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Evaluation of First-Person Storytelling on Changing Health-Related Attitudes, Knowledge, Behaviors, and Outcomes: A Scoping Review

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Storytelling, narrative communication, behavior change, patient education, tailored education, patient testimonials, health literacy

ACRONYMS

FPS – First-person storytelling

RCT – Randomized controlled trial

SES – Socioeconomic status

ABSTRACT

Objectives: First-person storytelling (FPS) has the potential to engage patients in changing behavior differently than didactic education. We assessed the prevalence of FPS in health education interventions; whether published FPS research has shown improvements in attitudinal, knowledge, behavioral, or clinical outcomes; and whether randomized controlled trials (RCTs) including FPS have shown more effectiveness than non-FPS interventions.

Methods: A scoping review of FPS studies published before October 2019 in five medical databases was conducted.

Results: 22 out of 10,363 identified studies met eligibility criteria. FPS has been studied primarily in cancer, diabetes, and hypertension. Of the 12 RCTs, compared to controls, patients receiving FPS interventions improved attitudes (N=6 studies) and knowledge (N=1), improved health behaviors like quitting smoking (N=6), and improved clinical outcomes like lowering A1C levels (N=3). Of the 10 non-RCT studies, compared to baseline assessments, patients who received FPS interventions had improved knowledge (N=1), attitudes (N=3), clinical outcomes (N=4), and improved health behaviors (N=7).

Conclusion: While rarely used, FPS interventions can improve patient health attitudes and outcomes. Future research should expand FPS to new health areas and determine best practices for developing FPS interventions.

Practice Implications: FPS may be particularly effective with low income patients and racial/ethnic minorities.

1. INTRODUCTION

Storytelling, or sharing a personal perspective, is an essential form of human communication and a vehicle for human connection. Human beings are inherently storytelling beings.[1] Stories are one of the fundamental ways we make sense of the world, learn, and understand.

Health education delivery approaches are more likely to take a didactic approach to presenting educational content than using storytelling to engage learners. The didactic approach uses the language of science, statistics, and probabilities to appeal to a person's logic and reason to persuade them to adopt new behaviors, attitudes, or knowledge.[2] While didactic resources are effective with many patient groups[3-7] and learning situations,[4-6] and can change health outcomes,[7, 8] they also face some challenges. Specifically, didactic education is predominantly factual in nature, may be less effective with patients with low health literacy, and may not address fears or other emotional factors necessary to change behavior.[2, 9-11] Additionally, some didactic education programs take a one-size-fits-all approach and fail to tailor information to honor variation in readiness of patients managing the same health condition[12-17] or cultural norms and languages of specific racial/ethnic patient groups.[18-23]

First-person storytelling (FPS), or narratives shared by individuals in their own words, may address some of the limitations of traditional didactic learning approaches.[2] Patients sharing personal stories about their own health can educate, motivate, and reduce fears of others who are similar to them.[24] For example, mothers sharing experiences of giving birth with newly pregnant women can help them have accurate expectations of what will happen, calm them, and become aware of any important warning signs to communicate to medical professionals during labor. Personal health stories provide a unique opportunity for listeners to

learn from someone who looks and speaks like they do [25-27] and who has faced a similar situation. Stories might also be a more accessible way for people with low health literacy or difficulty reading to learn and become engaged.

Although some health educators and researchers are beginning to employ FPS in interventions to change patients' health-related attitudes, knowledge, behaviors, and clinical outcomes, it is unclear how it is being used and whether using FPS does affect change. Thus, we conducted a scoping review of published studies to assess: (1) the prevalence of using FPS in health education interventions; (2) whether published FPS research has shown improvements in attitudinal, knowledge, behavioral, or clinical outcomes; (3) whether randomized controlled trials (RCTs) including FPS in interventions have shown more effectiveness than interventions without FPS.

2. METHODS

We chose to conduct a scoping review because our research questions were broad and encompassed results from a variety of healthcare areas and a variety of study designs. [28] This review follows the six-stage framework of a scoping review proposed by Arksey and O'Malley[29] that has been further enhanced by Levac.[30] The six stages are to: (1) identify the research questions; (2) search for relevant studies; (3) select studies; (4) chart the data; (5) collate, summarize, and report the results; and (6) consult with stakeholders to inform or validate the study findings.[30]

2.1. Inclusion Criteria

To be included, articles had to be published in peer-review journals in English, investigate changes in patient attitudes, knowledge, health-related behaviors, and clinical outcomes after interventions including FPS as at least one component of the entire intervention.

Very specifically, we chose to review studies in which personal stories were shared by a patient with an audience, and the individual or group audience had an opportunity to change their attitude, knowledge, behavior or health outcomes as a result. Stories could be delivered in any form, from in-person sharing, to video or written stories provided.

Articles were excluded if they used stories that were not generated from real-life patients, including fictional narratives, television shows, movies, or telenovelas using actors that were not real patients and interventions targeted to healthcare providers. Non-interventional studies without measurements of change in health outcomes were also excluded. Study design, delivery or methods did not have any bearing on inclusion or exclusion criteria choices.

2.2. Search Strategy

Searches were conducted in five databases, PubMed/MEDLINE, EMBASE, PsycINFO, CINAHL, and ComAbstracts/CIOS for eligible studies published from the earliest date available through October 2019. We searched a wide group of keyword terms related to storytelling, including [storytelling], [entertainment education], [narrative communication], [digital storytelling], and [peer intervention]. Further details about the search terms and strategy are listed in Supplemental Table 1.

