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Impact of physicians' medical jargon use on patient behavior

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Impact of Physicians' Medical Jargon Use on Patient Behavior

by

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Thesis

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Thesis Committee:

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Abstract

An open and easy communication is the key to building doctor-patient relationships. It has become increasingly important for doctors to use the right language with their patients. Since doctor-patient communication may include complex technical language and/or medical terminology, it is often difficult for patients to understand their own diagnoses or treatment plans. The purpose of this research was to understand the relationship between physician use of medical terminology and patient satisfaction. An online research survey was sent to 250 random patients at selected clinics/hospitals during February 2019; responses were received from 39 patients. Questions were asked about the participants' use of primary care physicians and some questions regarding their familiarity with medical terminology. Survey responses showed that the use of common, simple language at patient visits plays a large role in building patients' trust and understanding. Therefore, there is a need for doctors to use simple language with their patients when discussing their diagnoses or treatment plans.

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Background

Communication is a key to success. This applies not only to our daily lives, but also when we are not well. Communicating using simpler language is significantly appreciated not only in healthcare but in every field to effectively convey messages. According to Bagley, Hunter & Bacarese (2011), data from past studies show the use of complex language could result in a misunderstanding. Furthermore, it has become a norm for specialized experts in medicine, technology, and business to use professional language whether it is with their patients or clients. For the doctor-patient bond, clear and simple communication plays a large role. To build a strong, comfortable connection between a doctor and patient, effective communication is necessary.

A study by Koch-Weser, Dejong & Rudd (2009), noted that for some patients, scientific/medical terms either appear alienate or frighten them altogether. Occasionally, complex medical terms are not understood even by medical practitioners or students. Even though some healthcare terms are very common, they are not interpreted correctly, leading to patient confusion. Graham and Brookey (2008) said for patients, miscommunication, poor interpretation of the medical terms, and limited awareness of health issues may lead to poor health outcomes. Moreover, if a patient has a non-scientific/non-medical background or less education, he/she might find the medical term(s) complicated, making the diagnosis or treatment difficult to comprehend. Conversely, people who understand the medical terms are more likely to get better medical care and treatments. Some patients appreciate the use of medical terminology by medical professionals and practitioners. Fage-Butler and Nisbeth Jensen (2015) noted that if a serious disorder is presented in the proper way to the patient, he/she may benefit by receiving better medical care whereas improper communication can lead to inappropriate care.

Communication between a doctor and a patient is important for a successful medical diagnosis and/or treatment. As all information is gathered from patients by their doctors to provide better diagnoses, instructions and treatment plans, communication plays a significant part in the medical examination process (Kyle & Shaw, 2014). Clinical practice attempts to provide the best medical care and results for patients. This can be achieved only by effective communication skills between doctors and their patients. According to Fong Ha & Longnecker (2010), “The medical field has been recognized and resided as an artistic magic and creative ability in the inert personal element of the patient-physician relationship” (p. 39). There are various factors which contribute to the confusion and misunderstanding of medical terminology, diagnosis, and treatment.

Low Literacy to Health Terminology

Low or limited health literacy can be a serious problem in obtaining quality healthcare facilities, diagnoses, and treatments. Misinterpretation can lead to serious health outcomes (Kutner, Greenberg & Baer, 2006). Patients that misinterpret the doctor’s prescription or have little knowledge about a medical term can pose a risk to his/her own safety. According to National Quality Forum (2003), medical phrases pose issues for 46% of US adults who are much less literate in health terminology (Kutner et al., 2006).

In a study by Koch-Weser et al. (2009), the analysis of 16 verbatim transcripts between rheumatologists and new patients found that in 94% of cases, the patients were introduced to the medical words, but in 79%, doctors used medical terms but did not explain them. This study determined that in the first meeting, the doctors explained the medical terms related to the disease and drugs, and the patients became familiar with the terms. In subsequent visits, the

terms were not explained to the patients. It is important to explain the drugs to be used and other medical terminology as it helps the patient to understand the drug and its efficacy in the treatment of the disease. In most of the cases, it is found that the patients seldom ask for any explanation of the medical terms used by doctors, which might lead to confusion and misunderstandings (Koch-Weser et al., 2009).

