



THE IMPACT OF NARRATED ANIMATIONS

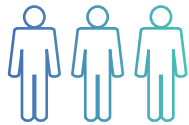
Type of **patient education material** — text-only versus narrated animation — impacts individuals' perceptions and attitudes in a non-clinical setting.

PATIENT EDUCATION is a fundamental part of the patient experience and a necessary aspect of shared decision-making and improving quality of care. Previous research has studied which types of educational material are best for patient comprehension, but has not explored impact on patients' **perception of quality of care**.



Objective

To evaluate whether different types of educational material affect individuals' perceived quality of the material, perceptions towards their provider, and intended health behavior.



216

adults located in the
United States were
recruited through
Amazon MTurk.

Methods

Participants answered an online survey where they were first prompted with four health topics to choose from; then groups stratified by topic were randomly assigned a narrated animation or equivalent text-only excerpt covering the selected topic. Participants rated their level of agreement with statements related to the assigned material on a 5-point Likert scale. A nonparametric Mann-Whitney-Wilcoxon test was used to analyze comparisons between the two groups.

Results

Participants assigned the narrated animation were **significantly more likely** than participants assigned the text-only excerpt to:

- 1 Report material as engaging, trustworthy, and easy to understand ($p \leq 0.05$)
- 2 Agree that a health care provider presenting the material would care about their experience and that they would seek care from that provider ($p \leq 0.05$)
- 3 Reference the material and feel more confident making health decisions ($p \leq 0.05$)
- 4 Recommend such a health care provider that offered the material ($p \leq 0.05$)

Conclusion

This study found that individuals rated **narrated animations more positively than comparable text-only patient education materials**. Therefore, narrated animations should be considered in efforts to improve perceived health care quality, patient engagement, and patient satisfaction.



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INTRODUCTION

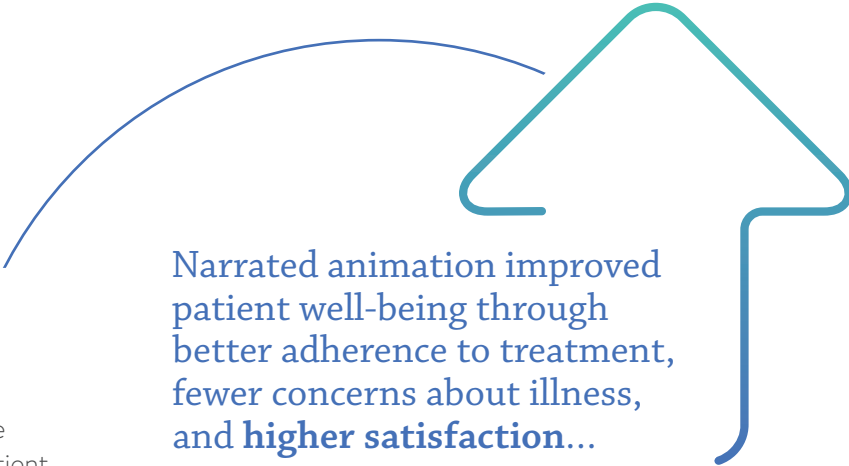
Introduction

The Increasing Importance of Patient Education in Today's Health System

Patient education is a defining pillar of medicine and a key component of the comprehensive patient experience; particularly in an era when an increasing number of people are proactively seeking health-related information online (Huang, Fang, & Agarwal, 2015). Due to the growing demand, easy-to-access health resources have become widely available for those searching. In this new health care climate, patients' health literacy has become more critical than ever, as the U.S. is challenged to improve quality of care while simultaneously lowering costs. Patient education plays an essential role in every step of the care-seeking process—from informed consent to shared decision-making, from treatment adherence to follow-up care—and is shown to have a positive impact on patient satisfaction scores and better health outcomes (Adams, 2014).

Patient Education as a Cornerstone of Ethical and Quality Care

Patient education is more than a courtesy; it is a legal and ethical obligation of health care providers in order to obtain informed consent from patients. According to the Joint Commission (2016), informed consent stipulates that before any medical procedure or treatment, a patient must be “apprised of the nature, risks, and alternatives” prior to said procedure's initiation. A lack of patient education that stems from ineffective patient-provider communication is “the most frequent root cause of reported adverse events,” (The Joint Commission, 2016). Informed consent is intended to include much more than a signature—it must be patient-centered and include a thorough educational component. Shared decision-making, a key aspect of ethical and quality care, has gained momentum in the recent past with the Institute of Medicine's call for patient-centered care as an effective way improve health care quality (Institute of Medicine, 2001). At the core of shared decision-making and patient-centered care is patients' understanding of information, specifically patients'



Narrated animation improved patient well-being through better adherence to treatment, fewer concerns about illness, and higher satisfaction...

comprehension of treatment options—so that patients are able to make informed decisions about their care alongside their provider (Institute of Medicine, 2001). Research has shown that achieving shared decision-making between a patient and a provider, “may also lead to improved patient well-being through better adherence to treatment, fewer concerns about illness, and higher satisfaction with health outcomes,” (Lin & Fagerlin, 2014).

Patient-perceived physician empathy is linked to improved outcomes and medical care satisfaction (Menendez et al., 2016). Providing patient education also demonstrates physician empathy, which consequently improves satisfaction scores (Kelley et al., 2014). Provider explanations are a significant factor in patient satisfaction scores as defined by the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS), which is used for provider reimbursements. HCAHPS incentivizes strong doctor-patient relationships on the federal level in an effort to improve health care quality through communication and education.

