THE EFFECT OF HUMOR ON PATIENT COMPREHENSION IN WRITTEN EDUCATIONAL MATERIAL

By
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A research project submitted in partial fulfillment of the requirements for the degree of
MASTER OF NURSING

Whitworth College
Intercollegiate Center for Nursing Education
May 1997
To the faculty of Whitworth College:

The members of the Committee appointed to examine the research project of PAUL L. HOLCE find it satisfactory and recommend that it be accepted.

[Signatures]

Chair

[Signature]

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The effect of humor on patient comprehension in written educational material.

Abstract
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Whitworth College
May 1997

Chair: Margaret Bruya

This research project explored the use of humorous comic pictures as a medium to increase the memorability of specific investigator identified concepts presented in a hypertension teaching pamphlet. Would the participants given the pamphlet with humorous cartoons have an increase in comprehension and thus better post-test scores?

The method used in this quantitative study was quasi-experimental. A pretest/post-test control group design was used. Participants were veterans with hypertension who were contacted in the clinic of a rural Western Veterans Administration Medical Center. The control group's pamphlet used bold print to highlight chosen concepts. The experimental group had the same written material, with bold print, but the concepts were also presented in cartoons.

Forty-nine people expressed interest in this study, 8 chose to complete the study. Five of the eight participants received the pamphlet with cartoons. Three of the participants, all with
humorous pamphlets, obtained perfect scores on the pretest. The limited number of subjects prevented conclusions from being drawn. No statistical tests could be completed.

While having participants with a history of high blood pressure intuitively seemed logical, in reality it proved counter-productive. The majority of participants in this study were already well educated regarding high blood pressure as evidenced by their pre-test scores.

The goal of this study was to determine the effect of humor on the learning process. With the limited number of participants and their previous knowledge base of the content presented, no conclusions were drawn. A replication of this study should be undertaken. Participants should be of adult age. Emphasis should be placed on contacting newly diagnosed hypertensive clients for participation, but the diagnosis would not be a requirement for participation.
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Chapter 1: Introduction and Background
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Introduction

Health care is for people. If we are unable to provide our patients with information to help them get well and/or stay well, we do them no service (Plimpton & Root, 1994). We share a lot of information verbally, but is it enough? Around us resounds the cry, "Do more with less" (Bernier, 1993; Estey, Kemp, Allison & Lamb, 1993). How will we meet this challenge and still provide quality care to those who entrust their health to us?

People enter the health care environment to seek relief from varied and multiple health problems. Much of the care provided to them is instruction on how to care for themselves after leaving this environment (Estey et al., 1993). Instructions for taking medications, treatments, return visits, as well as dealing with complications are presented to the patient often in a quick manner. They appear to hear and understand what is said, but are often unable to assimilate and remember all of the complex material that is shared with them (Ley & Spelman 1965; Ley, 1979, 1982; Plimpton & Root, 1994). Written instructions can help them later, but even written instructions can be found incomplete, confusing, or difficult to read when reviewed by the patient and/or family at home (Estey, Musseau, & Keehn, 1991; Estey et al., 1993; Hobbie, 1995; Leiber, 1986; Plimpton & Root 1994; Robinson, 1977).

Problem

When the patient and/or the home care provider do not
understand what has been taught to them, they have questions. They need answers that offer them options on care that can be provided, or life style changes they can make, that address their individual circumstances. Their best course of action would be to call the provider to express their confusion regarding the instructions to be followed at home. Choosing to do nothing is the alternative choice they may make.

Reasons for making the latter choice abound. Among them are fear of being reproached by the doctor and concerns of appearing stupid. Treatment benefit is limited when instructions are not clarified. Impeded recovery and the slow return of anticipated function will be frustrating to the patient as well as the doctor or nurse practitioner.

Educated patients and families theoretically should be better able to care for themselves (Bernier, 1993; Estey et al., 1993; Horner, Lewis, & Moseley, 1994; Plimpton & Root, 1994) Educated patients should make fewer calls to the provider for repeat instructions. As health care providers, how can we help the patient and family members comprehend and apply what we are trying to teach them? How can we help them learn in the often busy environment of the clinical setting?

One answer has been the use of written instructions and pamphlets (Bernier, 1993; Estey et al., 1991; Hobbie, 1995; Horner et al., 1994; Plimpton & Root, 1994; Vahabi & Ferris, 1995). But how good is the comprehension of written material? Can it be improved?
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One improvement may be the use of humor in written material. Illustrations that present an idea in a humorous context may be more palatable for the reader. They laugh and identify with someone else, depicted in a cartoon, who is having a problem much like their own. They learn that they are not alone with their problem and that there may be more than one answer to their health care need.

In 1977, Robinson reported that, "there are no known empirical studies which prove conclusively that humor enhances learning" (pg. 91). A search of the literature published since her review failed to locate studies showing that humor enhanced learning (Harrison, 1995). It is postulated that the use of humor could help facilitate the patient's ability to comprehend what is being taught and subsequently improve the potential for retention of information (Harrison, 1995; Hillman, 1995).

Purpose

The purpose of this investigation was to extend the limited body of knowledge regarding the use of humorous written material as a tool in patient education. This investigation attempted to determine if the use of humor as a medium would increase the comprehension of information and increase the participants' retention. If information was presented in a humorous comic picture format, could the learner remember the information by associating it with the comic picture?