It has also been found that people with less understanding of medical terms are unable to fill out the medical forms completely and find it embarrassing to ask for help. People with low health literacy are also unable to understand the healthcare instructions, information, discharge instructions, and educational materials. Low health literacy affects both people with less general literacy and people with proficient literacy in their educational background (Kyle & Shaw, 2014). A study conducted by Fage-Butler and Nisbeth Jensen (2015) suggested that health literacy is important in cases of chronic diseases. It has been estimated that low health literacy leads to a cost of up to \$73 billion to the US healthcare system every year (Friedland, 1998).

English as a Second Language

According to Cooke, Wilson, Cox & Roalfe (2000), understanding medical/scientific terminology can be especially problematic for non-English speakers; however, there are terms that are not easily understood by English-speaking people as well. For example, the term *unconscious* is not easily interpreted by the attendant of a head injured patient. People suppose that the attendant comprehends this term, but often the attendant does not when questioned by the medical practitioner.

The other example is National Health Services Direct and Ambulance Services, a government-funded healthcare services in United Kingdom (Cooke et al., 2000). They are using

a telephone triage system to call out an ambulance in case of emergency. These telephonic systems largely depend on the information interpreted by the family members of a seriously ill patient during an emergency. The non-English speakers are unable to interpret the circumstances and conditions and could possibly delay the arrival of an ambulance.

Misinterpretation of a medical condition by people with English as second language can lead to serious outcomes. Non-English speakers, when spoken to about the need for radiography, other diagnosis processes, or admission of the critical patient to the hospital without providing any instructions or explanations may lead to confusion and misinterpretation by patients or their family members (Cooke et al., 2000).

Furthermore, Bagley et al. (2011) also conducted a study on orthopedic patients and found that defining terms like *broken bone* and *fractured bone* was easier for a native English speaker than a person with English as a second language. According to this study, 71% of these patients were able to define *broken bone* correctly while only 33% of the patients were able to define *fractured bone* correctly. Patients and their families have their own perceptions of the medical phrases, so it becomes even more important for the medical practitioner/healthcare professional to explain terms in simple language.

Research conducted worldwide suggests that medical terms should be avoided during conversations among the patients, doctors, and family members. However, according to Fage Butler et al. (2015), an increase in the number of e-patients (online patients) has helped the patients in gaining knowledge about medical terms. People also use the Internet to learn about biomedical terminology, drugs prescribed, and other healthcare terms. It is important to facilitate this health literacy so that more and more people can get superior healthcare. The teach-back

technique, where patients explain/state the medical information (when given by their healthcare providers) in their own words to their physicians, is recommended by the National Quality Forum (2003) to avoid misinterpretation of medical terms and to develop effective communication between doctors and patients. Medical practitioners could play an important role in increasing health literacy among patients by explaining their diagnoses and treatment plans using less medical terminology or more non-medical language.

Purpose

The main purpose of this research study was to elucidate or answer the following question:

- Does the excessive use of medical jargon by physicians' impact patient behavior?

This research study may help the public and medical personnel understand the problem caused by the use of excessive medical terminology and, therefore, improve doctor-patient communication.

Methodology

A survey was conducted to answer the research question. SurveyMonkey software was used to create the survey, and the format was based on the Likert Scale. The survey consisted of 26 questions and was divided into four sections (see Appendix A). The University Human Subjects Review Committee (UHSRC) of Eastern Michigan University approved the survey questions on February 6, 2019 (see Appendix B). The survey was divided into four sections as follows:

- Section One: This section of the survey helps to understand participant's satisfaction with their physician and the care they provide by responding to questions such as how often they change doctors and why.
- Section Two: This section has 10 medical/scientific terms to measure participants' familiarity with or knowledge about medical terms. These medical words were picked from a basic medical vocabulary list.
- Section Three: This section includes a few behavioral questions about how participants feel when hearing technical/medical terms at their doctor visits and if use of medical terminology by their doctors created confusion, led to misinterpretation of diagnosis/treatment, or resulted in them changing their physician.
- Section Four: This part has questions that include participants' information about their age, level of education, language spoken, overall health, and how frequently they see/visit their doctor.

