



Video discharge instructions increase patient understanding for office-based procedures: a randomized controlled study

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Background: Health literacy significantly influences healthcare outcomes, with poor literacy leading to worse quality of life, increased mortality, and higher readmission rates. Recent efforts to improve post-encounter education include structured teach-back methods, patient preference assessments, and standardized discharge instructions. Studies in emergency departments have shown that incorporating video discharge instructions enhances patient understanding and retention of care information. To address the gap in urology, this study aims to evaluate patient comprehension and satisfaction with video discharge instructions following clinic-based vasectomy procedures.

Methods: We performed an Institutional Review Board approved (#H-51614) unblinded randomized controlled study with written consent from each participant. All men undergoing vasectomy from August to September 2022 in our outpatient clinic were included in our study. Patients were randomized to receive either video or written discharge instructions. A standardized questionnaire was administered containing objective comprehension questions regarding the discharge instructions they received. Patients were also queried on their preference of discharge instruction format and subjective Likert-scale of information usefulness and format understandability.

Results: Each cohort contained 11 men. There was no difference in age or educational level between the groups ($P=0.91$, 0.38 , respectively). The video cohort exhibited increased comprehension scores ($P<0.001$). There was no difference between cohorts in ratings of information helpfulness and instruction understandability ($P=0.48$, 0.06 , respectively). Approximately 73% of men in the video group preferred to receive both video and written instructions while 73% patients in the written cohort preferred to receive only written instructions ($P<0.001$).

Conclusions: Use of video discharge instructions significantly improved objective comprehension with similar perceptions of information helpfulness and understandability. Patients who received video discharge instructions were more likely to prefer receiving both written and video instructions than those who received written instructions. Overall, these findings support the utility of video discharge instructions in a urologic setting.

Keywords: Patient discharge; questionnaire; vasectomy; patient education; urology

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Introduction

Health literacy has profound impacts on healthcare outcomes. Poor health literacy impairs quality of life and satisfaction while increasing mortality and readmission rates (1-3). Recent attempts to address this healthcare gap have focused on improving post-encounter education, such as structured teach-back, assessing patient preferences for education, and standardizing discharge instructions (4-6). For patients undergoing procedures, discharge instructions are an especially important component of post-encounter education.

Multiple studies have substantiated the beneficial impact of incorporating video discharge instructions as an adjunct to the standard of care in the emergency department (ED) (7-9). The utilization of such video instructions has been found to result in a significant enhancement of patient comprehension regarding their diagnosis and subsequent treatment regimen (7). One study, conducted in a pediatric ED, revealed that the use of video discharge instructions resulted in a superior level of caregiver knowledge compared to written discharge instructions alone, even up to 2–5 days post-discharge (8).

To date, the literature lacks studies evaluating the efficacy and patient satisfaction with video discharge instructions in the urologic setting. Therefore, we aim to determine the effect of video discharge instructions on patient

comprehension and satisfaction in the setting of clinic-based vasectomy procedures. We present this article in accordance with the CONSORT reporting checklist (available at <https://tau.amegroups.com/article/view/10.21037/tau-24-501/rc>).

Methods

Study design

This study was a single center, randomized controlled pilot study performed at an outpatient urology clinic. The study was conducted between August and September 2022 and was approved by Baylor College of Medicine's Institutional Review Board (Protocol #H-51614). All patients performed signed written consent before enrollment. The study was conducted in accordance with the Declaration of Helsinki (as revised in 2013).

Subject selection

All men undergoing vasectomy in the outpatient clinic during the study period were included. Exclusion criteria included lack of English fluency, blindness, deafness. The vasectomy procedure was chosen due to the high frequency of the procedure in our clinic paired with a relatively high rate of post-operative questions from patients.