Best Practices in Patient Education

Despite the importance of patient education in today's health care environment, related efforts and materials have demonstrated varied efficacy. Patient education sometimes consists of only a verbal explanation from a provider; other times, it may only include text, like a brochure or an online resource. Verbal-only explanations are problematic because providers, oftentimes, will either use scientific terminology and complex sentence structures when communicating with patients; or, they may use broad generalizations that do not adequately explain a specific patient's condition (Houts, Doak, Doak, & Loscalzo, 2006).

Text-based materials in the form of pamphlets and brochures are often provided to patients; however, a systematic review found that patient education materials are consistently written at a level that is too high for patients to understand, instead of the recommended sixth- to seventh-grade reading levels (Williams, Muir, & Rosdahl, 2016). Many online patient education materials from major medical associations are not written at a level appropriate for the average American, and patients are both using and being referred to these materials by clinicians (Huang, Fang, & Agarwal, 2015).

Another issue with using verbal or text educational methods is that they present either audio material or visual material, but not a combination of the two. Research has demonstrated value in using multiple methods to convey information to patients; for example, when given a supplemental information sheet in addition to verbal instructions and discharge materials, patients had better comprehension of their condition and the prescribed treatment (Tsayakis et al., 2014). Similarly, a literature review by Houts et al. (2006) found that when pictures accompanied verbal or text-based explanations, patients' attention to, comprehension of, and recall of the health information was increased.

Although historically, verbal explanations and print materials have dominated the patient education sphere, other educational material such as videos show promise for improving patient understanding. A study by Meppelink et al. (2015) found that spoken animation is the best way to communicate complex health information to people with low health literacy. This eliminates the recall disparities between groups with either low or high health literacy, and does not negatively influence audiences with high health literacy (Meppelink et al., 2015).

Potential for Patient Education Beyond Comprehension

Many studies have evaluated the impact of various educational materials on comprehension. While comprehension is an undoubtedly critical outcome of educational materials, this limited approach overlooks the potentially broader impact of patient education on the patient experience and health outcomes. The perceived trustworthiness of educational material is arguably as important as the level of comprehension when the materials are used to influence patients'

treatment decisions. A patient's ability to understand the educational material is irrelevant if the patient does not trust the material. Furthermore, since a key component of patient satisfaction surveys like HCAHPS evaluates whether the provider explained concepts well, it is important to explore whether the type of educational material used affects an individual's opinion on his or her health care provider. Finally, the influence of the type of educational material on an individual's intended behaviors should be evaluated if a primary goal of patient education is to impact behavior change and consequent health outcomes.

We sought to understand the far-reaching impact of educational method (specifically text-based versus narrated animation) on individuals' attitudes on and perceptions of their care. Since lack of interest in educational material and low perceived credibility of said material can be barriers to consumption, we first assessed whether the type of material would affect individuals' perceived quality of the information. Secondly, we wanted to learn whether the type of educational material affected an individual's feelings towards their provider, their perceived ability to manage their own health, and their likelihood of recommending a doctor. When comparing the two patient education methods, we hypothesized that the animation would be more engaging than text, and that individuals would have more positive feelings toward their provider and their own self-efficacy when provided narrated animations as compared to text-only materials.

Text-based education materials are written at a level that is too high for patients to understand





METHODS

Methods

To determine whether the type of patient education material affects individuals' attitudes and perceptions, we conducted a randomized study where the control group received text-only educational material ("text-only group") and the intervention group received an equivalent narrated animation covering the same information ("narrated animation group").

Recruitment

Participants for this study were recruited in August 2016 through the online crowd-sourcing platform Amazon Mechanical Turk (MTurk, www.mturk.com). Each participant was compensated monetarily for completion of the survey. In order to be eligible for participation, prospective respondents were required to reside in the United States and have an MTurk approval rating of over 90% (to optimize survey completion rates). The survey was hosted online at surveygizmo.com.

Participants provided informed consent before initiating the survey by indicating that they were above the age of 18, understood that completion of the survey was optional and anonymous, and that they might be asked to comment on health conditions they may or may not have. Any respondent who self-identified as a health care provider was deemed ineligible from taking the survey.

Survey Design

The survey instrument was designed to evaluate the impact of narrated animation versus text-based patient education across three categories: quality of the material (e.g., how engaging or trustworthy it was), perceptions towards a hypothetical health care provider based on the provided material, and intended behavior and self-efficacy after having been presented with the material.

In order to simulate a realistic scenario in which a patient receives or seeks information pertinent to his or her own health, respondents were asked to select which statement (located in [Table 1](#), below) they identified with the most. The topics (dry eye, LASIK, allergies) were chosen because of their applicability to the age demographics of MTurk's user base (over half born between 1980-2000) and were available from the animation library provided by Rendia, Inc. (MTurk Tracker, 2016, Huff & Tingley, 2015). Participants were also given a general health option which explained how the voice works, if none of the other health topics were applicable.

TABLE 1: Options for Relevant Health Topics, Asked Prior to Randomization

Variables	Survey question
Dry Eye	My eyes frequently sting, burn, or have the sensation that something is in them.
LASIK	I have considered or am currently considering getting laser vision correction (i.e.: LASIK).
Allergies	I have had or currently have allergies.
General	None of the above statements apply to me.