Any diagnosis for which written material is provided would
be applicable for this study. Hypertension was chosen since a pamphlet had already been developed for this diagnosis by the investigator. It could be modified as needed to meet the needs of this research study without concern for copyright infringements. The pamphlet had been written at a fifth grade reading level for previous use in the population selected for this study.

The question to be answered by this research project was: Can humorous cartoons be used in written health educational materials to increase the readers' comprehension and retention of the information presented?

Conceptual Framework

People enter the health care system with varied levels of knowledge about health care or disease processes (Ley & Spelman, 1965; Ley, 1979, 1982). They present to the health care provider seeking assistance for the presumed or actual health deviation.

One nursing responsibility is to teach the patient, or those who care for them, about healthy living as well as what the physician or nurse practitioner has prescribed (Bernier, 1993; Plimpton & Root, 1994). Regaining or maintaining health often includes life style changes. Changes could include dietary changes, smoking cessation, and other changes in activities of daily living (Horner et al., 1994; Vahabi & Ferris, 1995).

The nurse must educate the patient, and/or the home care provider, about information that can range from simple to
complex. A basic foundation must be laid before any complex information can be presented. To skip the simple and go directly to the complex will confuse the patient and their home care provider (Pohl, 1981, p. 28).

How much information can be shared with patients? Too much information at a single presentation can overwhelm them or their home care provider (Ley & Spelman, 1965; Ley, 1979, 1982). They may want to learn, but presentation of new or complex information or too much information can be overwhelming (Ley & Spelman, 1965; Ley, 1979, 1982). This is where a sheet of written information or a pamphlet sent home for review can help (Bernier, 1993). However, for the patient or the family to obtain any knowledge from this written information, they must be able to read it (Hobbie, 1995). What can be done to make that written information easier and more entertaining to read? This is where humor, in the form of cartoons, can get their attention. They can learn as they laugh. (Estey et al., 1993; Ferguson & Campinha-Bacote, 1989; Leiber, 1986; Michielutte, Bahnson, Dignan & Schroeder 1992; Powell & Andresen, 1985; Robinson, 1977).

<table>
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<th>Limited Patient</th>
<th>Use Of Knowledge</th>
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<td>Knowledge</td>
<td>Humor</td>
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Figure 1. Conceptual Framework Diagram
Literature Review

No research literature demonstrating an increase in comprehension of educational material through the use of humor was located in nursing or allied health literature. Nursing literature provided anecdotal evidence of improved learning through the use of humor. Cartoons were used in a lecture format to help enhance or elicit ideas, but again this was anecdotal.

Moses & Friedman (1986) focused on the reduction of anxiety in relation to improving performance in a student laboratory setting. Three groups of students were evaluated on their ability to administer nasogastric tube feeding properly. "Traditional evaluation" was used in the control group. The first experimental group was exposed to a "humor/pause intervention" while the second experimental group had "pause intervention" only. The pause was merely a quiet time during the demonstration. Quantitatively, no differences in the improvement of performance between the groups could be demonstrated. Qualitatively, the students in the "humor use" group reported that they felt the humor had positive effects in
reducing their anxiety and made it somewhat less threatening to perform the task. However, there was no measurable difference in performance between the three groups.

Parfitt (1990) attempted to show improved comprehension of postoperative exercise routines presented in a booklet prior to surgery. There were two booklets, one with and one without cartoons. The group that received the cartoon booklets did not show statistically significant better comprehension of the material in a post-test than the control group. A concern expressed by the researcher was that the post-test may have been too simple.

Lamp (1992) wrote an anecdotal account of the use of humor in postpartum education for the mothers. "Fredricka", a nurse dressed up to characterize the first weeks of parenting, was presented to the new mothers as an example of "a new mother's worst nightmare". One-on-one and group presentations were done with specific topics presented. Questions that arose were also addressed. Comprehension and retention were evaluated through follow-up phone calls to mothers who had been exposed to Fredricka. The results of these calls were not presented in this article but were used to adjust the teaching script used by Fredricka.

Definition of Terms

The definition of humor that will be used in this study is presented by Robinson in *Humor and the Health Professions*. 

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"Humor is any communication which is perceived by any of the interacting parties as humorous and leads to laughing, smiling, or a feeling of amusement" (1977, pg. 10).

The home care provider is the individual, a wife, husband, child, or friend, who has assumed the responsibility for overseeing the patient's health care regime. While patients may be fully competent, they may have turned over much of their illness management to their home care provider. Were it not for their home care provider, the patient probably would not be able to stay in the home.

Hypertension was diagnosed by the attending physician or nurse practitioner according to national guidelines. The patient would need to know that he has hypertension in order to volunteer to participate.

Significance to Nursing

Nurses promote healthy living and disease prevention. Written information is a way to reenforce what we teach (Bernier, 1993; Plimpton & Root, 1994; Vahabi & Ferris, 1995). Humor, in the written material, should make it more interesting and may make it easier to understand. Review and increased comprehension of the written material at home would allow the nurse to present new information at each follow-up visit thus expanding the patient's knowledge base.

The volume of information available to the patient relevant to better self care grows every day (Bernier, 1993; Estey et al.,
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1991). The information needs to be presented in a format that is easy to understand (Estey et al., 1993; Hobbie, 1995; Ley & Spelman, 1965; Ley, 1979, 1982; Plimpton & Root, 1994; Vahabi & Ferris, 1995). Written information is important because it supplements what has been verbally presented to the patient and their home care provider (Bernier, 1993; Estey et al., 1993). With greater comprehension of their disease state, they are afforded an opportunity to better care for themselves. This concept is supported in "Patient education and counseling for prevention" from the U.S. Preventive Services Task Force book, *Guide to Clinical Preventive Services*, (1996).
Chapter 2: Method of Study
Introduction

Using humor in health care materials could facilitate comprehension and help improve retention. The purpose of this study was to determine the effect of humor, used in a written hypertension teaching pamphlet, on comprehension and retention.