For this research study, physicians, nurses, and dentists from sites affiliated with past work places where this investigator had been employed were contacted via phone/email and informed about the research. A total of 5 healthcare physicians/dentists at two clinics/hospitals in

the United States agreed to participate in this research. The sites where the research was conducted were

Boston University Dental Health Center, Boston, USA, and Gundersen Healthcare System, Wisconsin, USA. The healthcare professionals that agreed to participate at the selected sites asked patients about their willingness to participate in the study during a regular visit. For interested patients, a survey link was provided electronically via email by their physician, nurse, or dentist. Participants' email addresses were provided by the patients' doctor, nurse, or dentist from the hospital/clinic database. No personal information from the participants or healthcare professionals participating in the study were collected for this research. Once the participants received the survey link, they were prompted to the consent page, followed by the 26 survey questions. The survey was sent to 250 patients at these two sites. Patients were asked to open and complete the survey on their mobile phones or laptop. Completing the survey was estimated to take 15-20 minutes. The link was live for two weeks after the survey links were distributed to interested participants.

For analysis, a survey methodology was used to analyze the data obtained for this study. The study review was a qualitative type of analysis. Furthermore, to analyze the data, a chi-square/cross-tabs statistical analysis method along with post-hoc (η^2) analysis was used. Chi-square analysis was expected to show the statistical significance of the data and post hoc determined the relevancy of the data.

Results

The survey was sent to 250 patient population, of which 39 participated in the study. All 39 participants provided responses to the survey questions. However, there were some questions that four participants failed to answer, and those patients were excluded from all analyses.

Excluding the missed responses, a total of 35 participants completed the survey (Table 1).

Demographics and all other statistical analysis results are presented in Table 1-7 and Appendix

C.

Table 1

Demographic Description of the Respondents

		Number of respondents	Percent
Responses	Total Replies	39	
	Missing Data	4	
	Total Responses Used for Analysis	35	
Age	18-29	11	31.4 %
	30-39	19	54.3 %
	40-49	4	11.4 %
	50-59	1	2.9 %
	Total	35	100.0 %
Native Language	English	13	37.1 %
	Hindi	11	31.4 %
	Other languages	10	28.7 %
	Total	34	97.1 %
Education	Less than high school degree	1	2.9 %
	HSD, GED, or equivalent	4	11.4 %
	BS or MS degree in the science field	15	42.9 %
	BS or MS degree in non-science field	9	25.7 %
	Doctorate or equivalent	6	17.1 %
	Total	35	100.0 %
Health Status	Excellent	10	28.6 %
	Above Average	15	42.9 %
	Average	10	28.6 %
	Total	35	100.0 %

Note. GED = General Education Diploma, HSD = High School Diploma, MS = Master's degree in science/non-science field, and BS = bachelor's degree in science/non-science field.

From the survey, five questions were chosen and compared against each other to analyze the hypothesis of whether the excessive use of medical terminology by doctors lead patients to change physicians. All 26 questions were statistically analyzed to determine patient satisfaction with their physicians. The analyses were done using chi-square and cross tabulations tests, and the five questions/variables listed below seemed to have a significant response when compared to the other variable results. The analyses for five questions that directly pertain to the research

question are presented in Tables 2-6. No other questions reached significance. Other results may be found in Appendix C. The variables analyzed are as follows:

1. *Change in primary care physician (Q1) vs. Reason for last physician change (Q2).*

These two variables (Q1 and Q2) are a part of section one of the survey and were chosen to determine if participants were satisfied with their doctor and the care they provided. If not, then participants response to Q2 helped to identify how often they change their doctors and why. The objective of comparing these two variables against one another was to know if participants' dissatisfaction with their physicians is related to use of medical terminology by their doctors.

2. *Reason for last changed physician (Q2) vs. Did use of medical terminology ever result in you changing your doctor? (Q20)*

Here, one variable belongs to section one of the survey (Q2) and other (Q20) is a part of section three of the survey. Again, these variables were chosen to understand if participants reason for last changed physician is related to use of medical terminology.

3. *How do you feel when your doctor uses unknown medical terms (Q19) vs. How often have you changed physician because of use of medical terms? (Q21)*

Both variables (Q19 and Q21) are a part of section three of the survey. These variables were chosen to determine the frequency of participants changing their doctors due to use of medical terminology and how participants feel when hearing technical/ medical terms at their doctor visits.

Table 2

Survey Question 1 vs. Question 2 Results

How often do you change your primary care physician? Vs. Reason for last physician change?