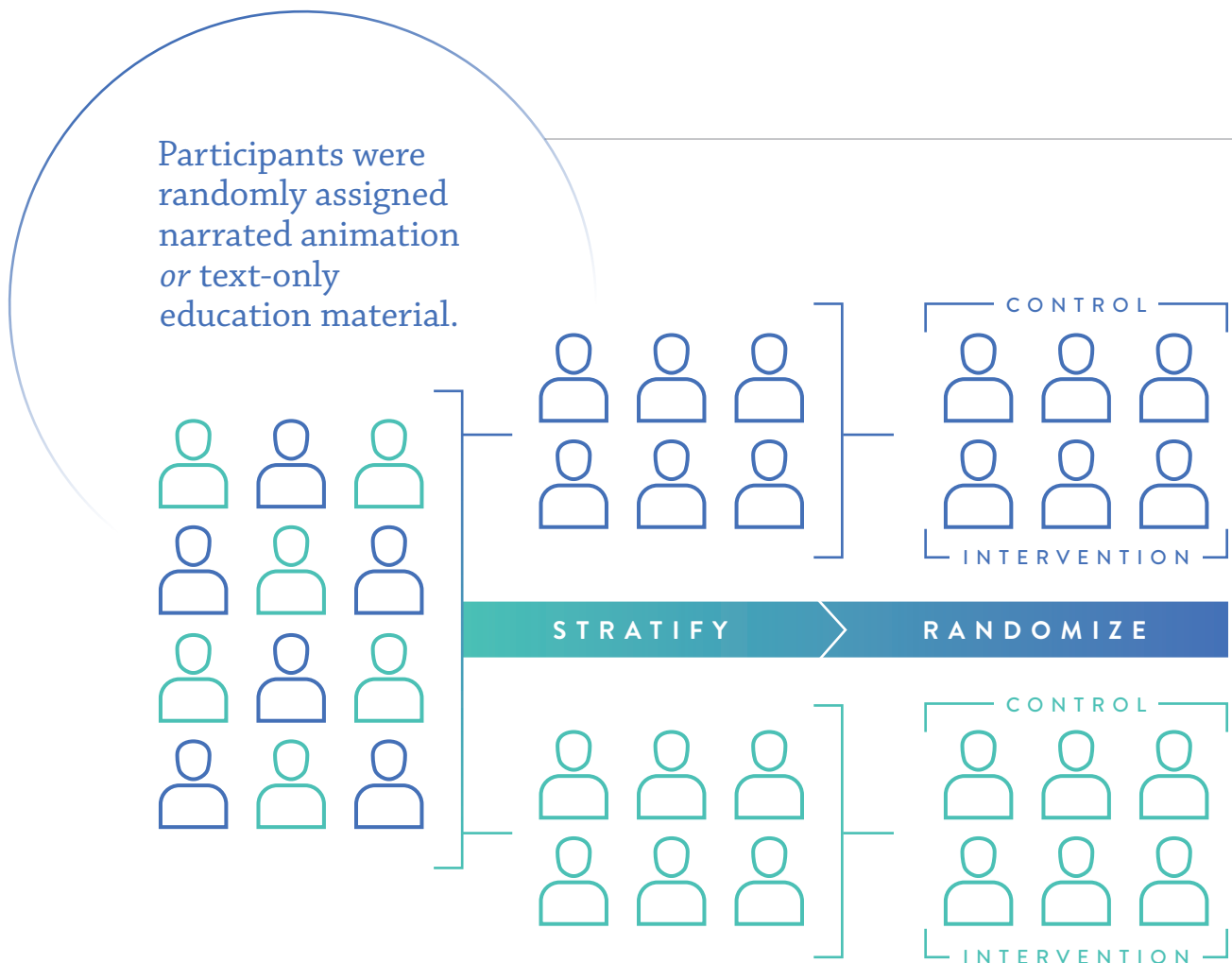
Once the participant selected a topic, he or she was randomly assigned either a text-only excerpt or an equivalent narrated animation using a random-number generator. Text educational materials were derived from online resources including The American Academy of Ophthalmology (for dry eye and LASIK), The American Academy of Allergy, Asthma, and Immunology (allergies), and The American Academy of Otolaryngology-Head and Neck Surgery (general), which are the associated academy-level organizations for each topic. Narrated animations were provided by Rendia, Inc. For each topic, the text-only excerpt and narrated animation included comparable information.

Initial baseline questions sought to define a participant's care-seeking pattern and the resources available to him or her in that individual's health care venue. After participants selected a relevant health topic but before receiving the educational material, they

were asked questions about their perceptions toward the selected health topic. Participants were asked to rate the degree to which they agreed or disagreed with a variety of statements about their anxiety, comprehension, and self-efficacy with the selected topic on a five-point Likert scale. All survey questions were required, but participants were given the option to select "prefer not to respond" for all demographic questions included at the end of the survey.

Analysis

All statistical analyses were calculated using R-Studio version 0.99.473 and the R package Likert version 1.3.3 (RStudio, Boston MA). To display findings, a nonparametric Mann-Whitney-Wilcoxon (MWW) test was selected. This type of test allowed for comparisons of survey responses between two groups and to determine if the text or animation Likert responses were stochastically greater (i.e., $P(X>Y) > P(Y>X)$). All calculations were evaluated at a 0.05 significance level.