The searches of all online databases yielded 10,363 articles (Figure 1). Of these, 10,058 were excluded based on initial review of titles and as duplicates. After articles were culled based on titles and duplicates, two reviewers culled articles based on reading the remaining 305 abstracts and comparing them against our inclusion/exclusion criteria. Finally, two reviewers performed a full text review of the remaining 101 and excluded an additional 79 articles because they used fictional narratives or did not report patient outcomes. Any questions or disagreements about article inclusion were resolved through review and discussion by the research team to

reach consensus on whether to include or exclude the article. Finally, 22 articles were confirmed to have met the inclusion criteria, and full-text review was conducted by the research team. We utilized and completed the PRISMA-ScR checklist.[31]

2.3. Data Extraction

The following information was extracted from all included studies: authors, year of publication, condition or disease area studied, characteristics of the study including description of the FPS content, storyteller, intervention location, audience, and duration, the patient sample, the variables measured, and the impact of the storytelling intervention. (Tables 1 and 2).

3. RESULTS

3.1. Prevalence of FPS in Health Education Interventions

3.1.1. Characteristics of Studies

The FPS studies were conducted in 10 different countries (Table 3).[24, 32-52] The 23 studies included randomized controlled trials (RCT) (n=13), quantitative single group studies (n=3), mixed methods studies (n=1), surveys (n=1), quasi-experimental studies (n=3), observation cohort study (n=1), and a meta-analysis (n=1). The healthcare areas examined included cancer (n=5), diabetes management (n=5), hypertension (n=3), vaccination (n=3), smoking cessation (n=2), HIV/AIDs (n=2), organ donation (n=1), immunology (n=1), and depression (n=1). The interventions had a median duration of 6 months and a range of 1 day to 18 months.

3.1.2. Characteristics of Participants

The number of total participants included in all published studies was 7,465. The mean age of all participants was 32.76 years (with ages of participants, when provided, ranging from 12-85 years). Some studies focused only on specific patient populations including only African

American patients (n=8); women (n=7); Latinx patients (n=1), patients identified as low-income (n=8), patients with a high school education or less (n=9).

3.1.3. Characteristics of Storytelling Methodologies

In examining how the storytelling content was delivered, 13 studies included videos of patients telling their story on camera,[32-39, 43, 44, 49, 51] 3 had storytellers and participants interact together in-person for live storytelling experiences,[24, 47, 48] 4 used television, radio, or other media outlets to share personal stories, [42, 45, 46, 50] and 2 used written stories.[40, 41] All of the RCTs included used previous patients as storytellers in at least one condition. Two RCTs, both in HPV vaccination, compared storytellers, with one RCT comparing expert testimonial versus patient testimonial versus a combination and another study comparing first-person and third-person stories and combinations with statistical evidence.[39, 40] None of the RCTs compared effectiveness of different delivery formats such as print versus video.

3.1.4. Data Collection

Patients either completed written questionnaires [24, 32-36, 38-42, 44-48, 50-52] or were surveyed in-person and by telephone.[37, 43, 49] Six studies also used biometric data such as blood pressure and hemoglobin A1C readings taken by medical providers.[24, 36-38, 47, 48], and one used a web browser to collect usage statistics about how often patients accessed FPS or didactic content.[46]

3.2. Randomized Controlled Studies Using FPS Compared to a Non-FPS Control Group

As shown in Table 1, 12 RCTs found that interventions including FPS were more effective in changing knowledge, attitudes, behaviors, and clinical outcomes than interventions without it.[32-39, 41-43] Of the 9 RCTs that measured changes in health-related behaviors, [32, 34, 35, 37-40, 42, 43] 7 showed a positive change in behaviors like eating more vegetables,

quitting smoking, improved foot care, and getting a vaccine in one or more storytelling arms over patients in control groups. Of the three RCTs that measured specific clinical changes on specific health outcomes like lowering A1C levels or blood pressure, all three showed positive changes compared with controls.[34, 36, 37]

Patients exposed to RCT interventions that included FPS also had greater attitude and knowledge changes consistent with implementing positive health behaviors than those that did not. Of the 6 RCTs that assessed whether FPS had an impact on health-related attitudes such as self-efficacy, empowerment, and risk perception and knowledge,[32-34, 40-42], all 6 showed positive changes compared to patients in control groups. Only two RCTs did not show significant differences in any outcomes between FPS and non-FPS interventions.[32, 38]

3.3. Impact of FPS in non-RCTs

As shown in Table 2, 10 non-RCT studies, compared to their baseline assessments, reported changes to attitudes, knowledge, behaviors, or clinical outcomes for patients who had been exposed to FPS interventions. Of the 8 non-RCT studies that assessed the impact of FPS on health-related behaviors (e.g., eating more vegetables, using salt substitutes, quitting smoking, or improved foot care)[24, 45-50, 52], 7 reported positive health behavior change. All four studies that assessed impact on clinical outcomes (e.g., lowering blood pressure or A1C levels) showed improvements compared to baseline.[47-49, 52]

There was more variation in impact for FPS interventions in changing knowledge and health-related attitudes. Of the 6 non-RCT studies assessing health-related attitudes (e.g. self-efficacy, risk perception, vaccine efficacy) compared to baseline,[24, 44, 47-49, 51], only half (N=3) showed improvements in improving attitudes like diabetes management self-efficacy, or

perception of cancer risk. Of the two non-RCT studies assessing health-related knowledge, only one showed improvements over baseline.[44, 51]

3.4. Impact of FPS for Patients of Racial or Ethnic Minorities, Low Income, and High School Education or Less Subgroups

FPS was sometimes targeted to impact attitudes, knowledge, behaviors or clinical outcomes for patients of racial and ethnic minority groups, of low income, and with high school education or less. Nearly half (n=5) of the RCTs found assessed the use of FPS with racial or ethnic minority groups.[32, 33, 35, 36, 38]. Of these studies, 4 of the 5 RCTs showed positive changes over control groups for at least one of the measured outcomes (attitudes, knowledge, behavior, clinical outcomes)[32, 33, 35, 36] Nearly half of the non-RCT studies explored the use of FPS to change attitudes, knowledge, behaviors, and health outcomes for specific racial and ethnic minority groups,[24, 47-49] and all reported positive impact compared to baseline.

