

Tracking Patient Habits: Gender, Age, Financial State, and Health Education

Laura DeAnn Engquist

ABSTRACT

The purpose of this project was to determine whether or not health education had any sort of affect on whether or not a person becomes a long term patient with a [chiropractic] doctor. Health education is considered to be the reason to explain why people seek care, treatment, and prevention. It is the key in creating a health behavior; creating long term care. I researched 82 patients from Fox Chiropractic Center. I sought gender, age, appointment schedule, health education factors, and payment type. All of the data collected from each patient was then looked at and compared using a variety of tests. These tests consisted of t-Test, One Way Analysis of Variance (ANOVA), Linear Regression, and Chi Squared. I found that the only evidence that showed significance was in a Linear Regression Test; comparing Appointment Attendance percent and age. The P value was calculated at 0.004 and a R^2 was .0984. With the numbers registering where they did, it showed that the older the individuals, the more consistent they were on following through. Also there was some correlation with very young patients, probably due to parents keeping track of schedules. In order for this project to have been more successful, more time and more patients to contribute are in order.

Keywords: *chiropractic patients, health behavior, health education*

INTRODUCTION

Printed by Rimer, Glanz and Lewis, they record that most health behavioral scientists say, the start of nearly all health behaviors are reflected back on health education. "Health education attempts to close the gap between what's known about optimum health practice and that which is actually being practiced" (Griffiths, 1972). Health education can explain two ideas: 1) the reasoning for disease prevention and promotion of optimal health, 2) finding an illness, treating it, rehabilitating it, and creating long-term care with a patient (Rimer, B.K., Glanz, K., and Lewis, 2002). Understanding the concept of health education can better explain health behavior; this is due to its huge contributing role in creating behaviors.

"Health behavior refers to the actions of individuals, groups, and organizations as well as their determinants, correlates, and consequences, including social change, policy development and implementation, improved coping skills, and enhanced quality of life" (Parkerson, 1993). The importance of knowing and studying health education [and health behavior] is because, there has been an increasing trend with evidence-based health education and health behavior as the findings of numerous large health behavior intervention studies, which in turn have been published (Rimer, Glanz and Rasband, 2001).

Knowing these facts lead to the development of a behavioral science research project based on a chiropractic practice. This type of study is targeting, and benefiting, chiropractic doctors. It helps with ideas on what is needed to stay in business by: who to target and how to develop a trend within the

practice to gain (and keep) long term patients.

When looking at pertinent literature, the major deciding factor is health education. With this conclusion of health education being a major factor, this will usually determine how long a person follows through with care and wellness. A lot of practices that are not aware of the effectiveness of health education are more focused on who they bring in, when their focus needs to include, if not based primarily, on whom they can get to stay.

The settings for health education are important because they provide channels for delivering programs, provide access to specific populations and gatekeepers, usually have existing communication systems for diffusion of programs, and facilitate development of policies and organizational change to support positive health practices (Mullen, 1995). So theoretically, if you would want a successful business, providing onsite health education is going to be a key component factor in retaining patients.

When reviewing literature, a Value Expectancy Theory Model was discovered and provided usefulness. The Health Belief Model (HBM) has been one of the most widely used conceptual frameworks in health behavior (Glanz, Rimer, and Lewis, 2002). It is very versatile. It can explain both change and maintenance of health-related behaviors; as well as a guide for health behavior interventions.

When value-expectancy concepts were gradually reformulated in the context of health-related behaviors, the interpretations were as follows: (1) the desire to avoid illness or to get well (value) and (2) the belief that a specific health action available to a person would prevent (or ameliorate) illness

(expectations) (Glanz, Rimer, and Lewis, 2002). This expectancy was then broken down further saying that mind is over matter for a patient. Someone who wants to become well, learns a way how to achieve this, as well as finding a maintaining wellness answer.

In general, it is now believed that people will take action to prevent, to screen for, or to control ill-health conditions: if they regard themselves as susceptible to the condition, if they believe it would have a potentially serious consequences, if they believe that a course of action available to them would be beneficial in reducing either their susceptibility to or the severity of the condition, and if they believe that the anticipated barriers to (or costs of) taking the action are outweighed by its benefits (Rosenstock, 1960).

Essentially what this HBM theory is doing is providing evidence so a person who is aware of their condition, and is continually informed (educated), will have a greater opportunity to formulate long-term patient care habits to prevent a reoccurrence, or ailment in general, from happening. Which this, in turn, creates a successful business. (See Fig. 1; Glanz, Rimer, and Lewis 2002).

