interventions, multiple and single interventions, whether certain delivery devices and theoretical models are more appropriate for certain health behaviours, and costs.

Beverly Greene, RN, MN
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Computer generated targeted (TR) and tailored (TL) interventions showing significantly improved patient health behaviours*

Delivery devices	Interventions	Type/Model	Improved outcomes
Computer system	Weekly modem transmission of glucometre results	TR	Reduced blood glucose concentrations
	Computer aided instruction	TL	Increased dietetic knowledge
Automated telephone	Weekly telephone transmission of glucometre results	TR	Reduced blood glucose concentrations
	Automated telephone reminder	TR/HBM	Higher immunisation rates
Print	Letter and postcard reminders	TR/HBM	Higher immunisation rates
	Nutrition information packet	TL/HBM, SC	Reduced total fat and saturated fat intakes
	Letter	TL/HBM, SC	Higher quit rates among moderate to light smokers
	Nutrition information	TL/SCT, TPB	Reduced fat intake
	Enhanced health risk assessment	TL/HBM, SC	Reduced cholesterol, fat intake; increased activity
	Information on outcomes of quitting and self efficacy	TL/SC	More 24 hour quit attempts
	Motivational reports	TR/HBM, SC	Increased physical activity
	Bulletins	TL/SC	Increased fruit/vegetable intake

*HBM = health belief model; SC = stages of change; SCT = social cognitive theory; TPB = theory of planned behaviour.

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