Of the 12 RCTs, 5 assessed the use of FPS with low-income patients[32, 33, 35, 36, 38] and 4 assessed FPS with patients with only a high school (HS) education or less.[33, 35, 38] Of these 4 assessing FPS with low-income patients and 4 assessing FPS for lower education level patients showed positive impact over control groups for at least one of the measured outcomes. Of the 10 non-RCT studies, 3 assessed impact of FPS interventions compared to baseline assessments for low-income patients,[24, 47, 49] and 5 studies assessed impact for patients with only a HS education or less.[24, 44, 47-49] Of these, all showed improvements over baseline.

4. DISCUSSION AND CONCLUSION

4.1. Discussion

4.1.1. General Discussion

First person storytelling (FPS) from previous patients who have faced or overcome real-life health challenges has the potential to engage patients in different ways than traditional didactic education. Multiple theories, including Narrative Communication Theory[26, 53-55], Exemplification Theory[39] and Social Cognitive Theory [56, 57] illustrate how FPS may influence decision-making and action. Narrative Communication Theory posits that stories are effective because they transport the audience,[26, 53-55] allow the viewer to identify with the storyteller,[58, 59] and perceive the story to be real and authentic[60, 61]. As proposed by exemplification theory, the listener believes they can make the same change as the protagonist because the behavior has been modeled for them as an example. Through Social Cognitive Theory, the constructs of modeling and vicarious learning are applied to help the listener essentially hear how someone else did or coped with something, and the consequences—good or bad—of those actions.[56, 57]

After assessing how commonly FPS is being used in health education intervention studies and whether FPS interventions are more likely to show improvements in attitudinal, knowledge, behavioral, or clinical outcomes, we found that many interventions that assessed FPS were significantly more effective in changing most outcomes compared to a standard of care or didactic intervention. Specifically, interventions involving FPS were significantly more effective at increasing adherence, making dietary improvements, and reducing smoking, with some even improving actual clinical outcomes such as A1C levels. However, this review also revealed the need for more comprehensive study of how best to optimize the use and delivery of FPS in interventions within discrete health areas. Finally, this review also revealed promise for FPS to be particularly helpful for racial/ethnic minorities and low-income/low education level populations that tend to have lower health literacy.

The earliest study we found incorporating FPS was published in 2007, and application of FPS is still very limited. Although our searches across five databases yielded more than 10,000 studies, only 22 published studies had applied FPS within patient education interventions, and only 12 RCTs tested the effectiveness of FPS in changing patient outcomes. To-date, only a few researchers (Hopfer et al., Houston et al., Kreuter et al., and McQueen et al.) have studied the impact of storytelling in multiple studies of a single health behavior.[32, 33, 36, 39]

The specificity of terminology also varies, with terms including storytelling, narrative, narrative medicine, digital storytelling and edutainment all used, sometimes interchangeably. Lack of systematic and well-defined terms required a much larger initial search for literature to ensure completeness. For example, “storytelling” and “narrative” were used interchangeably by some researchers, but not others. Alignment around common terminology and measurement of storytelling methods in a more consistent way may allow expansion of the application of FPS in new health areas. For this review, we specifically wanted to explore the use of stories told by one patient to another or a group to elicit a change in health-related attitudes, knowledge, behaviors, and clinical outcomes. Through our search process, we settled on the term “first-person storytelling” (FPS) to create greater specificity and the term “storytelling” versus “narrative” or “stories” to align with common terminology used in existing storytelling theories [62].

4.1.2. Benefits to Specific Patient Populations

As shown in this review, FPS may be particularly effective with patients who tend to have low health literacy due to low SES, and/or with racial/ethnic minority groups. Low-income, minority, English as a Second Language (ESL) patients experience the highest level of disparity in access to health education of all at-risk groups.[63, 64] FPS may help reach patients who have difficulty reading and understanding complex health information due to low health literacy or

lack of English language skills.[65] A number of studies, including RCTs, showed a trend that FPS had a positive impact on improving outcomes for ethnic/racial minorities or those with low health literacy, low SES or higher degrees of medical mistrust.[24, 32, 33, 35, 36, 38, 45, 47-49]. For example, Kreuter et al., found that a narrative video of first-hand stories from African American breast cancer survivors compared with standard education was effective specifically for women in the intervention group who had less than a high school education or who reported higher medical mistrust at baseline.[32] In Andrews et al.'s study on smoking cessation for low-income African American women, researchers found that the multi-component program including FPS improved smoking cessation self-efficacy and increased smoking cessation.[24] This research shows promise that FPS may help providers educate low SES patients and patients with lower health literacy, since SES is an indicator of health literacy.[66]

Wieland et al. studied the use of 12-minute culturally and linguistically tailored videos including 4 individual patient stories on Latino and Somali patients to improve their diabetes management. They found that, post-intervention, patients showed trends to increased diabetes self-management efficacy, increased intentions to manage diabetes, and, ultimately, a trend in decreased A1C levels.[49] These findings are promising; however, considering the significant barriers that Latinx patients, especially Latinx patients who primarily speak Spanish, face in accessing healthcare and health education,[67] much more research needs to be conducted to assess both the appropriateness and effectiveness of FPS for Latinx and Spanish-speaking patients. While FPS had a positive impact among certain special populations—those with low SES, African Americans for smoking cessation, and Latinx for diabetes self-management — future research must focus on which groups FPS is most effective at engaging, why, and in what format.