Type of Design/Method

This quantitative study used a quasi-experimental design. A pretest/post-test control group design was used.

In planning this study, it was determined that a separate "test naive" group would be used that would be given the post-test only. In this way it would help to determine if taking the pretest influenced what the participant focused on while reading the pamphlet. This would have a confounding effect on the post-test results, possibly giving higher results.

No tests were located that evaluated the use of humor in teaching patients about hypertension. The statements that were used to evaluate the participants previous knowledge base and new knowledge base after reading the hypertension pamphlet were specifically developed for this study.

The pamphlet that would use humor to help in teaching about hypertension also needed to be developed. While the written pamphlet was already completed, cartoons were not a part of the original pamphlet. Developing and evaluating cartoons to include in the pamphlet had to be addressed for this study.
Setting for Study

Participants were contacted in the outpatient clinical setting of a rural western United States Veterans Administration Medical Center (V.A.M.C.). After the patients completed their medical appointment they were approached by the researcher about participation in this study. The clinics were also aware of this study and encouraged newly diagnosed, as well as patients with long standing hypertension, to seek participation.

The informed consent (Appendix A) was reviewed with them prior to their decision to participate. It was stressed that participation was voluntary. If they were willing to participate, they were taken to a quiet room near the clinical area where they were given instructions by the investigator.

Population and Sample

A convenience sample of veterans with a diagnosis of hypertension, and/or their primary home care providers, were eligible for participation. The veterans and the primary home care providers served by this hospital live predominately in rural areas and small towns. No restrictions on gender, age, or ethnicity were made. The opportunity to participate was offered to all veterans and/or home care providers who came to the clinic on the days the research was conducted.

Their assignment to a humor or non-humor group was random depending on the packet they received. A packet was given to them only after they had signed the consent.
The number of participants was to be limited to a maximum of 60 for this study. It was determined through statistical consultation that this would be a large enough sample to show statistical significance.

The choice of the sample population was influenced by the fact that these were the clientele the investigator had contact with as a V.A.M.C. employee. Participants were easily accessible, and the Veterans Administration facility was supportive of this study.

Data Collection Procedure

Hypertension education was presented in a pamphlet that the patient agreed to read while in the clinic. The format of the information was presented in two versions, humorous and non-humorous.

The control group pamphlet did not use humor to emphasize the key concepts (Appendix B). The key concepts were presented in bold print in their pamphlet.

The experimental group had the same written material. In addition, their pamphlet also had cartoons that humorously stressed the key concepts.

All participants received a packet consisting of a numbered pretest (Appendix C), post-test (Appendix D) and demographics sheet (Appendix E) which were placed together with a pamphlet. The packets were randomized so that it was not possible for the investigator to tell which subject had received which pamphlet.
The investigator selected the packet on top, opened it and gave the patient the pretest.

After the pretest was completed and returned, the participant was given the pamphlet to read. After completing the pamphlet, they were given the post-test and the demographic sheet. If the participant was interested they were encouraged to take the pamphlet home as a resource. They were instructed to take it out of the building with them and to please not share it with other veterans until the study was over.

Instrumentation

Reliability and Validity

A review of the literature did not identify an appropriate tool to be used for a pretest or post-test related to using humor in patient teaching about hypertension. A tool was developed after the investigator identified key concepts to be stressed in the pamphlet. Eleven key concepts were identified. Multiple correct and incorrect statements were written for each key concept. These statements were reviewed to select one best statement to use in the pretest and post-test.

The investigator wrote the original pamphlet on hypertension. A second pamphlet was prepared which had the same written information but additionally had illustrative cartoons. Investigator generated cartoons were designed and produced to eliminate concerns about copyright infringement.
Cartoon Selection

Cartoons pertinent to the eleven key concepts were collected. Each cartoon was reviewed by the investigator and placed under one of the eleven concepts it best represented. From the original volume of cartoon choices, the selection was narrowed to 3 or 4 cartoons per key concept. The cartoons were organized under the key concept heading on posters.

Cartoon Validation

To obtain broader input, graduate students at the Intercollegiate Center for Nursing Education (I.C.N.E.) were involved and asked to select "The Best" cartoon under each subject heading. A second poster was developed in the same format and placed in the Faculty/Staff lounge the I.C.N.E.

Initial response was limited so the school E-mail system was used to elicit participation. A message was sent to each person in the school and the poster was hung in the hallway for easy access and evaluation.

A total of 14 people provided input. The cartoon that received the most votes under each concept was subsequently used in the pamphlet. The two completed pamphlets were identical in written material and number of pages. Use of cartoons was the only difference.

Pretest/Post-test Development

The test statements were developed around the eleven key
concepts in this study. Multiple correct and incorrect statements were written for each key concept.

A five point Likert scale was selected to be used with the statements. The choices for the Likert scale were; SD-Strongly Disagree, D-Disagree, U-Unknown, A-Agree, and SA-Strongly Agree. The abbreviations were placed after each statement on the pre- and post-tests. The participants were instructed not to guess at an answer, but to choose the answer of which they were most sure.