FINDINGS

Findings

Descriptive Statistics

A total of 216 participants completed the survey. Slightly less than half (48.6%) of participants were between 25 to 34 years old and a majority of the sample identified as male (57.9%). The highest level of education for most participants (43.1%) was a bachelor’s degree, and most (63.9%) respondents reported earning \$35,000 or more annually. Most

people (83.8%) had health insurance; of these, private health insurance was the most common type (47.1%) followed by Medicaid (17.1%). Demographics were similar between text-only and narrated animation groups, with no statistically significant differences in any demographic category. Descriptive demographic statistics are available in [Table 2](#).

TABLE 2: Demographic Statistics of Narrated Animation and Text-Only Groups

Demographic Statistics	All participants (n = 216)	Narrated animation group (n=103)	Text-only group (n = 113)
Age $\chi^2 = 9.693, p = 0.084$			
18-24	9.7%	10.7%	8.9%
25-34	48.6%	50.5%	46.9%
35-44	25.9%	29.1%	23.0%
45-54	11.1%	7.8%	14.2%
55+	4.17%	1.9%	6.2%
Prefer not to respond	0.5%	0.0%	0.9%
Gender $\chi^2 = 2.071, p = 0.355$			
Male	57.9%	54.4%	61.1%
Female	41.7%	45.6%	38.1%
Prefer not to respond	0.5%	0.0%	0.9%
Highest level of education $\chi^2 = 0.169, p = 0.681$			
Partial high school or below	0.0%	0.0%	0.0%
High school diploma or equivalent	11.6%	13.6%	9.7%
Some college credit, no degree	19.0%	22.3%	15.9%
Trade or technical degree	2.8%	1.9%	3.5%
Associate degree	11.6%	10.7%	12.4%
Bachelor’s degree	43.1%	40.8%	45.1%
Master’s degree	8.3%	8.7%	8.0%
Doctoral degree	0.9%	1.0%	0.9%
Professional degree (MD, JD, DDs, etc.)	2.3%	1.0%	3.5%
Prefer not to respond	0.5%	0.0%	0.9%

TABLE 2: Demographic Statistics of Narrated Animation and Text-Only Groups Cont'd.

Demographic Statistics	All participants (n = 216)	Narrated animation group (n=103)	Text-only group (n = 113)
Income			$\chi^2 = 2.734, p = 0.974$
Less than \$5,000	1.4%	1.0%	1.8%
\$5,000 through \$11,999	3.7%	3.9%	3.5%
\$12,000 through \$15,999	4.6%	5.8%	3.5%
\$16,000 through \$24,999	12.0%	12.6%	11.5%
\$25,000 through \$34,999	11.6%	10.7%	12.4%
\$35,000 through \$49,999	23.2%	23.3%	23.0%
\$50,000 through \$74,999	17.1%	17.5%	16.8%
\$75,000 through \$99,999	13.9%	15.5%	12.4%
\$100,000 and greater	9.7%	7.8%	11.5%
I prefer not to respond	2.8%	1.9%	3.5%
Health insurance			$\chi^2 = 1.205, p = 0.548$
Yes	83.8%	86.4%	81.4%
No	12.0%	10.7%	13.3%
Prefer not to respond	4.2%	2.9%	5.3%
Type of health care			$\chi^2 = 3.906, p = 0.791$
Medicare	8.3%	7.8%	8.8%
Medicaid	17.1%	17.5%	16.8%
Private health insurance (employer)	41.7%	39.8%	43.4%
Private health insurance (individual)	11.1%	14.6%	8.0%
Health insurance through any other source (i.e.: military or veteran's coverage)	3.7%	4.9%	2.7%
Other—Write in	0.9%	1.0%	0.9%
I don't know	16.2%	13.6%	18.6%
I prefer not to respond	0.9%	1.0%	0.9%

Of the sample, most participants (92.1%) had sought care in the previous year. Participants were more likely to somewhat or strongly agree with statements about feeling confident in managing their health and understanding the selected health topic, and were more likely to somewhat or strongly disagree with the statements that they were anxious about communicating with their health care provider. When

asked with which health topic participants were most able to identify, the most popular selection was allergies (47.2%), followed by general health (18.5%). No statistically significant differences among between the text-only group and the narrated animation group were observed for these baseline variables. Data for baseline health behaviors and attitudes are summarized in [Table 3](#).

