Evidence Based Library and Information Practice

Article

Determinants of Health Information Use for Self-Efficacy in Lifestyle Modification for Chronic Disease Patients

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Received: 8 Sept. 2015 **Accepted**: 11 Apr. 2016

Abstract

Objectives – Various efforts are being made to disseminate lifestyle modification information. What is the role of health information in building patients self-efficacy in lifestyle modification? The research examined level of access to lifestyle modification information for patients with chronic diseases in two Federal Government Teaching Hospitals in South East Nigeria. It explored the relationship between self-efficacy and access to lifestyle modification information and also factors that are associated with self-efficacy when patients have access to lifestyle modification information.

Methods – The research is a cross-sectional correlation study that used a questionnaire to collect data. (See Appendix A.) Sample was 784 patients with chronic diseases. Questionnaires were

distributed to the patients as they attended clinics in the medical and surgical outpatients' clinics of the hospitals.

Results – Findings showed access to lifestyle modification information was significantly and positively correlated with self-efficacy. Multiple Regression analysis suggest that age, type of illness, and length of treatment in the teaching hospitals were associated with self-efficacy when patients have access to lifestyle modification information.

Conclusion – It will be pertinent that demographic and disease factors are considered when making lifestyle modification information available to patients for greater self-efficacy.

Introduction

Various professional groups including health professionals, health educators, promoters, and medical librarians (Pullen, Jones & Timm, 2011) provide information and education to people. This is done to help individuals modify lifestyle behaviours in order to prevent, as well as to live successfully with, chronic diseases. This is being done through various information media including traditional print, mass media such as radio and television, and the Internet. It is important that people make effective use of the information to achieve the desired lifestyle modifications.

The use of information refers to what people do with information after they have acquired it.

> Information use occurs when the individual selects and processes information which leads to a change in the individual's capacity to make sense or to take action. The outcome of information use is a change in the individual's state of knowledge or capacity to act. Thus, information use typically involves the selection and processing of information in order to answer a question, solve a problem, make a decision, negotiate a position, or make sense of a situation. (Choo, et al., 2006)

Bandura (1986, 1997) in *Social cognitive theory* presented self-efficacy as an outcome of information use. Self-efficacy is defined as a person's perception of one's own ability to undertake a given task or behaviour. Self-efficacy affects the choice of behaviour, settings in which behaviours are performed, and the amount of effort and persistence to be spent on performance of a specific task. People who have high self-efficacy will be more likely to perform a related behaviour than those with low self-efficacy (Lawrance & McLeroy, 1986; Davies, 2011).

In addition to medication administration people living with chronic diseases are frequently required to modify lifestyle behaviour such as changing to a healthier diet, limiting alcohol consumption, increasing the amount and intensity of physical activity, or stopping smoking to improve their health (Dunbar-Jacob, 2007, Osório, 2010). Individuals need high self-efficacy to undertake these behaviour modifications. Chronic disease self-efficacy is defined as the individual's judgment of confidence to carry out tasks specific to chronic disease self-management (Rapley, Passmore & Phillips, 2003). The self-management behaviours include coping with the illness, adherence to treatment, and undertaking required lifestyle modifications. Self-efficacy may determine who can successfully perform these required self-management behaviours.

Pálsdóttir (2008) noted that self-efficacy has been examined extensively in relation to healthy behaviour. The connection between people's health information behaviour and their judgments about how capable they are of managing their health in a successful way, has not gained much interest. In the face of the global increase in chronic diseases and its attendant increase in mortality and morbidity (Alwan, 2011) there is need to explore various avenues to stem the tide of the impact of these diseases on the general populace. The focus of the research is therefore to ascertain the extent to which access to health information can contribute to building people's capacity to undertake lifestyle modifications necessary for living successfully with chronic diseases.