Pretest/Post-test Validation

A modified Delphi technique using forty-one statements was presented to 80 graduate students at the Intercollegiate Center for Nursing Education. A cover letter requesting the reader to review and modify or eliminate the unclear or poorly written statements was attached. Of the 80 questionnaires distributed, 13 were returned. From these responses the number of statements increased from 42 statements to 44 statements as two additional statements were suggested. Poorly written directions on this initial questionnaire accounted for the increase, rather than the expected decrease, in questions determined to be clear and correct.

These 44 statements were again distributed to 54 graduate students at I.C.N.E. for another review and evaluation. A new set of instructions was developed for the cover letter. This second distribution was completed by 13 of the 54 graduate
The comments and suggestions generated from these 13 questionnaires were reviewed. The statements used in the final patient pretest/post-test were those questions determined to be the most clear and understandable by a majority of graduate students. Each graduate student had rated, on a scale of 1 to 3, what they determined was the most appropriate question to be used under each statement. These choices were compiled and the best question selected.

Data Analysis Plan

Test scores from the pretest and post-test were compiled and the patients age, gender, level of education and the length of time they had been diagnosed with hypertension were reviewed. These multiple factors were examined to establish any possible influence they may have had on the test scores.

Could the pretest influence the post-test scores? To answer this question consideration was given to the use of a "test naive" group. This would be a separate group from the control and experimental groups. Would the groups given a pretest read the pamphlet giving special attention to information that was requested in the statements on the pretest? The purpose of the "test naive" group was to determine if taking the pretest would influence how the pamphlet was read and therefore affect the post-test scores. Due to the small number of participants in this study, this approach was deferred.
Non-humorous Educational Results Example (Table 1)

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age</th>
<th>Education</th>
<th>Length of time w HTN</th>
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Humorous Educational Results Example (Table 2)

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<th>Length of time w HTN</th>
<th>Other Diseases</th>
<th>Pretest</th>
<th>Post-test</th>
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Human Subjects Protection

This study was reviewed and approved by I.C.N.E., the Institutional Review Board (IRB) at Washington State University, and the IRB at the rural Western V.A. Medical Center. All rights of the subjects were respected. The authorization for participation was reviewed individually with each participant. It was stressed that they could withdraw at any time, for any reason, without fear of reprisal. All information gathered was anonymous and correlated by the numbers on the tests and demographic sheet. Follow up with the identical patient was not possible.
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Introduction

The purpose of this study was to investigate the use of humor, as a medium of written information, to determine if it could increase the comprehension and retention of information about hypertension. Humor was used to stress key concepts the researcher determined essential for the reader to understand.

To recruit participants, an area was selected that was visible to them from the main entrance of the Clinic area. A table with a sign inviting people to participate in this research was set up. A quiet area was provided where participants could read the pamphlet and take the tests.

Consent was obtained and participants were each given a packet that included the pretest, hypertension pamphlet, post-test, and a demographic questionnaire. The packets were collated to provide a random assignment of the two informational pamphlets.

When the tests, demographic sheet and hypertension pamphlet were originally placed in the envelope, the type of pamphlet in the packet, humor or non-humor, was not identified on the tests. This made it impossible to know who had received a humorous pamphlet and determine its effect on their test scores. To correct this oversight, as the participant was handed a pamphlet, the investigator opened it to determined whether the pamphlet was humorous or not. The pretest and post-test were then marked with a "C", for cartoon, beside the preassigned code number already on the tests. The participants returned the tests and demographic
sheet to the investigator in the envelope upon completion. The completed envelopes were held unopened until the end of the study.

Sample Characteristics

Forty-nine veterans and one home care provider expressed interest in this study. Eight veterans chose to participate. The primary reason given for not participating was "lack of time." The process of test taking and reading the pamphlet was expected to take about 30 minutes at the end of the clinic visit.

All the participants were male, with an age range from 40 to 80 years (mean 58). The formal education was from 12 to 16 years (mean 14.4).

The length of time the participants reported having high blood pressure varied from seven to 30 years (mean 18.2). Three participants had diagnosed high blood pressure for 25 or more years.

Participants reported having several other diseases in addition to hypertension. From most frequent to least they were: diabetes, heart disease, kidney disease, arthritis, and prostate cancer.

Five of the eight participants received the pamphlet with cartoons. One participant, with a humorous pamphlet, did not complete the pretest so he was excluded from the study. The results of the tests and demographic sheets are presented in Tables 3 and 4. While not statistically significant, it is
interesting that of the humorous participants' who did not receive 22/22 on their pretests, they did score 22/22 on their post-tests. In the single non-humorous participant who did not score 22/22 on his pretest, his post-test score was 11/22.

Non-humorous Educational Results (Table 3)

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age</th>
<th>Education</th>
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<th>Post-test</th>
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<td>7 years</td>
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<td>7 M</td>
<td>42</td>
<td>15</td>
<td>10 years</td>
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Humorous Educational Results (Table 4)

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<th>Gender</th>
<th>Age</th>
<th>Education</th>
<th>Length of time with HTN</th>
<th>Pretest</th>
<th>Post-test</th>
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<td>13 M</td>
<td>53</td>
<td>16</td>
<td>12 years</td>
<td>16</td>
<td>22</td>
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<tr>
<td>17 M</td>
<td>48</td>
<td>12</td>
<td>25 years</td>
<td>19</td>
<td>22</td>
</tr>
<tr>
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<td>78</td>
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<td>25 years</td>
<td>18</td>
<td>22</td>
</tr>
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<td>25 M</td>
<td>65</td>
<td>14</td>
<td>30 years</td>
<td>22</td>
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</tbody>
</table>

Does Humor Improve Comprehension?