Change in primary care physician		
	N	Percent
Frequently	2	5.7
Occasionally	8	22.9
Rarely	16	45.7
Never	9	25.7
Total	35	100.0
Reason for last physician change		
	N	Percent
He/she did not give you an appropriate amount of time at the visit	4	11.4
He/she did not listen to you	3	8.6
He/she did not explain the diagnosis and treatment in a way you could understand	4	11.4
He/she did not provide you a proper treatment plan	4	11.4
He/she did not provide answers to your questions	2	5.7
Administrative or another reason not listed	18	51.4
Total	35	100.0

Table 3

Survey Question 1 vs. Question 2 Statistical Analysis

How often do you change your primary care physician? Vs. Reason for last physician change?

Correlations				
			Reason for last change	Primary care change
Spearman's rho	Reason for last change	Correlation Coefficient	1.000	.361*
		Sig. (2-tailed)	.	.033
		N	35	35
	Primary care change	Correlation Coefficient	.361*	1.000
		Sig. (2-tailed)	.033	.
		N	35	35

*. Correlation is significant at the 0.05 level (2-tailed).

Table 2 describes when asked the question “How often do you change your primary care physician?” the participants who responded to frequent change (5.7%) provided the reason for change in physician most of the time as administrative reasons (51.4%) or their physician did not provide proper treatment plans (14.2%). To analyze these two variables statistically against each other, Spearman’s rank-order correlation and the ordinal logistic regression test were conducted (see Table 3). Both were found to be statistically significant.

Spearman’s Rank-Order Correlation

A Spearman's rank-order correlation was run to assess the relationship between why respondents last changed their physicians and how often they changed physicians. Thirty-five participants were recruited. There was a strong, statistically-significant positive correlation between respondents often changing their physicians and reasons for changing their physicians. Correlation is found to be significant at the $\alpha = .05$ level. Thus, based on the responses received

and analyzed, patients are more likely to change their physicians, in their opinion, if the physicians did not provide proper treatment plans or due to administrative issues.

Ordinal Logistic Regression

A cumulative odds ordinal logistic regression (including proportional odds) was run to determine the effect of why respondents last changed their physicians on how often respondents changed their physicians. The assumption of proportional odds was met, as assessed by a full likelihood ratio test comparing the fit of the proportional odds location model to a model with varying location parameters, $\chi^2(10) = 12.132, p = .276$. Both the Pearson and the deviance goodness-of-fit tests indicated that the model was a good fit to the observed data, $\chi^2(10) = 9.819; 12.132, p = .457; .276$, and some cells were sparse with zero frequencies in 37.5% of cells. It can be concluded that the odds ratio of being in a higher category of the dependent variable for “He/she did not provide you a proper treatment plan” versus “Administrative or another reason not listed” is .106 (95% CI, .012 to .928), which is statistically significant, $\chi^2(1) = 4.110, p = .043$. Figure 1 shows support of the variables correlation and in which the blue bar indicates frequent change in physician due to physicians not providing proper treatment plan. Thus, patients are more likely to change their primary care physician if, in their opinion, the doctor did not provide a proper treatment plan.