Now knowing essential key factors to formulate health behaviors, will provide persuasive

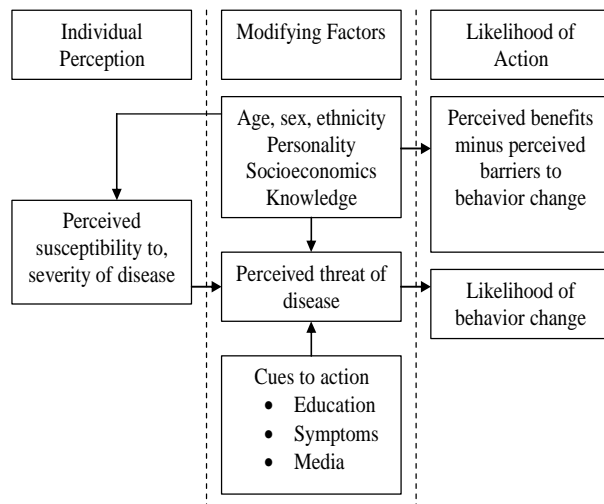


Figure 1 HEALTH BELIEF MODEL COMPONENTS AND LINKAGES

information as to why these factors are beneficial to be researched. 1) An observable explanation to a present theory is gained; which in turn should be more accepted coming from a first hand test including observation and data for support, and 2) the information gained proves to be extremely useful in several aspects, especially for a Chiropractic Doctor

The education factor is going to be viewed in three categories. One, is the first call to the doctor (so if they are a patient, they will have fulfilled this criteria)

and their attended initial appointment. Two, if they attended their (or a) spinal care workshop. Three, if the patient has come to progress reports.

The spinal care workshop is an educational segment that is provided by doctor Fox and is at the office every other Monday.

The progress report is given on 6th, 12th, and 18th visits (every 6 visits or otherwise specified by the doctor). In the first progress report, the doctor looks at results from X-Rays, Thermograph, and Segmental Static (SEMG) tests. He will then sit with the patient and educate them on their symptom, and how to go about treating the problem. In 6 weeks, these tests (minus the X-Rays) are redone and evaluated by the Doctor. Once again, he sits down with the patient and explains whether or not they are getting better, worse, or remain the same. He will proceed to educate them further and suggest what to do. Usually by the 12th visit is when the soft tissue starts rebuilding. This is when another progress report is done and explained.

All of these progress reports are recorded. Therefore, if a patient attended it will count as an educational factor. This can then be compared to individuals that did not attend these. Another educational factor will be weather or not a patient attended the Spinal Care Workshop

The next factors that are being looked at are the genders and age. Comparison of males to females (and their ages) in means of who is more likely to attend spinal care workshops, adjustments, and progress reports; will provide evidence to who needs to be targeted harder. Financial situation is another factor to take into consideration for terms of long term care.

Doctor Troy Fox, of Fox Chiropractics, expressed extreme interest in this study. He planted the initial idea, and explained the importance for such information; especially pertaining to health education and its relation to patients habits. It will overall be beneficial in furthering his practice [and other practices]. It shows who he [and other doctors] need to target, and which tactics prove useful, (i.e.) health education.

My partial goal of this study was to prove that the number one contributing factor, as to how long a person follows through with wellness care, is all dependent on the level of health education a patient receives. Patients with health education in wellness are more likely to come back and to create a long-term care pattern. More so than any other factor. My goal as a whole, was to establish a trend that patients follow. With this trend, doctors can decide what is needed to be successful; such as whom to focus their attention to. Knowing who is going to be more likely to continue care is a group that a doctor would want to target. Among the health education factor; gender, financial/insurance coverage, and age are being taken as contributing, or possibly THE, dynamic factor(s).

MATERIALS AND METHODS

The research began with determining how to create a significant research pool. This was done by deciding on an appropriate length of time, in months, in which a person started care. The date range started on May 1, 2006 and ended on August 31, 2006. Any person who initialized their care throughout these months, were then further looked at.

To find these patients, and to track their habits, an electronic computer program called Eclipse was used. Eclipse is a system that contains every single patient that ever was and still is, at Fox Chiropractic. Eclipse contains every date of scheduled appointments, including whether or not they attended, missed, and rescheduled. The program also informed me as to who attended their spinal care workshops and who attended their progress reports. Also through this program, the patient's financial coverage was discovered.

Plugging in the desired date range, the pool size selected totaled to 82 individuals. Each Patient was then given an ID number which was 1-82 and assigned in numerical order as the patient was pulled from the system and logged into the data.