In the sample group receiving the non-humorous pamphlet, the individual who scored 9 on the pretest also scored only 11 on the post-test. This single participant was only able to identify two more statements as being correct after reading the non-humorous pamphlet raising his post-test score to 11.

In the sample group receiving the humorous pamphlet, the individuals had scores ranging from 16 to 19, with one scoring 22, on the pretest. All were able to obtain the total of 22 correct responses on their post-tests.
Due to the very limited sample size, the question of "Does humor improve comprehension?" can not be answered by this research study. While no statistical significance can be inferred, the very limited results entice further study.
Chapter 4: Summary, Conclusions, Recommendations
Introduction

The intent of this study was to determine if humor would have a positive effect on comprehension and retention of patient education material. This study was conducted as planned but did not generate enough participation to draw conclusions. Although there was much interest, the time necessary for participation seemed to be a major factor that limited participation.

Discussion

The sample size for this study was too small to draw any conclusions. However, in the process of doing this study, it was discovered that one of the questions on the pretest/post-test needed rewriting for clearer intent. When the questionnaire was developed, the written statements were placed under a concept. The statement, when related to the concept above it, was clear but was ambiguous when presented by itself on the pretest and post-test.

A second revelation was that while having a sample of participants with a history of high blood pressure intuitively seemed correct, in reality it proved counter-productive. Many people that participated in this study were, as demonstrated by the test scores, already well educated about high blood pressure.

The goal of this study was not to educate people about high blood pressure but to determine the effect of humor on the learning process. The majority of people who chose to participate in the study were already well educated on the
subject but appeared motivated to learn more.

Limitations

A major limitation in this study was the choice of potential participants. Having high blood pressure should not have been a determining factor for participation in this study. The sample should have been obtained from people who were newly diagnosed as hypertensive and those who expressed interest in learning about hypertension. Newly diagnosed hypertensive patients may have had the most incentive to learn about their new diagnosis. This study could be oriented towards health promotion rather than disease treatment. The goal was to see if learning could be enhanced by the use of humorous cartoons.

Taking a pretest could have had a confounding affect on the post-test scores. Taking the pretest could have lead to higher post-test scores as participants might have paid special attention to information in the pamphlet that related to the questions on the pretest. This was to have been addressed with a "test naive" group. They were to receive only the post-test in an effort to try and establish the affect the pretest was having on post-test scores. Due to limited participation this was not possible.

Prior teaching in previous health care encounters or clinic visits could elevate test scores. Administering a pretest helped establish the patients' entry level of knowledge.

A large portion of the population being studied is elderly
and were expected to have less than a high school education (Horner et al., 1994). In the United States, comprehension of written material has been found to be best if it is written at the fifth grade level (Estey et al., 1991; Estey et al., 1993; Vahabi & Ferris, 1995). The pamphlet was written at a fifth grade reading level as determined by the SMOG reading level assessment method.

With older age, there was concern for visual changes and the possibility of difficulty in reading smaller print. A larger, 14 point font, print type was used in the hypertension pamphlet, the two tests and the demographics sheet to help control for this limitation.

The age difference between the investigator, the students used for tool and cartoon development, and the elderly study population may have influenced results. What is humorous to one generation may be less humorous to another generation.

Another potential confounding effect is that the veterans served by this hospital live primarily in rural areas and small towns. Health education and continuing education opportunities may be limited if compared with educational opportunities of larger cities.

The sample size was expected to be small, 60 in the main study and 32 in the test naive reliability study. It was determined through statistical consultation that this small number would affect the statistical significance of the results.

The time of day that the test is taken can affect the
scores. The client may fatigue as the day progresses and may not be as attentive or able to give their best effort to the task.

Another limiting factor was that this was a written format with visual illustrations. The client's best cognitive channel, that is their best way to learn, may take another form. They may learn best by hearing a presentation or doing an activity as their best way to learn (Wright, 1985).

The questionnaire should be rewritten to include negative statements as well as positive statements. Positive statements were all that were available on this questionnaire. This may have become apparent on the pretest so that the participant was looking for a pattern on the post-test.

Recommendations for Further Research

The very limited results encourage a replication of this study. The population chosen was not the correct one for the true goal of this study. Having high blood pressure should not determine participation since the primary goal was not to teach about hypertension, rather it was to determine if one method of written presentation was better than another.
References


Appendix A:

Informed Consent
Dear Potential Participant;

Thank-you for your interest in this study. Your willingness to participate could help in furthering research that improves the quality of future patient educational material. You will be participating in research that has been authorized by Washington State University in Pullman, the Intercollegiate Center for Nursing Education in Spokane, and the Jonathan Wainwright Memorial VA Medical Center.

You will also benefit from this study as you will be receiving current information on high blood pressure that you can use in treating yourself and/or your loved ones high blood pressure. You will be allowed to keep the booklet as a reference source for use at home. When you are done with the questionnaires you can ask the researcher any unanswered questions you may have.

If you decide not to participate in this study, it will in no way effect your future health care at this facility. Your name will not be required for this study, so no one will know which questionnaires you filled out.

My Faculty Advisor is available to you should you have any questions or concerns about how this study was conducted. Her name is Margaret Bruya and her phone number is 509-324-7273. A message phone is available 24 hours a day and she will get back to you promptly.

Thanks Again!!

Paul L. Holce
Graduate Student in Nursing
The use of humor as a means of increasing comprehension of written material.