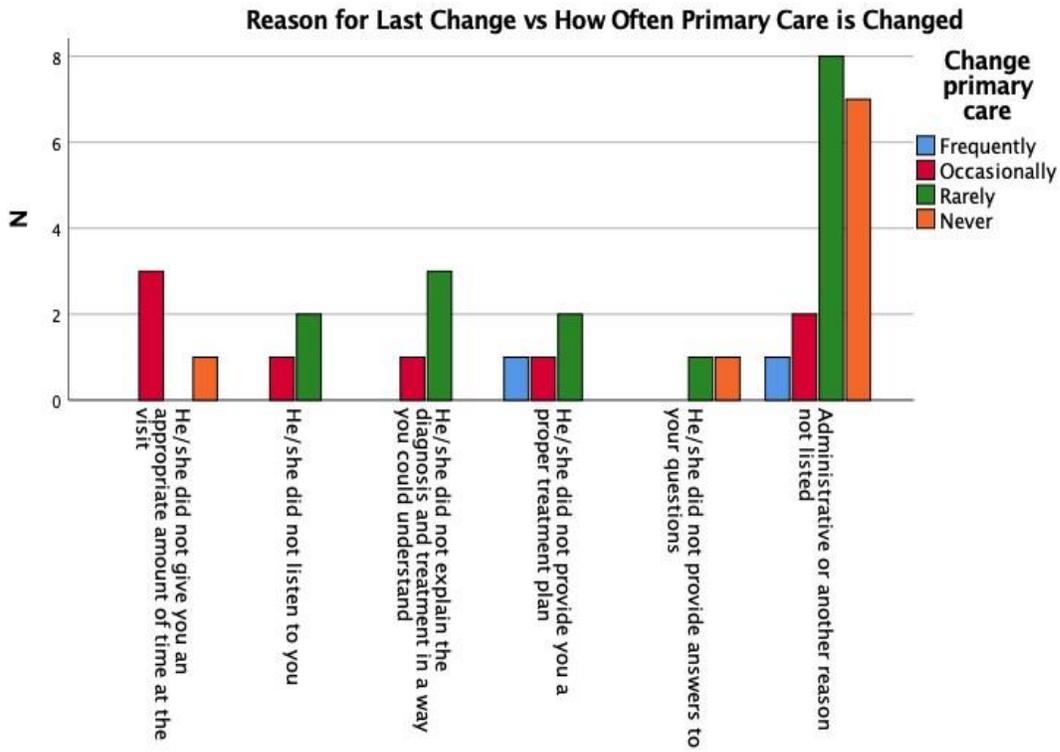


Figure 1 Reason for last physician change vs. How often physician is changed

Table 4

Survey Question 2 vs. Question 20 Results

Reason for last physician change vs. Did use of medical terminology ever result in you changing your doctor?

Reason for last physician change		
	N	Percent
He/she did not give you an appropriate amount of time at the visit	4	11.4
He/she did not listen to you	3	8.6
He/she did not explain the diagnosis and treatment in a way you could understand	4	11.4
He/she did not provide you a proper treatment plan	4	11.4
He/she did not provide answers to your questions	2	5.7
Administrative or another reason not listed	18	51.4
Total	35	100.0
Medical terminology result in you changing doctor		
	N	Percent
Yes	8	22.9
No	27	77.1
Total	35	100.0

Table 5

Survey Question 2 vs. Question 20 Statistical Analysis

Reason for last physician change vs. Did use of medical terminology ever result in you changing your doctor?

Correlations				
			Reason for last change	Terminology result in you changing doctor
Spearman's rho	Reason for last change	Correlation Coefficient	1.000	.418*
		Sig. (2-tailed)	.	.012
		N	35	35
	Terminology result in you changing doctor	Correlation Coefficient	.418*	1.000
		Sig. (2-tailed)	.012	.
		N	35	35
*. Correlation is significant at the 0.05 level (2-tailed).				

Table 4 describes the participants response to when asked “What was their reason for last change in physician” and “If medical terminology ever resulted in them changing their physician.” To analyze these variables statistically, Spearman’s rank-order correlation and the ordinal logistic regression test were conducted. Spearman’s rank-order correlation was found to be statistically significant, and the ordinal logistic regression was statistically insignificant (see Table 5).

Spearman’s Rank-Order Correlation

A Spearman's rank-order correlation was run to assess the relationship between concerns about a current doctor and medical terminology resulting in a change of doctor. Thirty-five participants were recruited. Preliminary analysis showed the relationship to be non-monotonic, as assessed by visual inspection of a scatter plot. There was a strong, statistically significant positive correlation between concerns about a current doctor and medical terminology resulting

in a change of doctor, $rs(33) = .655, p < .001$. Thus, based on the responses received and analyzed, it is highly possible that when 14.2% of the participants provided a reason for last changed physician as “their physician did not provide a proper treatment plan,” this can be related to use of medical terminology. The more the physicians used medical terminology, in participants’ opinions, the more likely participants were to respond that their physicians did not provide proper treatment plans.

Ordinal Logistic Regression

Ordinal logistic regression was conducted which compared Q2 (Reason for last changed physician) and Q20 (Did use of medical terminology ever result in you changing your doctor?). It should be noted that Q2 was the dependent variable, and Q20 was the independent variable. Therefore, it was not found to be statistically significant for predictive analytics.

Table 6

Survey Question 19 vs. Question 21 Results

How do you feel when your doctor uses unknown medical terms vs. How often have you changed physician because of use of medical terms?