TABLE 3: Sample Baseline Health-Seeking Behavior and Health Attitudes

Prior Health Statistics	All participants (n = 216)	Narrated animation group (n=103)	Text-only group (n = 113)
Sought care in past year $\chi^2 = 3.329, p = 0.069$			
Yes	92.1%	96.1%	88.5%
No	7.9%	3.9%	11.5%
Confident in managing health $\chi^2 = 8.847, p = 0.065$			
Strongly agree	25.9%	27.2%	24.8%
Somewhat agree	56.0%	62.1%	50.4%
Neither agree nor disagree	10.2%	7.8%	12.4%
Somewhat disagree	7.4%	2.9%	11.5%
Strongly disagree	0.5%	0.0%	0.9%
Understand selected topic $\chi^2 = 5.449, p = 0.364$			
Strongly agree	21.8%	23.3%	20.3%
Somewhat agree	52.8%	45.6%	59.3%
Neither agree nor disagree	10.6%	14.6%	7.1%
Somewhat disagree	12.5%	13.6%	11.5%
Strongly disagree	2.3%	2.9%	1.8%
Anxious talking to provider $\chi^2 = 1.860, p = 0.761$			
Strongly agree	4.2%	3.9%	4.4%
Somewhat agree	28.2%	31.1%	25.7%
Neither agree nor disagree	6.0%	4.9%	7.0%
Somewhat disagree	34.3%	31.1%	37.2%
Strongly disagree	27.3%	29.1%	25.7%
Selected health topic $\chi^2 = 1.539, p = 0.672$			
Dry Eye	11.1%	10.7%	11.5%
LASIK	47.2%	47.6%	46.9%
Allergies	18.5%	21.4%	15.9%
General Health	23.2%	20.4%	25.7%



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OUTCOMES

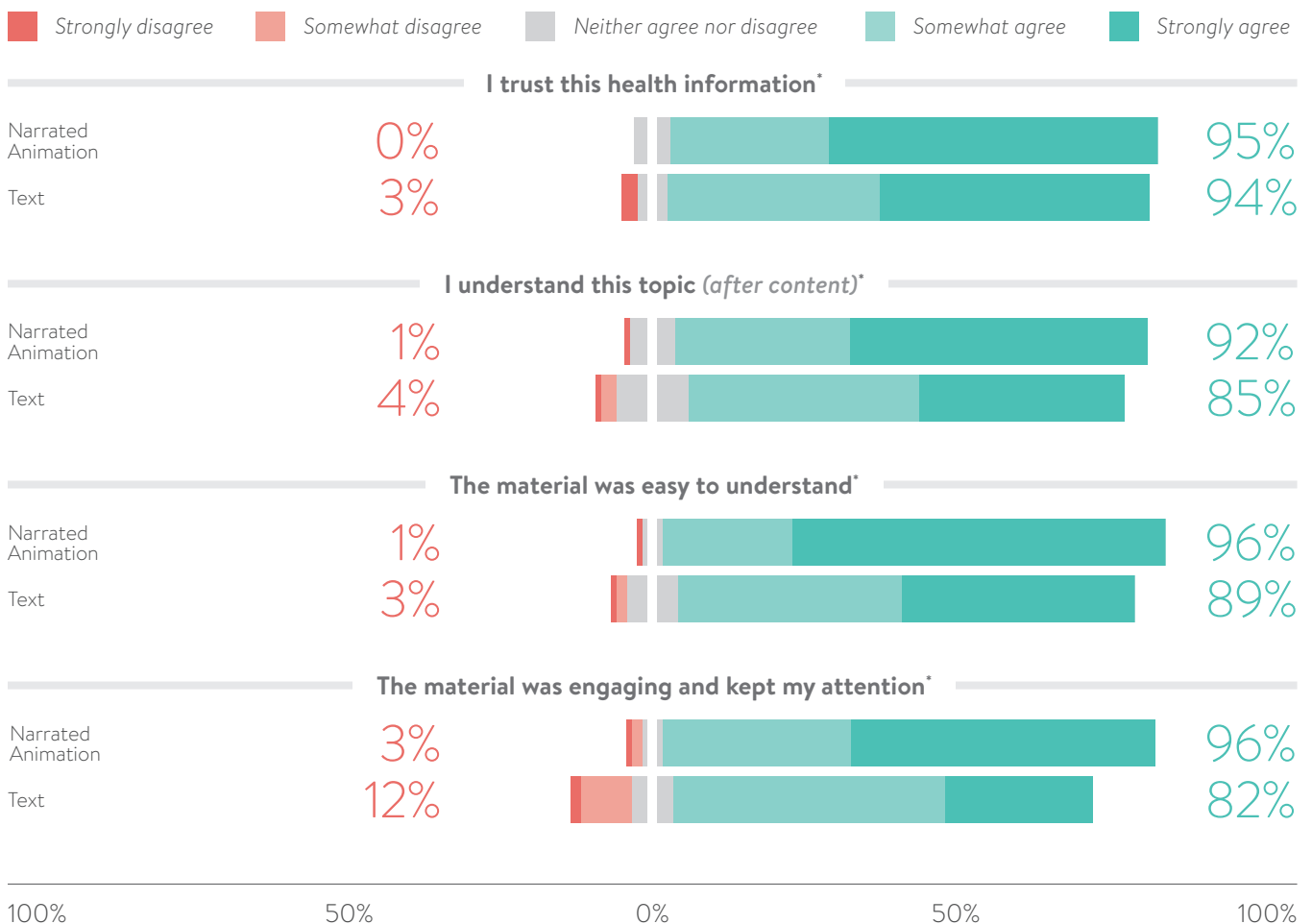
Outcomes

Quality of Educational Materials Based on Format

The majority of all respondents indicated that they either somewhat or strongly agreed with statements about the high quality of the information (i.e., it was trustworthy, easy to understand, engaging, and they understood the topic). However, a one-sided MWW test indicated that the narrated animation group was more likely to give higher quality ratings than

the text-only group ($p \leq 0.05$). This finding was most prominent for the statement that the material was engaging: 96.1% of the narrated animation respondents somewhat or strongly agreed with the statement (2.9% somewhat or strongly disagreed), compared to 82.3% of the text-only respondents who answered favorably (11.5% somewhat or strongly disagreed). **Figure 1** summarizes the Likert scale responses for both groups.