INFORMED CONSENT

A. Invitation to participate

You are invited by Paul L. Holce, Graduate Student at the Intercollegiate Center For Nursing Education (ICNE) to take part in a research study evaluating two new booklets on high blood pressure. This study is voluntary and you agree of your own free will to participate. The ICNE and Washington State University Institutional Review Board (IRB) have approved the use of human subjects for this study.

B. Purpose of the study

This study is looking at two booklets on high blood pressure. Your test scores will help determine which one is the most effective to help you and future patients understand the information being offering. You are asked to take part in this study because you have high blood pressure. If you agree to take part and be a subject in this study, you will be asked to take a pretest, read the booklet on high blood pressure and then take a post-test. You will also be asked to fill out an information questionnaire.

C. Explanation of protocol

After agreeing to take part in this study, you will need to sign this consent form. You will be in one of four groups. The group you end up in will be random as determined by the packet that the nurse picks up. You will be asked to fill out a questionnaire, take a short written test, read a booklet on high blood pressure, then take another short written test. This will take about one hour of your time. In addition, you will be asked to answer information questions such as your age, education level, health history, and so on. Because of unforeseen problems, you may not be able to take part in this study, or you may be asked to stop participating in the study.

D. Potential risks and discomforts

You may become uncomfortable because of the time involved to sit and read the material as well as fill out the tests and questionnaires. These risks and discomforts are decreased by having you take a break when you feel you need to. Get up and walk around to help keep you alert.

I have made every effort to provide complete confidentiality and privacy so no one will know you have taken part in this study. All of your personal information is protected by giving you a study number. Your name will not be used on any of the forms. All research information and identifying information will be kept in locked files that can be opened only by myself (and
the research team). If you do have any feeling of just not being able to complete the study, just too tired, that would need immediate attention, then let us know and we will withdraw you from the study.

You may choose not to continue at any time during the study. Your choice not to continue will not affect your relationship as a patient at this faculty. You may choose to answer as many or as few of the questions as you choose. You may stop or withdraw at any time.

E. **Potential benefits**

You will benefit by a better understanding of what high blood pressure is and how you can most effectively be a part in getting it under control and maintaining that control.

F. **Assurance of confidentiality**

Information obtained as part of this study will be strictly private and confidential. The information will be used only for research. The number code will be available only to myself and the research team. The completed information taken from everyone who completes the tests and questionnaire will be kept in a locked file and then destroyed at the end of this study. At no time, will your study number or questionnaire information be available to anyone but the research team. Your test results will be reported only as part of a larger group not as an individual.

G. **Withdrawal from the study**

Your agreement to take part in this study is voluntary. If you agree to take part, you may choose to stop and withdraw your consent at any time.

Subject Initials _____

H. **Informed consent**

1. I, as shown by my signature below, fully understand the study goals, procedures and risks that go along with taking part in with this study.
2. I, as shown by my signature below, understand that taking part in this study is of my own free will and that I may stop at any time.
3. I, as shown by my signature below, give permission to Paul L. Holce to use and get rid of the information and findings from this study. I understand that the investigator and other professionals who work with the investigator agree to protect the privacy and confidentiality of the information gathered during this study within the limits of Washington State Law. I have read and understand the above conditions. I have had the chance to ask questions about the study and the methods used to collect the study information. These questions have been answered to my satisfaction. I have read and understand the
study and have received a copy of this form.

I may contact Paul L. Holco at the ICNE, 509-324-7273 to get information or ask questions I may have about this study at any time.

__________________________   ________________________
Subject's Signature         Date

__________________________   ________________________
Investigator's Signature    Date
Appendix B:

Hypertension: You Make the Difference
Hypertension

You Make The Difference
HYPERTENSION

Does that guy on the cover remind you of anyone? He looks a little confused and is most likely very concerned. He's just found out he has high blood pressure. He's wondering what is going to happen next.

You may be feeling that way right now too. Your practitioner (Doctor, Nurse Practitioner, Physician Assistant) has told you that you have Hypertension or high blood pressure. How can that be? You probably feel fine.

In the United States one in four people have high blood pressure, so you are far from alone. They probably also felt fine when they found out they had high blood pressure. In most cases the first time someone finds out that they have high blood pressure is when they go in for a "routine" check up that ends up being more than routine.

High blood pressure is a disease that is rarely cured, but it can always be treated. With available treatment you can expect to live longer without symptoms, that is to say, you can live your normal life span.

Before hypertension treatment, people died at much earlier ages. You should be able to live a normal life, doing all the things that you have always been able to do. Thanks to available treatment you will be able to live a longer, healthier life by taking your medications.

How did this happen?

The type of high blood pressure that you have is called essential, or primary, hypertension. The cause of this type of high blood pressure is not known 90% of the time. There are other causes for high blood pressure, and your practitioner has done lab work and other tests to determine that you have essential hypertension.
Why don't I have symptoms?

If your blood pressure has been elevated for many months you may be aware of some symptoms. As mentioned earlier, most people feel fine and are without symptoms.

If elevated blood pressure is allowed to go on for a long enough time then symptoms such as becoming extremely tired, dizziness, pulsating headaches in the early morning, difficulty breathing, chest pain, or nose bleeds may occur. You may have changes in your vision or speech. Changes in vision or speech could be warning signs of a stroke.

What can I do to decrease my blood pressure?

You can help to get your blood pressure under control by making a couple of lifestyle changes. The first lifestyle change you can make is in the amount of regular exercise you get. The second lifestyle change you can make is in your diet. These will be changes that you will need to make for the rest of your life, not just a few weeks or months, or when you remember to do them.