4.1.2. Strengths and Limitations

This scoping review reviewed studies published using a general set of search terms across multiple databases, allowing us to capture the different ways that FPS is defined and utilized in health education studies. We utilized Arksey and O'Malley's model for a scoping review and the PRISMA-ScR checklist.[29, 31] Finally, we reviewed studies encompassing a broad range of health behaviors published in any year to understand the full value of FPS across different healthcare areas.

While we attempted to be comprehensive in our review, it is possible that our review missed some relevant studies due to the broad scope of the search strategy. Since a closed set of keywords was not possible, we used an open set to ensure that when new terminologies were identified, they could be used to find papers meeting the eligibility criteria. While a systematic review would have allowed an exhaustive and comprehensive mapping of studies, our aims required the parameters of a scoping review to strike a balance between the breadth of studies and depth of analysis.

Other limitations of the study included the inability to assess the unique value of FPS alone versus in combination with other components of interventions and difficulty comparing different types of FPS delivery approaches against each other. Future research will need to study this.

4.1.3. Recommendations for Future Research

In addition to continued research on the use of FPS for racial and ethnic minority patients, for patients of low health literacy and low SES, research is needed to compare the effectiveness of different modes of educational delivery (e.g., video versus face-to-face storytelling), and types of story content (e.g., FPS versus fictionalized stories or FPS versus 3rd

person narratives) for all audiences. Future studies should also explore the effects of “dose-response”[68] to see if multiple exposures to FPS might reveal if there is an ideal number of times we need to expose audiences to educational stories before they reach maximum impact.

Furthermore, only one of the included studies explored how FPS may be beneficial for patients in different stages of readiness as outlined in Prochaska’s Transtheoretical Model of Behavioral Change (TTM).[69] Future research should explore the impact and effect of FPS on advancing a patient’s stage of readiness to take small steps toward healthy behaviors and ultimately to positively change health-related behaviors.

This review also revealed the potential for using FPS in mass communication campaigns to educate and inspire large audiences across geographic regions to change their behavior.[45] Specifically, population health interventions in areas like weight loss and living kidney donation may benefit from inclusion of FPS. Also, considering the rise of the use of telenovelas as edutainment for health,[70, 71] comparisons of FPS with dramatized, fictional stories may be beneficial. Finally, exploration of how stories can be captured and shared in a cost-effective way using new storytelling technologies such as mobile or web-based applications may be valuable.[72]

4.2. Conclusion

Utilizing FPS in health education interventions is not yet commonplace. Determining how best to implement FPS is crucial, since sharing the authentic experiences of people who have faced similar health challenges may be a key tool in reducing resistance and counterarguing while allowing patients’ unique identities, cultures, and situations to be honored. The results of this scoping review suggest that using FPS as part of a patient education intervention has the capacity to help improve patient behaviors and clinical outcomes and should be further

examined, particularly as to whether it can help reduce or address important disparities affecting health.

4.3. Practice Implications

Providers applying FPS methodologies to their own interventions or practice should consider using FPS in situations with racial/ethnic minorities, with patient groups with lower health literacy and low SES, and consider including FPS in addition to didactic information in future interventions.

Declaration of Interest

All authors declare that they have no competing interests.

Contributors

All authors read and approved the final manuscript, and all authors made intellectual contributions to the design of the review. AFL, WB, and EHW conducted the literature search, and AFL and EHW narrowed the results based on the inclusion/exclusion criteria. AFL and EHW conducted initial full-text readings, and AFL conducted validation using the PRISMA-ScR. AFL, EHW, and AW completed the analysis of data. All authors contributed to the interpretation of the data and drafting and revision of the manuscript.

Authorship

All authors have made substantial contributions to all the following: (1) the conception and design of the study, or acquisition of data, or analysis and interpretation of data, (2) drafting the article or revising it critically for important intellectual content, (3) final approval of the version to be submitted.

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Table 1 Impact of Storytelling in Randomized Controlled Trials
(See attached.)

Table 2 Impact of Storytelling in Non-Randomized Studies
(See attached.)

Table 3 Study Characteristics

Country and Number of Studies	
Country	Number of Studies
United States of America	14
Australia	1
Columbia	1
Italy	1
Korea	1
Nigeria	1
South Africa	1
United Kingdom	1
Vietnam	1
Healthcare Areas	
Cancer	5
Diabetes Management	4
Hypertension	3
Smoking Cessation	2
Vaccination	3
HIV/AIDs	2
Organ Donation	1
Immunology	1
Depression	1
Participant Characteristics	
Total Sample	7,465
Mean Age	32.76

Supplemental Table 1. Search Terms and Strategy
(see attached)