Health Information Use and Self-Efficacy in Lifestyle Modification

According to Social Cognitive Theory, individuals form their self-efficacy beliefs by interpreting information primarily from four sources: mastery or direct experiences, vicarious experience, social persuasions, and physiological reactions. Social persuasions include suggestions, exhortations, self-instructions, health promotions, and health education. Despite all efforts to provide information for health living, considerable opinions have been expressed on the role of health information in achieving behavioural changes or maintaining a healthy lifestyle. While some authors highlight the importance of information in this process (Clayton, 2010; Burkell, Wolfe, Potter, & Jutai, 2006; Pinnock & Sheikh, 2004) others argued that information alone does not guarantee healthy behaviour. According to Murray, et al. (2005) in promoting health behaviours, the expectation is that well-informed people are more likely to follow healthy behaviours than poorly informed people are.

However, this assumption is probably only partially correct – if knowledge were all that was needed to promote healthy behaviour, smoking, for example, would not be as prevalent as it is. Ash et al. (2008) posited that a good relationship with patients and providing sound education and advice are clearly necessary but are not in themselves effective in inducing patients to comply with advice. Patients do not necessary take physicians' advice to alter behaviour beyond simply taking medicine. Again, Spehr and Curnow, (2011) wrote that on its own information is very unlikely to lead to a measurable change in behaviour. Information may improve people's knowledge of a problem or contribute to a change in their attitude towards it, but there is a vast gulf between knowing about a problem and doing something about it, as anyone who's tried to give up smoking or lose weight knows.

These different opinions tend to be corroborated by empirical reports. Sharaf (2010) assessed the impact of health education on diet, smoking, and exercise among patients with chronic diseases in Al Qassim Region in Saudi Arabia. Among chronic disease patients, significant improvements in smoking, diet, and exercise habits were observed at end-line survey compared to baseline. Similarly, Tawalbeh and Ahmad (2014) found that implementing cardiac educational programs help enhance knowledge and adherence to healthy lifestyle among patients with coronary artery disease in north of Jordan. Çevik, Özcan, and Satman (2015) found the training program for reducing CVD risk factors in patients with type 2 diabetes was effective in improving nutrition and lifestyle behaviours. Contrary, Bohaty, Rocole, Wehling, and Waltman (2008) found no behavioural change in dietary intake of calcium and vitamin D after increasing patients' knowledge of osteoporosis. Equally, Stadler, Oettingen, and Gollwitzer (2010) found that combining information with self-regulation strategies had a better effect on eating fruits and vegetables than an information-only intervention over a two year period.

It is important to note that the insignificant association reports did not dispute the fact that health information has some roles to play in

behavioural and lifestyle changes. The authors were of the view that information needs to be supported with other interventions to achieve the desired aims. For instance, Fisher and Fisher (1992) in postulating the Information-Motivation-Behavioural-Skills Theory noted that information relates to the basic knowledge about a medical condition, and is an essential but not necessarily sufficient in isolation. A favourable intervention would establish the baseline levels of information, and target information gaps. If information needs to be supported by other interventions to make it effective in building peoples' perceptions of their capability to undertake behavioural changes, then a study of individual's variables and their relationship to lifestyle modification becomes imperative. The main purpose of this study was to find out if any relationship exists between patients' access to lifestyle modification information and patient's self-efficacy in managing chronic diseases. It also sought the predictive effects of demographic and disease variables on self-efficacy when patients have access to lifestyle modification information. The findings can serve as reference to support and help information providers design and offer appropriate user-centered information services in tertiary health institutions.

Hypotheses

H1: Patients who report higher access to lifestyle modification information will report higher perceptions of self-efficacy in lifestyle modification.

H2: Patients' demographic and disease variables are positively related to self-efficacy when they have access to lifestyle modification information.

Methods

Study Design

The research is a cross-sectional correlation study and is part of a larger study on access to health information for patients with chronic diseases.

Population and Sample

The study was carried out in University of Nigeria Teaching Hospital Ituku Ozalla, Enugu, Enugu State and Nnamdi Azikiwe University Teaching Hospital, Nnewi, Anambra State. Participants were patients with chronic diseases in the two hospitals. The study sample was calculated to be 784 respondents using 'Yaro Yamane' formula for finite population as presented by Uzoagulu (1998). The study was approved by the Medical Ethics Committee of the two teaching hospitals in question.