Exercise

Regular exercise, four or more times a week for at least 20 minutes, can help you control your blood pressure. The best kind of exercise is exercise that uses the large muscles of your body.

Walking is an example of an exercise that uses large muscles. It makes you breathe more deeply and stimulates your heart, increasing the rate and force of its beat.

An exercise like weight lifting is hard on your body because you stress your muscles but you don't exercise your heart. Weight lifting is alright as long as you do a moving exercise like walking, jogging, or bike riding in addition. It is important to warm up before and cool down after you exercise.
Talk with your physician or nurse about an exercise program that would best fit your life style. They may also give you an appointment with our physical therapist for further evaluation and suggestions.

Diet
Diet is another area that you can control. The hospital dietician is available. The Dietician will help you to get a low salt diet started. *Most people use too much salt.* You can easily get by with less than half a teaspoon of salt in a day.

The Dietician will help you to identify food that is high in sodium (salt) and also help you to find *good foods that are high in potassium, calcium, and magnesium.* These are all minerals that have been shown to help fight high blood pressure.

The Dietician will also talk with you about the amount of fat in your diet. *Too much fat plugs your blood vessels and makes them stiff.* Stiff blood vessels raise your blood pressure.

And what would a change in diet be without a talk about weight loss? In patients who *lost their excess weight,* controlled their diet, and exercised to keep the weight off, 60% were able to control their blood pressure without a need for medication. Even after doing all this to control your high blood pressure, you may still need treatment with medications.

Smoking and Stress
Along with exercise it is important to find a balance in your life. This means give equal time to work, play, and rest. Find hobbies that relax you while you do them. Hobbies like knitting, sewing, gardening, fishing, or woodworking are just a few examples adults have shared with us as relaxing.

Do you smoke? You have probably been told many times to quit smoking. Here is another reason to quit. Smoking has been found to increase blood pressure. *Smoking causes hardening of the blood vessels.* It also causes the vessels to get narrower, further increasing blood pressure.
Alcohol

Excessive drinking of alcoholic beverages can hurt you in two ways. If you drink more than;

*two cans of beer (24 oz.) in a day,
*two shots of hard liquor (2 oz.) a day, or
*two glasses of wine (8 oz.) in a day,

this could be increasing your blood pressure.

Alcohol is also high in calories that have poor nutritional value. When you get more calories than you need then you gain weight. Excess weight will elevate your blood pressure.

An appointment with the dietician can be scheduled for you. One visit will probably not be enough. All the lifestyle changes mentioned above may seem simple enough, but you may be overwhelmed with the amount of information that is going to be shared with you over a short period of time.

This booklet is intended as a brief overview for you to review when you get home, away from the clinic, and have time to think. When you are home, write down questions that you have on the back of this pamphlet.

Call and schedule another meeting with the dietician or your other health care professionals as you need to. Your physician, nurse practitioner, nurse, dietician, and others are all here to help YOU control your blood pressure. We are on your team and your improved health is our goal.

If my blood pressure stays up what will happen?

An ideal blood pressure has a systolic, the top number, of less than 140. The diastolic, or bottom number, should be under 90. If either one of these numbers is consistently higher than these two acceptable numbers, you may be starting to have small, undetected injuries to several internal organs and the blood vessels. When you cause injury to these vital organs you shorten your quality of life as well as the length of your life.
In high blood pressure damage is done to the heart, brain, kidneys, and blood vessels. The heart of the person with high blood pressure grows larger because it has to pump against a higher pressure. A larger heart needs more blood to feed it and this requires more blood vessels. As the heart enlarges, it is more difficult to get blood out to all of the heart tissue.

The vessels that bring blood to the heart can also get "plugged up." Such plugging can lead to heart failure and/or heart attacks. If high blood pressure is caught early, enlargement of the heart can usually be reversed with treatment.

If you let high blood pressure measurements continue, changes in your brain occur. The blood vessels in your brain may not be able to expand enough to handle the increased pressure. If they can't expand then they break. When they break you can have a stroke.

Lastly, the kidney can be affected by the high pressures in its blood vessels. The high pressure harms the vessels in the kidney. When the blood vessels are damaged the ability of the kidney to filter the blood is reduced. Waste products will accumulate and make you sick. Eventually the kidneys will quit working entirely. All of this is happening inside you. It can not be seen.

High blood pressure is called "The Silent Killer" and you are its intended victim. Because it is silent with a slow, unnoticed onset, people with high blood pressure have trouble believing they really have a health problem. They and YOU do!!

High blood pressure will shorten your life. That's the bad news. The good news is that with consistent treatment you can control your blood pressure and you will be much less likely to have any of these problems. You can live a long, normal life, as long as you stay on your blood pressure medication.
What blood pressure medication should I take?

You and your practitioner need to determine which drug is best suited for your high blood pressure. With consistent use, blood pressure medications have been proven to decrease deaths and illness caused by high blood pressure.

Controlling high blood pressure is not a cure, it is a lifelong intervention. If you stop taking your medication your blood pressure will go back up.

There are six classifications of blood pressure medications. You may hear these classifications used when your practitioner starts you on a specific drug. They are Diuretics, Beta-receptor blockers, ACE inhibitors, Calcium channel blockers, Alpha-2 stimulator, and Alpha-receptor blockers. You don't need to know these names, but if you hear them they won't be new to you.