Table 1

Table 1. Impact of <u>FPS</u> in Randomized Controlled Trials (RCTs)					
Condition / Disease Area	First-Person Storytelling Study Characteristics	Patient Sample	Variables Measured	Impact of <u>FPS</u> Intervention + positive impact of intervention compared to control - negative impact of intervention compared to control 0 no impact of intervention compared to control	First Author and Year
Breast Cancer	<i>Description:</i> narrative video of first-hand stories from African American breast cancer survivors vs. informational video using more expository and didactic approaches <i>Storyteller:</i> Previous breast cancer patients <i>Intervention Location:</i> Clinical/public setting <i>Audience:</i> Individual <i>Duration:</i> 6 months	<i>Patient Sample:</i> n=489 <i>Description:</i> African American women; majority of participants were low-income	Attitudes: Level of counterarguing, perception of barriers to mammography, and confidence in mammograms to detect cancer Behaviors: Discussions with family about getting a mammography, mammography rates	+ Pro-mammography attitudes + Family discussions about mammography 0 Mammography Rates overall + Mammography rates for women in the intervention group who had less than a high school education or who reported higher medical mistrust at baseline	Kreuter, M. W. et al., 2010 [32]
Breast Cancer	<i>Description:</i> Narrative video of personal stories from African American breast cancer survivors vs. a didactic video <i>Storyteller:</i> Previous breast cancer patients <i>Intervention Location:</i> Clinical/public setting <i>Audience:</i> Individual <i>Duration:</i> same day, 3 months, 6 months follow up	<i>Patient Sample:</i> n=489 <i>Description:</i> African American women; majority of patients were low-income and reported only HS education or less	Attitudes: Counterarguing, risk perception, fear of cancer	+ (Decrease) Counterarguing + Risk perception + Fears of cancer	McQueen, A. et al., 2011 [33]
Diabetes Management	<i>Description:</i> printed diabetes factsheets with a DVD narrative stories from patients with type 2 diabetes and their families telling their stories of how they learned to manage type 2 diabetes vs. factsheets only. <i>Storyteller:</i> Previous diabetes patients <i>Intervention Location:</i> At home <i>Audience:</i> Individual <i>Duration:</i> 6 months	<i>Patient Sample:</i> n=598 <i>Description:</i> Patients with diabetes	Attitudes: Diabetes-related self-efficacy Behaviors: Self-care behaviors including diet, exercise, and foot care Clinical Outcomes: Change in blood glucose	+ Diabetes-related self-efficacy + Self-care behaviors + Blood glucose control	Campbell, T. et al., 2015 [34]
Hypertension	<i>Description:</i> digital stories on DVD of African American veterans telling their stories about learning to successfully control their BP vs. informative only videos <i>Storyteller:</i> Previous hypertension patients <i>Intervention Location:</i> Clinical/public setting <i>Audience:</i> Individual <i>Duration:</i> less than 6 months	<i>Sample size:</i> n=618 <i>Description:</i> African American patients with hypertension; majority of patients were low-income and reported only HS education or less	Behaviors: Get more exercise, use salt substitutes, talk with their doctor, and take hypertension medication	+ More exercise + Use of salt substitutes + Talking with doctors + Hypertension medication adherence	Bokhour, B. G. et al., 2016 [35]

Hypertension	<i>Description:</i> a series of 3 DVDs containing first-person stories from patients with controlled and uncontrolled hypertension vs. attention control DVD of health information not related to hypertension <i>Storyteller:</i> Previous hypertension patients <i>Intervention Location:</i> At home <i>Audience:</i> Individual <i>Duration:</i> 6 months	<i>Patient Sample:</i> n=230 <i>Description:</i> African Americans; majority of patients were low-income	Clinical Outcomes: Change in blood pressure	+ Controlling blood pressure for patients with baseline uncontrolled hypertension 0 Controlling blood pressure for patients with baseline controlled hypertension	Houston, T. K. et al., 2011 [36]
Hypertension	<i>Description:</i> first-person patient stories on the importance of healthy lifestyle behaviors to help with hypertension management compared to didactic content on DVD <i>Storyteller:</i> Previous hypertension patients <i>Intervention Location:</i> Clinical/public setting <i>Audience:</i> Individual <i>Duration:</i> 3 months	<i>Patient Sample:</i> n=160 <i>Description:</i> men and women with hypertension from four communes in Vietnam	Behaviors: Smoking cessation, drinking less alcohol, participation in physical activity, using salt substitutes Clinical Outcomes: Improvements in mean systolic blood pressure	+ Smoking cessation + Drinking less alcohol + Physical activity + Using salt substitutes + Improvements on mean systolic blood pressure	Nguyen, H. L. et al., 2018 [37]
Smoking Cessation	<i>Description:</i> DVD with stories from former and current smokers discussing their stories of smoking cessation; each story concludes with a "Learn More" didactic video segment vs. standard of care <i>Storyteller:</i> Previous patients <i>Intervention Location:</i> Clinical/public setting and at home <i>Audience:</i> Individual <i>Duration:</i> 6 months	<i>Patient Sample:</i> n=300 <i>Description:</i> Low-income African American patients; majority of patients were low-income and reported only HS education or less	Behaviors: Smoking cessation	0 smoking cessation	Cherrington, A. et al., 2015 [38]
HPV Vaccination	<i>Description:</i> Videos including stories from peers alone, peers and experts combined, and experts alone (four RCT groups) vs. three control groups (an information video without stories, a campus website, and no message) <i>Storyteller:</i> Doctors and previous patients <i>Intervention Location:</i> Clinical/public setting <i>Audience:</i> Individual <i>Duration:</i> 2 months	<i>Patient Sample:</i> 404 <i>Description:</i> 18-26-year-old women	Behaviors: HPV vaccination uptake	0 Vaccination rates for peer stories + Vaccination rates for peer-expert combined narrative intervention 0 Vaccination rates for expert only stories	Hopfer, S. et al., 2012 [39]
HPV Vaccination	<i>Description:</i> 5 conditions of HPV messages in print: statistical, first-person narrative, third-person narrative, statistical first-person narrative hybrid, or statistical third-person narrative hybrid <i>Storyteller:</i> Previous patients <i>Intervention Location:</i> Clinical/public setting <i>Audience:</i> Individual <i>Duration:</i> 1 day	<i>Patient Sample:</i> 174 <i>Description:</i> Undergraduate students who had never received the HPV vaccine	Attitudes: HPV risk perception Behaviors: Intention to obtain HPV vaccine	+ HPV risk perception for hybrid of both narrative conditions + HPV risk perception for 1 st person narrative vs. 3 rd person (alone and hybrid) + Intention to get HPV vaccination at no cost for 1 st and 3 rd person narrative conditions + Intention to get HPV vaccination at no cost for 1 st	Nan, X., et al., 2015 [40]