Instrument

A questionnaire was the instrument for data collection. A patient's health information access questionnaire which also included a lifestyle modification self-efficacy scale was used to collect data for the study. Access to lifestyle modification information was measured using six items (α = .859) that examined patients' level of access to information on lifestyle modifications in the areas of diet, exercise, and relaxation. Respondents were asked to rate how much information they received on lifestyle modification on a four-point scale: of (4) Much information, (3) Some information, (2) Little information, (1) No information. The lifestyle modification self-efficacy scale (α. =799) was patterned like the validated self-efficacy for managing chronic disease scale developed by Stanford Patient Education Research Center. Patients were requested to rate their level of confidence to undertake lifestyle modifications on a five point scale of not confident to completely confident. The questionnaire was validated by two medical doctors and two lecturers from Nnamdi Azikiwe University and was subjected to an internal consistency test using Cronbach's Alpha (α) test. The reliability test used 15 patients at a large missionary hospital in Anambra State.

The Questionnaires were administered by the first researcher and research assistants to the patients in the outpatient's clinics comprising: the medical outpatient clinics, the oncology clinics, and the retroviral disease clinics. The respondents were requested to complete and return the questionnaires on receipt. In all, 1,080 questionnaires were distributed to the patients before the requisite sample of 784 properly completed copies were obtained. Of the questionnaires distributed, 234 were not properly completed and 62 were not returned.

Table 1
Demographic Characteristics of Study Participants

	Frequency	%
Gender		
Female	480	61.2
Male	304	38.8
Age		
18-29	84	10.7
30-44	271	34.6
45-64	272	34.7
65+	157	20
Educational Level		
None	109	13.9
Primary	226	28.8
Secondary	211	26.9
Tertiary	238	30.4
Nature of illness		
Hypertension	204	26.0
Diabetes	131	16.7
Hypertension / Diabetes	52	6.6
HIV and AIDS	337	43.0
Cancer	40	5.1
Kidney Disease	20	2.6
Duration of Illness		
1-11 months	146	18.6
1-5 years	341	43.5
6-10 years	182	23.2
11+ Years	115	14.7
Duration of Treatment in Teaching Hospital		
1-11 months	239	30.5
1-5 years	369	47.1
6-10 years	134	17.1
11+ Years	42	5.4

Method of Data Analysis

Descriptive statistics were employed to ascertain the extent of access to lifestyle modification information and level of patients' self-efficacy. Pearson Product Moment Correlation coefficient (*r*) was used to test the relationships between self-efficacy and access to lifestyle modification information. Multiple Regression analysis was done to explore the predictive effect of demographic and disease variables on access to lifestyle modification information and self-efficacy. Self-efficacy was used as the dependent variable. Lifestyle modification information, demographic, and disease variables were the independent variables. The 'Enter Method' was used for the multiple regression analysis. Patients' demographic and disease variables were recorded and dichotomized 0 and 1. Recoding was as follows: Gender (female, vs male), Age (young adulthood vs. older adulthood), Education (below tertiary vs. tertiary), Disease type– (hypertension and diabetes vs. others). Duration of illness (≤5 years vs. ≥ 6 years). Duration of treatment in teaching hospital (≤5 years vs. ≥ 6 years).

Results

Level of Patients' Access to Lifestyle Modification Information

Table 2 shows patients' level of access to lifestyle modification information. Analysis of data in terms of high access (much or some information) and low access (little or no information) show that more than two-thirds of respondents reported high access on how to take fruits and vegetables(86.2%), proper nutrition (82.4%), alcohol intake moderation (73.3%), relaxation and stress reduction techniques (71.2%), and proper exercise (68.1%). The least percentage (56.3%) of the respondents indicated high access on how to maintain a healthy weight. However, about one quarter of the respondents indicated having little or no information access to various aspects of lifestyle modification.