FIGURE 1: Perceived Quality of Narrated Animation versus Text Educational Materials



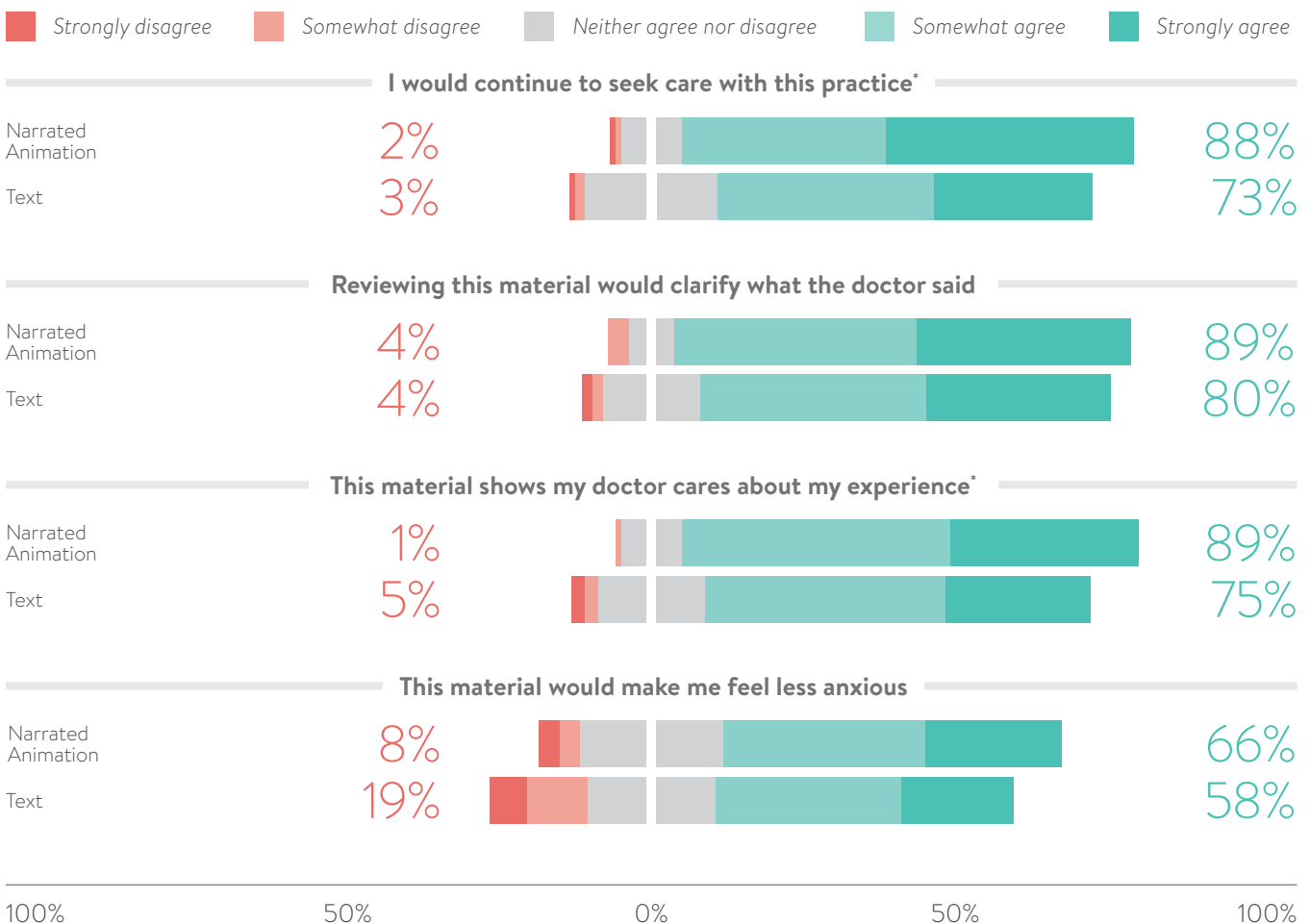
*Narrated animations received significantly higher ratings than text ($p \leq 0.05$) using one-sided MWW test

Perceptions Towards Health Care Provider

Participants mostly agreed with statements about their feelings and attitudes towards a health care provider (summarized in [Figure 2](#)). We found no statistically significant differences between Likert scale responses for the narrated animation and text-only groups on statements about the material's ability to clarify what a doctor said, and on statements about the material's

ability to make the respondent feel less anxious. However, when compared to the text-only group, the narrated animation group reported significantly ($p \leq 0.05$) stronger feelings of agreement with statements about continuing to seek care from such a practice and statements that the material demonstrated that such a doctor would care about their experience.