Use of an unknown medical term		
	N	Percent
Very Dissatisfied	3	8.6
Dissatisfied	12	34.3
Neutral	19	54.3
Very Satisfied	1	2.9
Total	35	100.0
If yes, how often did you change your physician		
	N	Percent
Once	3	8.6
Twice	2	5.7
More than three times	3	8.6
Total	8	22.9
Missing	-99	77.1
Total	35	100.0

Table 7

Survey Question 19 vs. Question 21 Statistical Analysis

How do you feel when your doctor uses unknown medical terms vs. How often have you changed physician because of use of medical terms?

Correlations				
			Use of an unknown medical term	If yes, how often
Spearman's rho	Use of an unknown medical term	Correlation Coefficient	1.000	-.932**
		Sig. (2-tailed)	.	.001
		N	35	8
	If yes how often	Correlation Coefficient	-.932**	1.000
		Sig. (2-tailed)	.001	.
		N	8	8

** . Correlation is significant at the 0.01 level (2-tailed).

Table 6 describes the participants response to when asked “How do you feel when your doctor uses unknown medical terms” and “How often have you changed physicians because of use of medical terms.” To analyze these variables statistically, Spearman’s rank-order correlation test was conducted and found to be statistically significant (see Table 7).

Spearman’s Rank-Order Correlation

A Spearman's rank-order correlation was run to assess the relationship between use of an unknown medical term and how often participants changed their physician. Thirty-five participants were recruited. Preliminary analysis showed the relationship to be non-monotonic, as assessed by visual inspection of a scatter plot. There was a strong, statistically significant negative correlation between use of an unknown medical term and how often participants changed their physicians, $r_s(33) = -.932, p < .001$. Thus, based on the responses received and

analyzed, the more medical terminology doctors use at patient visits, the less likely patients are to keep the same physician for further treatment/diagnoses.

Discussion

Understanding medical terminology at a visit with a doctor has a high value since it is related to the doctor-patient relationship and patient satisfaction. In this study, the hypothesis that patients are more prone to change their physician if the physician uses technical/medical terms was tested. Results support the hypothesis that patients are more likely to change their physicians if they did not provide proper treatment plans, uses more medical terms at patient visits, or due to administrative issues. However, there are a lot of potential factors that could interfere with the validity of these results achieved.

First of all, these findings may reflect problems with the category of survey respondents. Looking at the overall demographics, there are more educated (42.5% respondents had BS/ MS or equivalent degree in the science field) and younger population (54.3% respondents were between age 30 and 39 years and 31.4% between 18 and 29 years) that participated in the survey. As most of the participants completing the survey had higher education than a high school degree, it is likely that the results are skewed towards more knowledgeable respondents who are familiar with medical terms or their physician's language. It is highly possible the results would differ, if there were more respondents who had less than a high school degree and more representative of a typical patient population.

Secondly, there is also usually high percent of non-native English speakers (31.4% had Hindi as their native language, and 28.7% had other languages) who responded to the survey. Also, from a total of five healthcare professionals (two physicians and three dentists) who agreed to participate in the research, four of them were from India. Therefore, this could have been the reason that there are more respondents who had Hindi as their native language. Furthermore, for the participants whose native language was Hindi/other language, it is very likely that it might be

difficult for them to understand their physician's language or medical terminology. But again, as this was such a small group of participants who responded to survey, the hypothesis may not have been adequately tested.

Thirdly, though there has been statistical significance/correlation between patient satisfaction and use of an unknown medical term by their physicians, it was noted that the medical terms were well understood by majority of the participants who completed the survey. From 35 participants, 77.1% responded "No" when asked if medical terminology ever resulted in them changing their doctors. This is important for present study as it can be interpreted that medical practitioners are providing patients with adequate information explaining their diagnoses and treatment plans using less medical terminology or more non-medical language. Therefore, to achieve a solid conclusion in this line of research is difficult, and it is recommended to have broader enrollment and patient recruitment for age, education, and spoken language for future research.

Furthermore, despite all these concerns, there is statistical significance seen between the variables that are compared to answer the research hypothesis. Based on the results attained it is determined that patients are more likely to change their physicians unless doctors have provided them with adequate therapy plans, used fewer medical terminologies, or had fewer to no administrative problems. The response rate received in this study is relatively low, i.e., 14%, and the findings are probably not representative of the entire population due to the low response rate. As per Fage-Butler et al. (2015), it is very crucial to have health literacy in patients. From the present study, though the response rate is low, it was observed that there are few participants dissatisfied with their physicians and their use of medical terminologies at regular doctor visits. The present study makes it clear that age, education and spoken language does makes a

difference in patients understanding level with medical terms or professional medical language. So, this suggests that doctors and other healthcare practitioners use less medical terminology while interacting with their patient to preserve confidence and satisfaction in the connection between doctor and patient.