Study protocol

A video recording of discharge instructions was created based on the information provided in the current written discharge instructions for vasectomy procedures. Investigators identified patients meeting study criteria based on clinic schedules. This study was designed as a pilot study to generate preliminary data on the effectiveness of video versus written instructions for vasectomy. The study enrolled consecutive patients scheduled for vasectomy at our clinic. This complete consecutive enrollment over a typical clinical month suggests the sample is representative of our standard vasectomy patient population. Patients were screened for exclusion criteria and then consented for study participation. Participants were randomized at a one to one allocation ratio to the experimental arm consisting of video post procedural instructions recorded by the same surgeon or the control arm consisting of written post-procedural instructions based on the day of the month. On even days of the month, patients were given video instructions and on

Highlight box

Key findings

- Compared to traditional written instructions, video discharge instructions after vasectomy significantly improved objective comprehension with similar perceptions of information helpfulness and understandability.

What is known and what is new?

- To date, the literature lacks studies evaluating the efficacy and patient satisfaction with video discharge instructions in the urologic setting.
- Use of video discharge instructions significantly improved objective comprehension without negatively impacting subjective perceptions of information helpfulness and format understandability.

What is the implication, and what should change now?

- These findings support the utility of video discharge instructions in a urologic surgical and office-based procedure setting. To our knowledge, this is the first study assessing and supporting the efficacy of video discharge instructions in a urologic setting.

Table 1 Demographic characteristics of the included patients

Variable	Written (n=11)	Video (n=11)	P
Mean age, years	38.90	39.27	0.91
Primary language	11 (100.0)	11 (100.0)	–
Education			0.38
No GED	1 (9.1)	0 (0)	
GED/high school	2 (18.2)	1 (9.1)	
Bachelor's	2 (18.2)	4 (36.4)	
Masters	3 (27.3)	2 (18.2)	
Doctorate	3 (27.3)	4 (36.4)	
Race			0.57
White	8 (72.7)	8 (72.7)	
Asian	2 (18.2)	2 (18.2)	
Black	1 (9.1)	0 (0)	
Decline	0 (0)	1 (9.1)	

Data are presented as mean or n (%). GED, general educational development.

odd days patients were given written instructions. Patients were instructed to either watch the entire video or read the full written instructions in the room before the procedure. Study personnel was present in the room to confirm that patients adhered to the protocol and to facilitate video watching using a computer. After patients received the post-procedure care instructions, a standardized questionnaire was immediately administered containing objective comprehension questions regarding the discharge instructions they received. Patients were also queried on their preference of discharge instruction format and subjective Likert-scale of information usefulness and format understandability ([Appendix 1](#)). Surveys and questionnaires were graded by one investigator (J.J.S.).

Outcome measures

The primary outcome measure was patient understanding of post procedure care instructions as measured by an 8-question true/false and multiple-choice questionnaire. The survey was created by investigators to test the comprehension and short-term retention of the aspects of post-procedure care that they deemed most important and most frequently mis-understood. All information needed to correctly answer the questions was present in both

the video and written instructions. The total percentage of correctly answered questions was calculated as the patient's understanding score. Two questions (questions 6 and 8) required patients to select all that applied. These were deemed correct only if the patient correctly selected all the right answers without selecting any incorrect answers. Secondary outcomes were patient satisfaction with instruction format, which was analyzed using a subjective Likert-scale, and patient preference for discharge instruction format ([Appendix 1](#)).

Statistical analysis

Two-sample *t*-test was used to determine statistical significance of objective scores. Fisher's exact test was used to determine statistical significance of educational level and subjective scores. Statistical analysis was performed with RStudio.