The information that was then taken from each individual was their gender, date of birth, their initial and final (if applicable) visits; which then leads to whether or not they are a current patient. Also, the number of attended adjustments and progress reports, the number of cancelled adjustments and progress reports, whether or not they attended the Spinal Care Workshop, and what their payment or financial coverage is. Financial is split into one of five possible categories: Workman's Comp (WC), Personal Injury (PI), Major Medical (MM), Medicare (MC), or Cash.

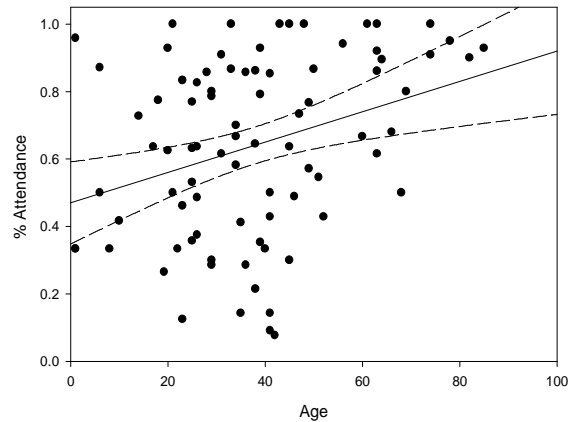
Using the data collected, categories of totals were derived for the adjustments and progress reports, their age was calculated from the date of birth, and percent attendance for adjustments and progress reports were calculated. Other calculations that were made were standard deviations and averages for each of the categories that contained a numerical value.

RESULTS

A Linear Regression Test was completed for Attendance percent and Progress Report Attendance percent versus age. The Linear Regression test with attendance percent was significant and normally distributed. The P-value was 0.0041; which is lower than 0.05 and the R² value equaled .0872. Even though the calculated values showed significances; it did not explain enough. There is a noticeable trend, but there seem to be some unknown variables that could be contributing. This trend can be seen in Fig. 2.

The Linear Regression Test for progress report

attendance percent was not normally distributed, and showed no significant results. Its P value was very large, calculated at 0.2227 and the R² value was calculated at 0.0195. Even though these numbers are insignificant; conclusions should not be jumped to. There is a possibility that a correlation could be proven significant (or a trend could be made), it is just not linear.



R ²	P	N	Slope	Int.
0.0984	0.0041	82.0	0.00432	0.481

**Figure 2 ATTENDANCE % VS AGE
LINEAR REGRESSION**

Two t-Tests were performed. One test was attendance percent versus gender and the other was progress report attendance percent versus gender. Neither test was normally distributed. Discovering this, a Mann-Whitney Rank Sum Test was performed. The P-value calculated for the attendance percent was 0.9630, which is extremely larger than 0.05; which concludes to insignificant results. For the progress report attendance percent, the P-value calculation was 0.5712. Once again, the value is much larger than 0.05 and is not significant.

An ANOVA (One Way Analysis of Variance) was completed for percent attendance and percent progress report attendance versus payment type. The attendance percent was normally distributed and was able to calculate a P-value. The P-value equaled 0.0989, and therefore proved not to be significant because of being larger than 0.05.

The ANOVA test for the percent progress report did not pass the normality test; therefore, the Kruskal-Wallis ANOVA on Ranks was completed. The P-value was calculated at 0.1186; once again concluding to no significant value.

The final test that was performed was a Chi-Squared test. It was done to compare gender and Spinal Care Workshop attendance. Using 3.841, which was taken from the Chi-Squared Values and Probability at one degree of freedom, I compared my

results. The results from the males were 0.479 and the results from the females were 0.0217. Both of these numbers are much smaller than the value provided. Therefore, I reject these numbers and they prove no real significance.

DISCUSSION

The only significant results that were obtained came from the linear regression test which compared the attendance to adjustments, to the age of the patient. It showed some significance and had a slight trend. There was a positive association for older individuals (see Fig. 2). This is perhaps possible, because these individuals have more time, are more mature and responsible, and also are generally not working or do not have consistent, daily obligations. Also a slight trend followed in the age of very young people. This is probably because they have another person responsible for them.

For the most part, none of the tests proved or disproved that health education is the number one contributor to obtaining and retaining a patient. The research also did not really unfold any major clues as to who to target to gain a long term patient; aside from the small association in the attendance percent versus age.

I do believe that with more time and more individuals to contribute, there would be significant results. There are hints of showing a promise in some of the tests; they are just lacking data points to clearly show you the answers.

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