Limitations

The sample size of the participants who completed the survey was small. As noted, there were limitations in context to age, education, and spoken language. Moreover, the amount of time the survey was kept open was insufficient. A study conducted for more than two weeks might have helped more participants with broader enrollment and patient recruitment criteria participate in the survey. This sample might not be representative, and the results of this study were based on the population who participated in the study and their responses.

Conclusion

This research was expected to provide insight on patient's satisfaction with their healthcare providers on use of technical/medical terms at patient visits. The results showed that patients are more likely to change their physicians if physicians did not provide proper treatment plans, used more medical terms at patient visits, or due to other administrative issues. But the majority of the participants also responded "No" when asked if medical terminology ever resulted in them changing their doctors. Overall, it is difficult to conclude that patients are satisfied/dissatisfied or are affected in any way by their healthcare professional's use of medical terminology or professional language. Thus, based on the results seen for this research as well as prior research, it can only be recommended that physicians and other healthcare professionals use less medical terminology while communicating with their patient to maintain trust and satisfaction within the doctor-patient relationship.

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APPENDICES

Appendix A: Sample Survey Questionnaire

Does the Excessive Use of Medical Terminology by Doctors Lead Patients to Change Physicians?

Question 1-5 pertain to your use of a primary care physician.

1. How often do you change your primary care physician?
 - Frequently (more than once a year)
 - Occasionally (every year or two)
 - Rarely (between every 2 to 10 years)
 - Never (it's been more than 10 years)
2. When you last changed physicians, the reason was best described by
 - He/she did not give you an appropriate amount of time at the visit
 - He/she did not listen to you
 - He/she did not explain the diagnosis and treatment in a way you could understand
 - He/she did not provide you a proper treatment plan
 - He/she did not provide answers to your questions
 - Administrative or another reason not listed
3. How would you describe your relationship with your current doctor?
 - Excellent
 - Above Average
 - Average
 - Below Average
 - Poor

4. Do you have any concerns about your current doctor?
 - Yes
 - No
5. If yes what are they from below?
 - He/she does not give you an appropriate amount of time at the visit
 - He/she does not listen to you
 - He/she does not explain the diagnosis and treatment in a way you could understand
 - He/she does not provide you a proper treatment plan
 - He/she does not provide answers to your questions
 - Administrative or another reason not listed

Questions 6-15 asks some questions about your knowledge of medical terminology.

From below, please choose Yes or No, if you are familiar with the listed medical terms.

6. Abscess ● Yes
 - No
7. Anemia ● Yes
 - No
8. Numb
 - Yes
 - No
9. Chronic ● Yes
 - No

10. Spasm

- Yes
- No

11. Hypertension • Yes

- No

12. Edema

- Yes
- No

13. Over-the-Counter • Yes

- No

14. Terminal

- Yes
- No

15. Topical

- Yes
- No

Questions 16-21 asks questions about your concerns with your current doctor's use of medical terminology.

16. Does your doctor use medical or technical terms in discussions with you?

- Never
- Rarely

- Sometimes
- Most of the time
- Always

17. Do you understand everything your doctor says?

- Never
- Rarely
- Sometimes
- Most of the time
- Always

18. Have you been confused about your diagnosis or treatment plan because of medical terminology used by your doctor?

- Yes
- No

19. How do you feel when your doctor uses an unknown medical term?

- Very Dissatisfied
- Dissatisfied
- Neutral
- Satisfied
- Very Satisfied

20. Did the use of medical terminology ever result in you changing your doctor?

- Yes
- No

21. If yes, how often have you changed your doctor because of his/her use of medical terminology?

- Once
- Twice
- Three times
- More than three times

Questions 22-26 asks you to provide some information about yourself.