Results

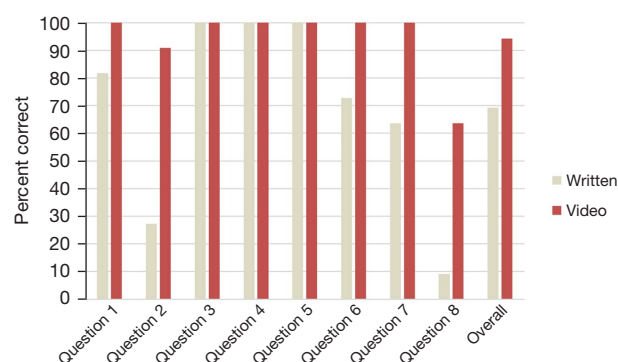
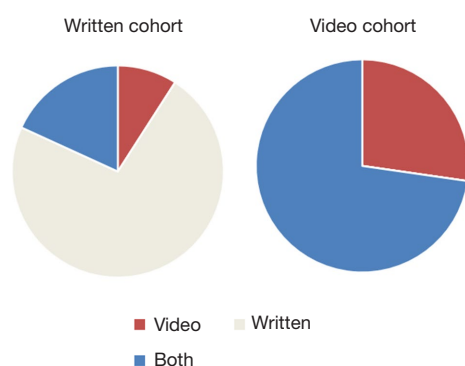
Twenty-two men undergoing vasectomy were approached for participation in the study. All men met inclusion criteria, consented to participation, and completed post-procedure questionnaire. *Table 1* describes the demographic characteristics of the participants. All participants were men. The mean age was 38.90 years in the written discharge instructions group and 39.27 years in the video discharge instructions group ($P=0.91$). All patients spoke English as their primary language. The majority of patients in each group completed a college education: 72% in written group versus 90% in the video group ($P=0.59$). There was no difference in overall education level between the two groups ($P=0.38$). Both groups had a majority of white patients with no significant difference in the racial makeup of the groups.

Patients who received video discharge instructions had significantly higher comprehension scores ($P<0.001$). Overall, they answered 94% of the comprehension questions correctly compared to 69% of the patients who received written instructions (*Table 2*, *Figure 1*). Postoperatively, 36.4% and 18.2% patients in the written and video cohorts, respectively, contacted the clinic for questions previously covered in the discharge instructions ($P=0.36$). The video discharge instructions group rated the instruction as a 4.82 out of 5 in terms of helpfulness compared to 4.27 for the written group ($P=0.36$). Instruction understandability was rated a 4.91 out of 5 for the video cohort compared to a 4.18 for the written instructions group ($P=0.06$). When asked

Table 2 Number of patients correctly answering each comprehension question on post-procedure questionnaire

Question number	Written (n=11)	Video (n=11)
Question 1	9 (81.82)	11 (100.00)
Question 2	3 (27.27)	10 (90.90)
Question 3	11 (100.00)	11 (100.00)
Question 4	11 (100.00)	11 (100.00)
Question 5	11 (100.00)	11 (100.00)
Question 6	8 (72.73)	11 (100.00)
Question 7	7 (63.64)	11 (100.00)
Question 8	1 (9.09)	7 (63.64)

Data are presented as n (%).

**Figure 1** Comparison of patient understanding between written vs. video-based discharge instructions.**Figure 2** Patient preference for video, written or combined discharge instructions by cohort.

about format preferences, there was a significant difference between cohorts: a large majority (72.7%, 8/11) of patients in the video cohort preferred to receive both video and written instructions, while only a small minority (18.2%, 2/11) of patients in the written cohort preferred to receive both formats ($P=0.001$) (Figure 2).

Discussion

Discharge instructions are vital to quality patient care, and patient comprehension is an important correlate of compliance (10). However, multiple factors at the individual and system level impair effective communication of discharge instructions, with one study reporting up to 42% of randomly selected patients reporting receipt of no discharge instructions at all (11,12). Effectively structuring video and written discharge instructions can serve to increase accessibility to information and to establish a uniform baseline from which providers can build upon as needed.

To our knowledge, this is the first study assessing the impact of video discharge instructions on patient comprehension in a urologic setting. We found that while video discharge instructions increase comprehension, both cohorts were equally satisfied with the instruction they received. However, the increase in video discharge instruction understandability when compared to written instructions approached significance, which may have been limited by a small sample size. Interestingly, patients who receive written instructions prefer to receive only written instructions whereas patients who received video instructions prefer to receive instructions in both written and video format. As written instructions are the norm in most medical settings, this suggests that until a patient receives video format discharge instructions, he may be unaware of the benefits of this modality.