				person vs. 3 rd person 0 Intention to get HPV vaccination at cost for either narrative condition	
Influenza Vaccination	<i>Description:</i> Narrative messages from people who had been touched by influenza and who got the vaccine vs. didactic messages and vs. no message <i>Storyteller:</i> Previous patients <i>Intervention Location:</i> Clinical/public setting <i>Audience:</i> Individual <i>Duration:</i> 1 day	<i>Patient Sample:</i> 311 <i>Description:</i> Italian people aged 65 years or older contacted through a web survey list	Attitudes: Efficacy perception of influenza vaccine, risk perception of getting influenza Behaviors: Intention to get vaccinated	+ Efficacy perception of vaccine + Risk perception of getting influenza 0 Intention to get vaccinated	Prati, G. et al., 2012 [41]
HIV/AIDS	<i>Description:</i> school children received rational-emotive education, based on the principles and practice of REBT theory, with videos about individuals with HIV/AIDS from social media platforms such as YouTube and Facebook to provide relevant digital stories, along with mental health lessons about HIV/AIDS transmission and its signs and symptoms, prevention, and management strategies vs. waitlisted control group <i>Storyteller:</i> Previous HIV/AIDS patients who chose to share their story via social media <i>Intervention Location:</i> Clinical/public setting <i>Audience:</i> Group <i>Duration:</i> 8 weeks	<i>Patient Sample:</i> n=80 <i>Description:</i> junior secondary school children in Enugu State, Nigeria	Attitudes: HIV risk perception Knowledge: HIV knowledge as based on the HIV-KQ-18, which includes questions about how HIV is spread, how to prevent HIV, and signs/symptoms of HIV	+ Perceived risk of HIV + Knowledge about HIV	Ezegbe, B. et al. 2018 [42]
Immunology	<i>Description:</i> 13-minute DVD that included patient stories related to their experiences with NSAIDs, adverse effects and importance of communication with their physicians vs. SOC only <i>Storyteller:</i> Previous patient stories about NSAID use <i>Intervention Location:</i> Clinical/public setting <i>Audience:</i> Individual <i>Duration:</i> 1 day	<i>Patient Sample:</i> n=208 <i>Description:</i> Patients taking prescription NSAIDs	Behaviors: Speaking with their physician about prescription NSAID risk	0 Speaking with physician about prescription NSAID use in intent-to-treat analysis + Speaking with physician about prescription NSAID use in per-protocol analysis	Miller, M.J. et al., 2016 [43]
<u>Table Label Definitions:</u> <u>Condition / Disease Area:</u> area of healthcare studied, or specific disease area studied in the publication <u>First-Person Storytelling Study Characteristics:</u> as broken down by the following sublabels: <u>Description:</u> intervention summary <u>Storyteller:</u> Who is the person telling the story to the participant group. <u>Intervention Location:</u> How and where the intervention was delivered to patients <u>Audience:</u> Was this delivered to a group or individually? <u>Duration:</u> length of intervention					

Patient Sample: number of patients in study

Patient Description: summary of patient demographic characteristics as relevant to the study

Variables Measured: Which of the variables (knowledge, attitudes, behaviors, clinical outcomes) were assessed

Impact of FPS Intervention: Whether there was a positive, negative, or no change in the variables measured

First Author and Year: Last name of the first author and year of the publication

Table 2

Table 2. Impact of <u>FPS</u> in Non-randomized Studies						
Condition / Disease Area	Study Design	First-Person Storytelling Study Characteristics	Patient Sample	Variables Measured	Impact of <u>FPS</u> + Positive change from baseline - Negative change from baseline 0 No change from baseline	First Author and Year
Cervical Cancer	Single Group Study	<i>Description:</i> patient testimonial video vs. a <i>fotonovela</i> (printed short story) <i>Storyteller:</i> Previous patients with abnormal pap smears <i>Intervention Location:</i> Clinical/public setting <i>Audience:</i> Individual <i>Duration:</i> 1 day	<i>Patient Sample:</i> n=100 <i>Description:</i> Women; majority of patients reported only HS education or less	Attitudes: Postintervention Transtheoretical Model Stage of Change Knowledge, perception of risk Knowledge: Is HPV treatable, preventable, does it cause death, what causes HPV, who can get HPV, symptoms	0 TTM Stage of Change 0 Risk perception + HPV knowledge	Lamb, R. L. B. et al., 2018 [44]
Cervical Cancer	Omnibus Survey Using Random Location Sampling	<i>Description:</i> hearing, reading, or watching news related to U.K. celebrity Jade Goody's story regarding her diagnosis with and death from cervical cancer <i>Storyteller:</i> UK Celebrity Jade Goody <i>Intervention Location:</i> Clinical/public setting or at home <i>Audience:</i> Individual or group <i>Duration:</i> 18 months	<i>Patient Sample:</i> n=890 <i>Description:</i> Women in the UK	Behaviors: Attending a cervical cancer screening appointment	+ Screening rates for cervical cancer + Screening rates for cervical cancer specifically for women lower socioeconomic groups	Marlow, L. A. et al., 2012 [45]
Breast Cancer	Meta-analysis	<i>Description:</i> eHealth Program CHES (Comprehensive Health Enhancement Support System that contains didactic and narrative medical, practical and psychosocial info) <i>Storyteller:</i> Previous breast cancer patients <i>Intervention Location:</i> At home <i>Audience:</i> Individual <i>Duration:</i> 4 months	<i>Patient Sample:</i> n=353 <i>Description:</i> Women	Behaviors: Healthcare participation such as in treatment decision-making and adherence, follow-up screening, and effective self-care	+ Healthcare participation activities	Wise, M. et al., 2008 [46]
Diabetes Management	Observational Cohort Study	<i>Description:</i> Group class intervention incorporating storytelling among participants <i>Storyteller:</i> Study participants <i>Intervention Location:</i> Clinical/public setting <i>Audience:</i> group <i>Duration:</i> program completion, 3 months, 6 months follow-up	<i>Patient Sample:</i> n=21 <i>Description:</i> African Americans; majority of patients were low-income and reported only HS education or less	Attitudes: Diabetes self-efficacy. Behaviors: Self-care behaviors, self-glucose monitoring, and foot care Clinical Outcomes: Hemoglobin A1c and HDL cholesterol.	+ Diabetes self-efficacy + Self-care behaviors + Self-glucose monitoring + Foot care + (Decrease) in hemoglobin A1c + (Decrease) in HDL cholesterol	Peek, M. E. et al., 2012 [47]
Diabetes Management	Quasi-Experiment	<i>Description:</i> group diabetes self-management (DSME) including	<i>Patient Sample:</i> n=21 <i>Description:</i> African	Attitudes: Empowerment Behaviors: Self-care activities	0 Empowerment + Self-care behaviors	Utz, S.W. et al. 2008 [48]