Patients' Self-Efficacy in Undertaking Lifestyle Modification

Table 3 summarizes patients' perceptions of their ability to undertake various lifestyle modification behaviours. Analysis of the mean score of the variables in Table 3 shows that respondents rated their self–efficacy very high (VHS) in taking drugs appropriately > 4.50. They also indicated having high self-efficacy (HS) > 4.00 for taking fruits and vegetables, taking proper nutrition, and self-efficacy in keeping appointments and judging when to see a doctor. The respondents rated their self-efficacy moderate (MS) >3.00 to undertake exercise.

Correlations

Table 4 shows the correlation between self-efficacy and all variables of lifestyle modification information. The result shows that self-efficacy is positively and significantly correlated with all the variables of lifestyle modification information ($p<0.05$). Patients' access to information on relaxation and stress reduction has the highest correlation with self-efficacy showing a moderately positive correlation ($r=.420$ $p< .001$). Other variables namely information on fruits and vegetable intake ($r=.397$ $p< .001$), smoking cessation and alcohol intake($r=.382$ $p< .001$), proper nutrition ($r=.374$ $p< .001$), exercise ($r=.345$ $p< .001$), and maintaining healthy weight ($r=.310$ $p< .001$), are also positively but lowly correlated with self-efficacy. Based on the significant correlations ($p<0.05$), H1 of the study is supported. Patients who reported higher access to lifestyle modification information also report higher self-efficacy in lifestyle modification.

Regression

Regression analysis was done to explore the predictive effect of socio-demographic variables on access to health information and self-efficacy. Self-efficacy was used as the dependent variable. Lifestyle modification information, demographics, and disease variables were the

Table 2
Level of Patients' Access to Lifestyle Modification Information

Health information	No Information	A little information	Some information	Much information	Mean	Std. Dev.
Proper nutrition	82 (10.5%)	56 (7.1%)	125 (15.9%)	521 (66.5%)	3.38	1.00
Fruits and vegetable intake	73 (9.3%)	35 (4.5%)	99(12.6%)	577 (73.6%)	3.51	.94
Exercise	182 (23.2%)	68 (8.7%)	133(17.0 %)	401 (51.1%)	2.96	1.24
Maintaining healthy weight	258 (32.9%)	85 (10.8%)	121 (15.5%)	320 (40.8%)	2.64	1.31
Alcohol intake and smoking cessation	171 (21.8%)	38 (4.9%)	92 (11.7%)	483 (61.6%)	3.13	1.23
Relaxation and stress reduction	160 (20.4%)	66 (8.4%)	147 (18.8%)	411 (52.4%)	3.03	1.19

Table 3
Patients' Self-Efficacy in Undertaking Lifestyle Modification

Self – Efficacy Items	Not Confident	A little Confident	Moderately Confident	Highly Confident	Completely Confident	Mean	Std. Dev
Confidence to take proper nutrition	20 (2.6%)	55 (7.0%)	100 (12.8%)	184 (23.5%)	425 (54.2%)	4.20	1.07
Confidence to take fruits and vegetables	23 (2.9%)	46 (5.9%)	86 (11.0%)	188 (24.0%)	441 (56.3%)	4.25	1.05
Confidence to take drugs appropriately	14 (1.8%)	21 (2.7%)	60 (7.7%)	134 (17.1%)	555 (70.8%)	4.52	.88
Confidence to undertake exercise	116 (14.8%)	131 (16.7%)	147 (18.8%)	107 (13.6%)	283 (36.1%)	3.39	1.48
Confidence to keep appointments and judge when to see a doctor	57 (7.3%)	52 (6.6%)	56 (7.1%)	142 (18.1%)	477 (60.8%)	4.19	1.25

Table 4
Correlation Matrix of Access to Lifestyle Modification Information and Self-Efficacy

	1	2	3	4	5	6	7
1 – Self-efficacy	1	.374**	.397**	.345**	.310**	.382**	.420**
2 – Proper nutrition	.374**	1					
3 – Fruits and vegetable intake	.397**	.750**	1				
4 – Exercise	.345**	.469**	.560**	1			
5 – Maintaining healthy weight	.310**	.414**	.426**	.661**	1		
6 – Smoking cessation & Alcohol intake	.382**	.508**	.492**	.450**	.462**	1	
7 – Relaxation and stress reduction	.420**	.485**	.478**	.458**	.478**	.490**	1