Our findings align with previous studies on the application of video discharge instructions. A single-center, randomized controlled study conducted in an ED found that the video format improved comprehension and exhibited higher satisfaction scores compared to standard of care (7). Another study assessed the duration of this effect and found that increased comprehension lasts for up to four weeks after discharge (13). Use of video instructions as a supplemental tool rather than a replacement of other forms

of instruction—namely written and verbal—has also been shown to further improve comprehension (14). This efficacy of video instructions alone and as a supplemental tool aligns with our findings of both increased comprehension with video instructions alone and our experimental cohort indicating a preference to receive both written and video formats.

Current literature on the application of video discharge instructions is largely limited to patients or caregivers who speak English as their first language. Unfortunately, patients with limited English proficiency exhibit poor comprehension of their discharge instructions, even when interpreters are available 24 hours per day (15). This deficit is multifaceted in etiology, including lower level of educational attainment and health literacy, low utilization of interpreter services, and utilization of nonprofessional interpreters including family members or friends. Available literature on efficacy of interpreter use and video discharge instructions provided in non-English languages has thus far exhibited mixed reports on improvements in patient comprehension (16-18). All of our patients reported English as their primary language, and our findings align with previous findings with patients who spoke English as their primary language. Because of our patient demographic, we were unable to assess the efficacy of our instructions on comprehension in patients with limited English proficiency.

The previously described studies are predominantly in ED settings with limited study in surgical settings. Available literature in surgical settings is largely restricted to fields of orthopedic surgery and dermatology (19-21). In orthopedics, video discharge instructions improved both patient comprehension and satisfaction, but no such improvements have been shown in dermatology. However, dermatology patients reported feeling intimidated by healthcare providers and thus indicated a preference for video discharge instructions (21). One urologic study implementing a series of six educational videos for discharge instructions for patients undergoing robotic-assisted radical prostatectomies found that the video instructions significantly reduced rates of delayed discharge but had no effects on patient satisfaction. However, this study did not directly assess patient comprehension of discharge instructions (22). While their patient population was notably older than that of our cohort, our findings are supportive of the utility of video discharge instructions in a urologic setting for younger men given improvements in comprehension and high levels of patient satisfaction.

This study was conducted at a single institution and

enrolled a small sample size. The patients primarily served at our institution and enrolled in this study were predominantly well-educated, English-speaking and white. These factors impair the generalizability of our results, especially to patients with lower education attainment or health literacy and those with limited English proficiency. Further work is needed to validate the use of video discharge instructions in patients' primary languages. Moreover, future trials could expand upon our work by including multiple clinical sites to increase generalizability, a larger sample size, incorporating long-term follow-up to assess retention of instructions, and evaluating whether providing patients with access to both formats improves outcomes given the preference patterns we observed. Additionally, because most patients presenting for vasectomies are younger in age, further study is needed to better understand if our findings are applicable for older patients, especially those undergoing other urologic procedures. Our study assessed immediate recall and comprehension without assessing long-term understanding, but comprehension has previously been shown to be an important predictor of compliance (10). To better evaluate the effects of video instructions on healthcare utilization, further work could assess changes in metrics such as readmission rates, rates of preventable adverse events, or superfluous contacts with the healthcare system for benign or avoidable reasons previously covered in the discharge instructions.

Conclusions

Overall, we found that use of video discharge instructions significantly improved objective comprehension without negatively impacting subjective perceptions of information helpfulness and format understandability. These findings support the utility of video discharge instructions in a urologic surgical and office-based procedure setting. To our knowledge, this is the first study assessing and supporting the efficacy of video discharge instructions in a urologic setting.

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Footnote

Reporting Checklist: The authors have completed the CONSORT reporting checklist. Available at <https://tau>.

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Study Protocol: Available at <https://tau.amegroups.com/article/view/10.21037/tau-24-501/sp>

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Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. The study was conducted between August and September 2022 and was approved by Baylor College of Medicine's Institutional Review Board (Protocol #H-51614). All patients performed signed written consent before enrollment. The study was conducted in accordance with the Declaration of Helsinki (as revised in 2013).

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