nt	tal	storytelling, hands-on activities, and problem-solving exercises vs. individual DSME sessions focused on goal-setting and problem-solving strategies <i>Storyteller:</i> Study participants <i>Intervention Location:</i> Clinical/public setting <i>Audience:</i> Individual or group <i>Duration:</i> 10 weeks	Americans; majority of patients reported only HS education or less	such as foot care, diet, and exercise Clinical Outcomes: A1C levels	+ Change in A1C levels	
Diabetes Management	Single Group Study	<i>Description:</i> 12-minute culturally and linguistically tailored videos including 4 individual patient stories <i>Storyteller:</i> Previous patients with type 2 diabetes <i>Intervention Location:</i> Clinical/public setting <i>Audience:</i> Individual <i>Duration:</i> 6 months	<i>Patient Sample:</i> n=25 <i>Description:</i> Latino/Somali with type 2 diabetes; majority of patients were low-income and reported only HS education or less	Attitudes: Diabetes management self-efficacy Behaviors: Intention to change self-management behaviors. Clinical Outcomes: A1C level	+ Diabetes self-management + Intention to change self-management behaviors + Change in A1C levels	Wieland, M. L. et al., 2017 [49]
Smoking Cessation	Quasi-Experimental	<i>Description:</i> written materials, incentives and food, kinships, collectivism, storytelling, spiritual expressions, nicotine replacement therapy vs. written self-help materials and 4 group classes <i>Storyteller:</i> Study participants <i>Intervention Location:</i> Clinical/public setting <i>Audience:</i> Group <i>Duration:</i> 6 months	<i>Patient Sample:</i> n=103 <i>Description:</i> low-income African American women; majority of patients were low-income and reported only HS education or less	Attitudes: Smoking cessation self-efficacy Behaviors: Smoking cessation	+ Smoking cessation self-efficacy + Smoking cessation	Andrews, J.O. et al., 2007 [24]
Organ Donation	Single Group Study	<i>Description:</i> an education-entertainment (E-E) TV program "Open Your Eyes" (talk show format, featuring interviews with organ donation recipients, family members, donors) <i>Storyteller:</i> Previous organ donation recipients, family members, donors <i>Intervention Location:</i> Clinical/public setting <i>Audience:</i> Group <i>Duration:</i> 2 days	<i>Patient Sample:</i> n=183 <i>Description:</i> College students	Behaviors: Intention or likelihood to donate an organ	+ Intention to donate an organ	Byoung Kwan, L. et al., 2010 [50]
HIV/AIDS	Mixed Methods	<i>Description:</i> 151 screenings of 20 curated digital stories, created by patients, at seven local health facilities; five focus groups of 10 people discussions and observation of practice; post-survey of people who had and hadn't seen the videos <i>Storyteller:</i> Previous HIV patients	<i>Patient Sample:</i> n=1797 <i>Description:</i> HIV patients	Attitudes: Hope regarding antiretroviral therapy (ART) Knowledge: ART knowledge such as whether it cures HIV or not, does it prolong someone's life, does it help regain health, allow one to return to work or raise a family	+ Hope regarding ART 0 ART knowledge	Treffry-Goatley, A. et al., 2018 [51]

		<i>Intervention Location:</i> Clinical/public setting <i>Audience:</i> Group <i>Duration:</i> 1 day				
Depression	Quasi-Experimental	<i>Description:</i> LifeStories: videos of real patients describing their use of coping strategies for depression based on Acceptance and Commitment Therapy <i>Storyteller:</i> Previous depression patients <i>Intervention Location:</i> At home and Clinical/public setting <i>Audience:</i> Individual <i>Duration:</i> 8 weeks	<i>Patient Sample:</i> n=11 <i>Description:</i> depression patients	Behaviors: acceptance, mindfulness, values, and behavioral activation Clinical Outcomes: depressive symptoms	0 Acceptance 0 Mindfulness 0 Values 0 Behavioral Activation + (Decrease) Depressive symptoms	Gaudino, B., et al., 2019 [52]