Table 5
Association between Patients' Demographic and Disease Variables, Access to Lifestyle Modification Information and Self-efficacy

	R^2	**F***	**Beta**	**SE**	***P***
	.311	26.767			
Background Characteristics					
Gender			-.014	.054	.667
Age			-.090	.065	.023**
Education			-.034	.056	.288
Disease Variable					.
Disease Type			.127	.066	002**
Duration of Illness			-.047	.067	.241
Duration of Treatment			.082	.077	.041**
Lifestyle Modification Information					
Proper nutrition			.065	.041	.182
Fruit and vegetable intake			.121	.045	.016**
Exercise			.057	.030	.208
Maintaining healthy weight			-.004	.027	.917
Alcohol intake and smoking cessation			.123	.027	.003**
Relaxation and stress reduction			.214	.027	.001**

independent variables. The regression was a poor fit (R^2 = 31%) but the overall relationship was significant (F (12,723) = 26.767, p<0.05). An inspection of independent variables shows that with other variables held constant, self-efficacy had significant negative association to age (Beta = -090, p<0.05),and significantly positive association to disease type (Beta =.127, p<0.05) and duration of treatment (Beta=.082, p>0.05). Conversely, patients' gender (Beta = -.014, p>0.05), educational attainment (Beta =-.034, p>0.05), and duration of illness (Beta = .047, p>0.05) are not significantly associated with patients' self-efficacy.

Based on the significant associations found, the second hypothesis of the study is supported. Patients' demographic and disease variables are positively related to self-efficacy when they have access to lifestyle modification information.

Discussion

Results of the study showed that a larger percentage of patients reported high access to the six variables of lifestyle modification information studied. However, about one quarter of respondents have little or no information on alcohol intake moderation, relaxation, stress reduction techniques, and proper exercise. Close to half of the patients do not have access to information on how to maintain a healthy body weight. This indicates that some patients do not have access to the important information needed to live successfully with chronic disease.

Correlation analysis showed that access to lifestyle modification information was significantly and positively connected with self-efficacy. Respondents who reported higher access to information on proper nutrition, fruit and vegetable intake, proper exercise, maintaining healthy weight, smoking cessation, alcohol intake, relaxation, and stress reduction also reported higher confidence to undertake these changes. The study therefore supports the positive relationship between patients' access to lifestyle modification information and patients' self-efficacy as found in some studies (Çevik, Özcan, and Satman, 2015; Tawalbeh and Ahmad, 2014; Sharaf, 2010;Kavathe, 2009).

To improve health information use in lifestyle modification, it is important to know factors that influence self-efficacy. Findings suggest that with access to lifestyle modification information, patients who are older, have hypertension and diabetes, and recently received treatment at teaching hospitals reported higher self-efficacy in lifestyle modification. Considering that older patients reported more self-efficacy, younger patients can be targeted with specific massages using sources that appeal to them such as social media sites, the Internet, and peer groups. According to Noar, Harrington, Van Stee, and Aldrich (2011) "to date, a large literature has amassed showing the promise of tailored programs delivered via print, Internet, local computer/kiosk, telephone, and interpersonal channels. Numerous studies demonstrate that these programs are capable of significant impacts on smoking cessation, dietary change, physical activity, and multiple behavior change."

Findings of the study also showed that patients' gender, educational attainment, and duration of illness were not significant predictors of self-efficacy in managing chronic disease when they have access to health information. This result suggests that there is no difference in self-efficacy in lifestyle modification for male and female patients when they have access to lifestyle modification information. Equally low or high level of education does not predispose a patient to higher level of self-efficacy when provided access to lifestyle modification. Materials at all levels of patient education should be acquired as all will benefit from the information irrespective of their educational background. Duration of illness was also not a significant predictor of self-efficacy. When patients have access to health information, all will have the same level of self-efficacy irrespective of how long their illness lasted. So information dissemination and access should be a continuous process in the disease continuum.