FIGURE 2: Perceived Relationship with Provider Based on Narrated Animation versus Text Materials



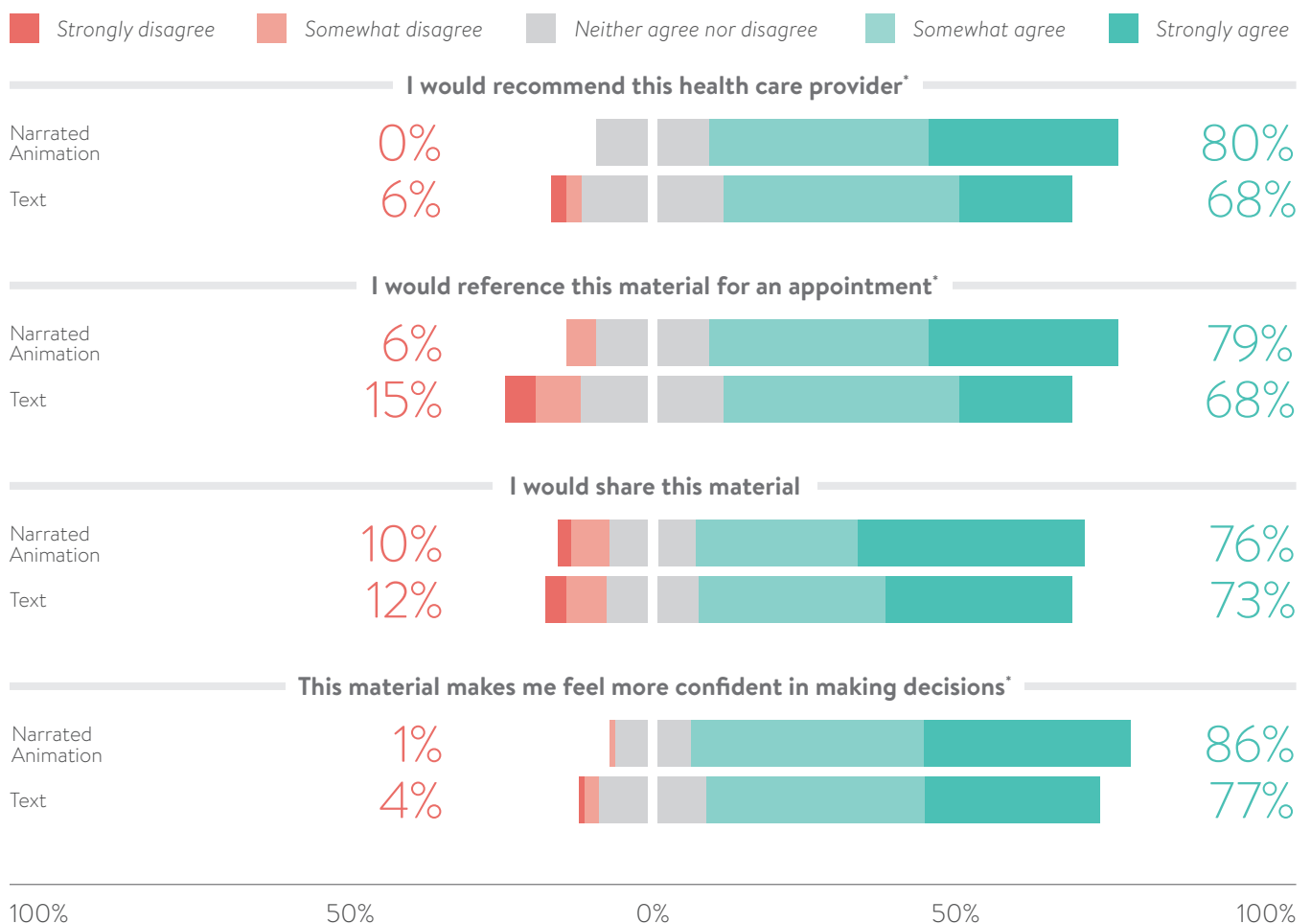
*Narrated animations received significantly higher ratings than text ($p \leq 0.05$) using one-sided MWW test

Intended Behavior and Self-Efficacy

Across both groups, most participants somewhat or strongly agreed with statements about their intended health behaviors based on the educational materials provided (see **Figure 3**, below). A one-sided MWW test indicated that the narrated animation group rated statements on intended health behaviors more positively ($p \leq 0.05$) compared to text-only group. Specifically, the narrated animation group more

strongly agreed with statements recommending the provider, statements about referencing the material for an appointment, and statements about the level of confidence in making decisions about their health compared to the text-only group. No significant differences between the groups were found regarding participants' likelihood to share the material with others.

FIGURE 3: Intended Behavior and Self-Efficacy Based on Narrated Animation versus Text Materials



*Narrated animations received significantly higher ratings than text ($p \leq 0.05$) using one-sided MWW test



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DISCUSSION



96%

of respondents agreed that narrated animations were **engaging and kept their attention**

Discussion

Interpretations of Key Findings

While previous research has assessed the efficacy of various educational materials on comprehension, this study evaluated whether the type of educational material impacts individuals' perceptions, attitudes, and intended health behaviors. The data from this study suggest that the type of educational material can affect individuals' perceived quality of the material, their attitudes toward their provider, and their intended care-seeking behaviors. Narrated animations were rated significantly more positively than the text-only materials for nearly all variables measured.

Implications for Patient Engagement

By utilizing engaging patient education resources, such as the animations used in this study, providers may take the first steps towards an efficient, effective, and comprehensive health care experience for their patients. Merely providing educational materials does not ensure patient comprehension or retention of crucial health information; the patient must first pay attention to the material in order to benefit. Therefore, providing patients with engaging educational resources is the first step towards better patient understanding. This study found that the narrated animation group was more likely to perceive the material as engaging compared to the text-only group, suggesting that animated materials may make it more likely that patients will use and pay attention to the information. Indeed, when asked whether they would reference the material for their doctor appointment, the narrated animation group was more likely to somewhat or strongly agree (78.6%) compared to those in the text-only group (68.1%). By increasing the likelihood that patients will use the information provided to them, narrated animation materials can facilitate shared decision-making, allowing patients to make more informed treatment decisions with their provider.