The therapy that the practitioner starts you on is specific for you and tailored to your unique needs. If you have other diseases, such as diabetes or chronic lung disease, your practitioner will prescribe your medicine with your diseases in mind.

You may need to be on more than one high blood pressure medicine, but the goal of therapy is to have you take the least amount of drug that will be effective in reducing your blood pressure and have minimal or no side effects.

Side effects such as depression, decrease in your ability to work or do exercise, or a loss of interest or ability to participate in sex, need to be brought to the attention of your practitioner since other choices of drugs are available.

If you are not happy with how you feel on the drug, then you will most likely stop taking it. Your blood pressure will come back up, and you will "silently" get sick again. The drug you are taking may have to be changed or the dose reduced and another drug added.
This is why you and your practitioner must work together to find the best drug, or the right combination of drugs, that work for you. The goal of therapy is to let you lead as normal a life as possible with the least restrictions.

I'm overwhelmed. Can I do this alone?

You don't have to, and shouldn't, do this alone. Even people who have access to regular health care don't always control their high blood pressure.

Your health care team is here to answer questions and give you help and support. Your family is also a significant source of support in your effort to control your high blood pressure. Use all your resources.

Along with you they can learn about controlling blood pressure and possibly prevent the development of high blood pressure in themselves.

It has been found that in families with one member having high blood pressure, there is an increased risk of children also having high blood pressure. If both parents have high blood pressure, then the chance of their children getting high blood pressure is doubled.

YOU can control your high blood pressure. You will have lots of help. Without your commitment to be responsible to take your medicine, high blood pressure could beat you. You have your health team at the Walla Walla VAMC as well as your family to support you in your effort to control this disease. Don't let high blood pressure beat you!!!
Appendix C:

Hypertension Questionnaire #1

(Pretest)
Hypertension Questionnaire #1: Instructions

Thank you for agreeing to participate in this study. Below are a group of questions relating to high blood-pressure. Please read each question carefully. After reading the question circle your choice for an answer from the five choices beside the question. Choose the answer that most closely reflects your understanding of high blood-pressure. If you don't know the answer, don't guess. Your choices are;

**SA**=Strongly Agree, I know this is correct

**A**=Agree, I'm pretty sure this is the correct answer

**U**=Unknown, I don't know the answer to this question

**D**=Disagree, I'm pretty sure this is wrong

**SD**=Strongly Disagree, I know this is wrong

If I control my high blood pressure I can expect to live a longer and healthier life. **SD D U A SA**

High blood pressure can be better controlled if I get more potassium, magnesium and calcium in my diet. **SD D U A SA**

A good blood pressure has a top number under 140 and the bottom number under 90. **SD D U A SA**

I need to let my Care Provider know if I am having side effects with my blood pressure medicine so it can be adjusted or changed. **SD D U A SA**
Drinking more than two drinks a day can cause my blood pressure to go up.

Taking my blood pressure medicine will not cure my high blood pressure, but it will help control it.

I could have a stroke, heart attack, kidney failure, or go blind if I do not control my high blood pressure.

Regular exercise, such as walking four or more times a week, will help in controlling my high blood pressure.

I need a diet low in fat and sodium to help improve the control of my high blood pressure.

Reducing my stress, stopping smoking, and losing weight can all help to reduce high blood pressure and also the amount of medication it takes to control it.

I can have high blood pressure and not know it.
Appendix D:

Hypertension Questionnaire #2

(Post-test)
Hypertension Questionnaire #2: Instructions

Below are a second group of questions relating to high blood-pressure. Please read each question carefully. After reading the question circle your choice for an answer from the five choices beside the question. Choose the answer that most closely reflects your understanding of high blood-pressure. If you don't know the answer, don't guess. Again your choices are;

**SA**=Strongly Agree, I know this is correct

**A**=Agree, I'm pretty sure this is the correct answer

**U**=Unknown, I don't know the answer to this question

**D**=Disagree, I'm pretty sure this is wrong

**SD**=Strongly Disagree, I know this is wrong

High blood pressure can be better controlled if I get more potassium, magnesium and calcium in my diet. **SD D U A SA**

I need to let my Care Provider know if I am having side effects with my blood pressure medicine so it can be adjusted or changed. **SD D U A SA**

Taking my blood pressure medicine will not cure my high blood pressure, but it will help control it. **SD D U A SA**

Regular exercise, such as walking four or more times a week, will help in controlling my high blood pressure. **SD D U A SA**
Reducing my stress, stopping smoking, and losing weight can all help to reduce high blood pressure and also the amount of medication it takes to control it.

If I control my high blood pressure, I can expect to live a longer and healthier life.

A good blood pressure has a top number under 140 and the bottom number under 90.

I can have high blood pressure and not know it.

Drinking more than two drinks a day can cause my blood pressure to go up.

I could have a stroke, heart attack, kidney failure, or go blind if I do not control my high blood pressure.

I need a diet low in fat and sodium to help improve the control of my high blood pressure.
Appendix E:

Demographics
DEMOGRAPHICS

1. Your age is _____ years old
2. Are you being treated for high blood pressure here at the VAMC? yes ( ) no ( )
3. The highest level of formal education you have completed is _______ years
4. How many years has you had high blood pressure? _______years
5. Are you: Male ( ) Female ( )
6. What other health conditions are you being treated for besides high blood pressure?
   ________________________________
   ________________________________
   ________________________________
   ________________________________
   ________________________________
7. What could be done to make this pamphlet more useful to you? (Use other side if necessary)

Thank-you very much for your participation
Paul L. Holce