Table Label Definitions:
Condition / Disease Area: area of healthcare studied, or specific disease area studied in the publication
Study Design: what methods were used to study the intervention proposed?
First-Person Storytelling Study Characteristics: as broken down by the following sublabels:
Description: intervention summary
Storyteller: Who is the person telling the story to the participant group.
Intervention Location: How and where the intervention was delivered to patients
Audience: Was this delivered to a group or individually?
Duration: length of intervention
Patient Sample: number of patients in study
Patient Description: summary of patient demographic characteristics as relevant to the study
Variables Measured: Which of the variables (knowledge, attitudes, behaviors, clinical outcomes) were assessed
Impact of Stories: Whether there was a positive, negative, or no change in the variables measured
First Author and Year: Last name of the first author and year of the publication

Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	1
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	3
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	4-5
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	5
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	NA
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	5-6
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	6
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	6
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	5-6
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	6
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	6
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	6-7
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	6-7

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	7
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	7
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	NA
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	7
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	8-10
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	11
Limitations	20	Discuss the limitations of the scoping review process.	14
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	15
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	16

JB1 = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. *Ann Intern Med*. 2018;169:467–473. doi: 10.7326/M18-0850.

Supplemental Table 1. Search Strategy	
Database	Search strategy
PubMed	storytelling[All Fields] AND ("health education"[MeSH Terms] OR ("health"[All Fields] AND "education"[All Fields]) OR "health education"[All Fields])
PubMed	“entertainment education” [All Fields]
PubMed	“narrative communication” [All Fields]
PubMed	“digital storytelling” [All fields]
PubMed	“peer intervention” [All Fields]
PubMed	Storytelling [All Fields]
EMBASE	“entertainment education” [All Fields]
EMBASE	“narrative communication” [All Fields]
EMBASE	“digital storytelling” [All fields]
EMBASE	“peer intervention” [All Fields]
EMBASE	Storytelling [All Fields]
EMBASE	Storytelling [all fields] AND 'patient education' [embase exp]
EMBASE PICO search	(('storytelling'/exp OR 'narrative'/exp) AND ('patient education'/exp OR 'education, patient' OR 'patient education' OR 'patient education as topic' OR 'patient medication knowledge') AND ('education'/exp OR education OR 'baccalaureate education' OR 'child education' OR 'college admission test' OR 'education' OR 'education service' OR 'education, distance' OR 'education, nonprofessional' OR 'education, pharmacy' OR 'education, pharmacy, continuing' OR 'education, pharmacy, graduate' OR 'education, special' OR 'education, veterinary' OR 'educational measurement' OR 'intellectual training' OR 'internship, nonmedical' OR 'perceptorship' OR 'pharmacy residencies' OR 'preceptorship' OR 'school admission criteria' OR 'self-evaluation programmes' OR 'self-evaluation programs' OR 'training support' OR 'attitude'/exp OR attitude OR 'knowledge'/exp OR knowledge OR 'behavior'/exp OR behavior OR 'behavior' OR 'behavior and behavior mechanisms' OR 'behavior development' OR 'behavior facilitation' OR 'behavior pattern' OR 'behavior variable' OR 'behavioral activity' OR 'behavioral characteristic' OR 'behavioral response' OR 'behavioral specificity' OR 'behavioral symptoms' OR 'behavioral variable' OR 'behaviour' OR 'behaviour and behavior mechanisms' OR 'behaviour development' OR 'behaviour facilitation' OR 'behaviour pattern' OR 'behaviour variable' OR 'behavioural activity' OR 'behavioural characteristic' OR 'behavioural response' OR 'behavioural specificity' OR 'behavioural symptoms' OR 'behavioural variable' OR 'human behavior' OR 'human behaviour' OR 'intention' OR 'manual

	behavior' OR 'manual behaviour' OR 'marking behavior' OR 'marking behaviour' OR 'multitasking behavior' OR 'power (psychology)' OR 'psychological and psychiatric phenomena' OR 'psychological and psychosocial phenomena' OR 'refractory behavior' OR 'refractory behaviour' OR 'schedule controlled behavior' OR 'schedule controlled behaviour')
Advanced EMBASE search	('storytelling'/exp OR 'storytelling') AND ('health education'/exp OR 'health education') AND [article]/lim AND [humans]/lim AND ([embase]/lim OR [medline]/lim OR [embase classic]/lim OR [pubmed-not-medline]/lim)
PsycINFO	“entertainment education” [All Fields] limited to peer-reviewed journals
PsycINFO	“narrative communication” [All Fields] limited to peer-reviewed journals
PsycINFO	“digital storytelling” [All fields] limited to peer-reviewed journals
PsycINFO	“peer intervention” [All Fields] limited to peer-reviewed journals
PsycINFO	Storytelling [All Fields] AND patient [All fields] limited to peer-reviewed journals
PsycINFO	storytelling [All fields] AND education [All fields] limited to peer-reviewed journals and journal articles
CINAHL	“entertainment education” [All Fields] limited to peer-reviewed journals
CINAHL	“narrative communication” [All Fields] limited to peer-reviewed journals
CINAHL	“digital storytelling” [All fields] limited to peer-reviewed journals
CINAHL	“peer intervention” [All Fields] limited to peer-reviewed journals
CINAHL	Storytelling [All Fields] AND patient [All fields] limited to peer-reviewed journals excluding MEDLINE articles
CINAHL	storytelling [All fields] AND health education [All fields] limited to peer-reviewed journals and journal articles
ComAbstracts/CIOS	“entertainment education” [All Fields]
ComAbstracts/CIOS	“narrative communication” [All Fields] and health [All fields]
ComAbstracts/CIOS	“digital storytelling” [All fields]
ComAbstracts/CIOS	“peer intervention” [All Fields]
ComAbstracts/CIOS	Storytelling [All Fields] AND patient [All fields]
ComAbstracts/CIOS	storytelling [All fields] AND health education [All fields]

Figure 1

Figure 1. First-Person Storytelling Article Screening and Inclusion Process