One potential concern with providing narrated animation could be that the perceived credibility or complexity of the information is compromised in an effort to make the material more engaging. However, this study found that the narrated animation group was more likely to consider the provided materials

to be trustworthy and easy to understand compared to the text-only group. We also found that a higher proportion of the narrated animation group was likely to somewhat or strongly agree with statements that they understood the health topic after consuming the material compared to those in the text-only group. Therefore, narrated animations should be considered over text-only materials to provide a higher-quality (in terms of engagement, credibility, and ease-of-understanding) medium of information for patients.

Impact of Educational Materials on Patient Perceptions

The impact of educational resources has the potential to extend well beyond patient retention and comprehension. For example, the narrated animation group reported that they felt more confident in making health care decisions than the text-only group. Greater confidence in individual decision-making can facilitate shared decision-making between providers and patients across all levels of care, and can potentially impact adherence to health care treatments by empowering patients to take control of their health behavior. Empowering patients in their care decisions through shared decision-making, self-efficacy, and strong patient-provider relationships has been associated with improved treatment adherence (Bauer et al., 2014). Therefore, the type of patient materials provided can play an instrumental part in health care quality and outcomes.

Additionally, survey respondents indicated that their perception of their provider could be impacted by the type educational material provided to them; compared to the text-only group, the narrated animation group was more likely to perceive that a provider would care about their experience. This perceived empathy has clear implications for improving patient-provider relationships and patient satisfaction.

Influence of Educational Material on Intended Behavior

In addition to influencing perceptions of the provider, our findings indicate that the narrated animation group was more likely to say that they would continue to seek treatment with their provider as compared to the text-only group. The narrated animation group was also more likely to recommend a provider that used the corresponding educational materials as compared to the text-only group. As the patient-provider relationship becomes increasingly important, it is crucial to recognize that the type of educational material provided can help or hinder patients' intended behaviors.

Study Design Limitations

Despite randomization and measures to design an objective study, limitations of this study should be considered when interpreting the data. Most importantly, this study intended to simulate a situation where patients were receiving materials from their health care provider. It is unknown whether actual patients diagnosed in a care setting would engage with educational materials in the same way and report the same feelings as our sample. Similarly, it is unknown whether the reported intended behaviors would translate to actual behaviors on behalf of patients. Another primary limitation of this study is the generalizability to a larger population. The MTurk population is younger, more educated, yet has a lower household income (Ipeirotis, 2015) than the general US population, so the generalizability of our findings to a broader, actual care setting, are limited (US Census Bureau, 2015).

As with any survey of human participants, biases are a consideration when interpreting results. Given that MTurk is an online crowd-sourcing platform where participants were compensated for their participation and could self-select into both the survey and health topic, nonprobability sampling is a concern. Acquiescence bias must also be considered when interpreting findings—especially regarding questions about past and intended health behaviors where some answers may be considered more socially desirable than others. Another point of concern is central tendency bias, a product of using the Likert scale. Additionally, as with any behavioral survey, self-reported data and intended behavior lends itself to inaccuracies.

Finally, a key limitation of this study is the lack of a verbal-only method of patient education comparison group. Many health care providers only educate patients through verbal explanations in the exam room and do not provide any take-home educational

materials. The limitations of using an online survey platform hindered our ability to replicate a verbal explanation that might take place in a doctor's office; future studies should explore the impact on this type of education (i.e., verbal-only, lack of take-home materials) on individuals' perceptions and attitudes.

Limitations of Patient Education

Narrated animations are not a panacea for improving health care quality and patient outcomes. Rather, quality patient education materials like animations can complement other aspects of care. For example, the doctor-patient relationship must be cultivated in order to guide the emotional aspects of seeking care, such as anxiety. This study did not find any differences in the type of material on patients' anxiety; however, this may be due to the study's design, where participants were not actually receiving materials in a real care setting.

There are downsides of relying on patient education materials at the cost of full patient care. Research has identified that patients who are overconfident in their care management resist complete and adequate training (Nici, Bontly, ZuWallack, & Gross, 2013). In an era when extensive health information is widely available and people may be trying to save on rising health care costs, it is important that the entire patient experience is considered to improve care quality.

Effective patient education can support patients' ability to confidently manage their health, thereby increasing the likelihood of positive health outcomes. A strong patient-provider relationship, especially one that is patient-centered, is the foundation for improved health outcomes (Beach, Keruly, & Moore, 2006). Future research should continue to seek out the most effective patient education methods in the context of strong patient-provider relationships.

Quality patient education can support patients' ability to confidently and effectively manage their health



CONCLUSION

This study contributes to a growing body of literature surrounding the **value of effective patient education** and its significance for the health care industry; particularly, the impact that the type of educational material could have on patient perceptions of the material's quality, attitudes towards one's provider, and intended health behaviors. Positive perception of his or her provider in part due to the type of material provided can promote responsible care-seeking practices by patients, which in turn could **benefit the patient-provider relationship**, treatment adherence, and patient satisfaction.



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