Health information is a topic that transcends the boundaries of many disciplines. Librarians, health professionals, and health educators have some role in its dissemination. To mitigate the effect of chronic disease on the populace, everyone must be involved. Health professionals, medical librarians, and other information providers should develop strategies that will ensure patients have access to the right information at the right time and have it tailored to their individual needs. There is a need for effective collaboration between health

professionals and other information providers in tertiary health institutions in providing health information for the benefit of patients.

Conclusion

In providing information for effective lifestyle changes, it is important to understand the factors that can support people's efforts to undertake these changes. The result of the study shows there is a significant relationship between patients' access to health information and patients' self-efficacy in lifestyle modification. Findings also suggest that patients who are older, have hypertension and diabetes, and recently received treatment at teaching hospitals, reported higher self-efficacy in lifestyle modification when they have access to appropriate information. This means that strategies are needed to enhance the effectiveness of health information dissemination for chronic disease management especially for younger patients. However, the study is limited by the nature of data collected. The responses are perceived, self-reported, and relative. There was no knowledge test to confirm patients' health knowledge level or quality of information received. Despite this limitation, the result is significant for provision of health information. It has revealed areas where patients feel they lack information and factors that can be manipulated to make information dissemination more effective. Therefore the findings of the study should serve mainly as a benchmark for providing quality health information. Patient perceived gaps and factors for tailoring information to ensure effective delivery should be noted.

Further research can focus on a longitudinal study of information intervention and actual self-efficacy in lifestyle modification for patients with chronic diseases in Nigerian tertiary health institutions. Due to differences in availability of various media for health information dissemination, especially in the extensive usage of digital media in many developed countries, the result on level of access to lifestyle modification information may not be generalizable to a wider population outside Nigeria. However, noting the significant correlations and the general need to improve information use in lifestyle modification, it is pertinent that the identified demographic and disease variables which predict self-efficacy are considered and exploited by health information providers.

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Appendix A
Questionnaire: Determinants of Health Information Use for Self-efficacy in Lifestyle Modification for Chronic Disease Patients

Please tick √ in the appropriate box

1. Sex: Female_____ Male_____

2. Age: 18-29_____ 30-44_____ 45-64_____ 65+_____

3. Occupation: _____

4. Educational level: No formal educ_____ Primary_____
Secondary (WASCE)_____ Tertiary_____

5. What is the nature of your illness? Tick all that apply
Hypertension_____ Diabetes_____ HIV_____ Kidney diseases_____
Cancers: Please state cancer type_____ Other illnesses _____

6. How long have you had this illness?
1-11 months_____ 1 – 5 years_____ 6 – 10 years_____ 11+ yrs_____

7. How long have you received treatment in this hospital? _____

8. How much information did you receive on lifestyle modification while receiving treatment such as? (Please tick √ in the appropriate box)

	Much information	Some Information	Little Information	No Information
Proper nutrition				
Intake of fruits and vegetables				
How to exercise and keep fit				
How to lose weight or maintain a healthy weight				
Alcohol intake moderation or smoking cessation				
Reduction of stress e.g. relaxation techniques				

SELF-EFFICACY SCALE:

We would like to know how confident or sure you are in doing certain activities required to help you manage your illness at the present time. Please tick √ in the appropriate box that shows your degree of confidence for each item.

	Completely confident. 5	High confident 4	Moderately confident. 3	A little confident 2	Not confident 1
How confident or sure are you that you can take all medications prescribed by your doctor without missing a dose at any point in time?					
How confident or sure are you that you can stick to a healthy and balanced diet so as to maintain your weight and health?					
How confident or sure are you that you can increase your fruit and vegetable intake so as to maintain your health?					
How confident or sure are you that you can exercise 30 to 45 minutes, 4 to 5 times a week so as to maintain your health?					
How confident or sure are you that you can keep your appointment or judge when the changes in your illness mean you should visit a doctor?					