22. Which category below includes your age?

- 18 - 29
- 30 - 39
- 40 - 49
- 50 - 59
- 60 or older

23. What is your native or first language that you spoke?

- English
- Spanish
- French
- Italian
- Chinese
- Arabic
- Hindi

- Other language

24. What is the highest level of school you completed or highest level of education you hold?

- Less than high school degree
- High school diploma, GED, or equivalent
- Bachelors/ Masters or equivalent degree in the scientific/medical field
- Bachelors/ Masters or equivalent degree in non-scientific/ non-medical field
- Doctorate or equivalent

25. Which of the following would you choose to describe your health?

- Excellent
- Above Average
- Average
- Below Average
- Poor

26. How often do you see/ visit your doctor?

- Frequently
- Occasionally
- Rarely
- Never

Appendix B: Approval Letter from University Human Subject Review Committee

Date: 2-6-2019

IRB #: UHSRC-FY18-19-182
Title: Does the excessive use of medical terminology by doctors' leads patients to change physician?
Creation Date: 1-23-2019
End Date:
Status: Approved
Principal Investigator: Rutu Dabhi
Review Board: University Human Subjects Review Committee
Sponsor:

Study History

Submission Type	Initial	Review Type	Exempt	Decision	Exempt
Submission Type	Modification	Review Type	Exempt	Decision	Exempt

Key Study Contacts

Member	Rutu Dabhi	Role	Principal Investigator	Contact	rdabhi@emich.edu
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Member	Rutu Dabhi	Role	Primary Contact	Contact	rdabhi@emich.edu

Appendix C: Results for All Survey Questions

C1: Survey Question 3 Results

Relationship with current doctor		
	N	Percent
Excellent	6	17.1
Above Average	15	42.9
Average	12	34.3
Below Average	2	5.7
Total	35	100.0

C2: Survey Question 4 Results

Concerns about current doctor		
	N	Percent
Yes	6	17.1
No	29	82.9
Total	35	100.0

C3: Survey Question 5 Results

If yes what are they		
	N	Percent
He/she did not give you an appropriate amount of time at the visit	2	5.7
He/she did not listen to you	1	2.9
He/she did not explain the diagnosis and treatment in a way you could understand	2	5.7

He/she did not provide you a proper treatment plan	1	2.9
Total	6	17.1
Missing	29	82.9
Total	35	100.0

C4: Survey Question 6 Results

Abscess		
	N	Percent
Yes	19	54.3
No	16	45.7
Total	35	100.0

C5: Survey Question 7 Results

Anemia		
	N	Percent
Yes	28	80.0
No	7	20.0
Total	35	100.0

C6: Survey Question 8 Results

Numb		
	N	Percent
Yes	28	80.0
No	7	20.0
Total	35	100.0

C7: Survey Question 9 Results

Chronic		
	N	Percent
Yes	27	77.1
No	8	22.9
Total	35	100.0

C8: Survey Question 10 Results

Spasm		
	N	Percent
Yes	24	68.6
No	11	31.4
Total	35	100.0

C9: Survey Question 11 Results

Hypertension		
	N	Percent
Yes	27	77.1
No	8	22.9
Total	35	100.0

C10: Survey Question 12 Results

Edema		
	N	Percent
Yes	15	42.9
No	20	57.1

Total	35	100.0
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C11: Survey Question 13 Results

Over-the-counter		
	N	Percent
Yes	30	85.7
No	5	14.3
Total	35	100.0

C12: Survey Question 14 Results

Terminal		
	N	Percent
Yes	26	74.3
No	9	25.7
Total	35	100.0

C13: Survey Question 15 Results

Topical		
	N	Percent
Yes	23	65.7
No	12	34.3
Total	35	100.0

C14: Survey Question 16 Results

Use technical terms

	N	Percent
Rarely	2	5.7
Sometimes	25	71.4
Most of the Time	7	20.0
Always	1	2.9
Total	35	100.0

C15: Survey Question 17 Results

Do you understand everything your doctor says		
	N	Percent
Rarely	2	5.7
Sometimes	5	14.3
Most of the Time	19	54.3
Always	9	25.7
Total	35	100.0

C16: Survey Question 18 Results

Have you been confused		
	N	Percent
Yes	12	34.3
No	23	65.7
Total	35	100.0

C17: Survey Question 26 Results

How often do you visit doctor		
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	N	Percent
Frequently	3	8.6
Occasionally	21	60.0
Rarely	10	28.6
Never	1	2.9
Total	35	100.0