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Review Article

A Scoping Review of Animated Video's Effect on Individual Health Knowledge

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Abstract

Objectives: Animated video has the potential to both educate and persuade patient audiences. This scoping review considers use of animated educational video's effect on individual-level knowledge in order to inform its application to kidney transplant education and interest among patients and their social network.

Methods: A scoping review of standalone animated video studies published before December 1, 2020, was conducted in six research databases.

Results: Fifteen of 2,066 studies were included. Eight studies were RCTs. The others were pre-post and between-group designs. Studies focused on multiple health topics. Video duration spanned 2 to 16 minutes and video delivery was generally clinic-based. The majority of the publications did not report the use of a learning theory or patient input to inform video development. Significant gains in participant knowledge, including among at-risk groups, were reported in 80% of studies. Improvements in concerns, attitudes, and anxiety were also reported.

Conclusion: While few studies applied standalone animated video to adult patient health education, existing research suggests that standalone animation is a powerful and efficient instructional format for a wide range of learners, with added benefit for reducing anxiety. Practice Implications: These characteristics of animation potentially could be useful to improve transplant education delivery.

Keywords: Kidney transplant; Education; Multimedia; Animation; Video; Health care knowledge

Introduction

Kidney transplantation remains persistently underutilized, but high-quality education may increase patient interest and capacity to obtain a transplant [1]. The benefits of educating patients can be amplified by also educating patients' social networks, who can enhance shared decision-making, provide social support, and very often directly provide living kidney donation [2]. Underlying a critical need to better utilize kidney transplantation, many patients report that they do not receive sufficient information from their medical provider [3], and even less information reaches their social support network [3,4]. A key feature of these deficits is that many traditional transplant education techniques rely on verbal explanations and written resources, such as patient-facing informational brochures. Yet, transplant reading materials can be challenging to comprehend, especially for low-literacy learners and for friends and family members who were not previously exposed to verbal education. Consequently, patients and their friends and families may seek additional information from websites. Although web-based materials are both widely available and often enhanced through use of multimedia, transplant websites likewise may be confusing, overwhelming, and difficult to comprehend for many, as they are typically written at the college literacy level [5]. Additionally, chronic disease populations beleaguered with fatigue, motor deficits, and vision impairment may be unable to navigate and synthesize information on websites [6]. Finally, many kidney transplantation websites are not yet optimized for viewing on small devices [7]. Smartphones are currently the sole source of internet for 20% of Americans [8].

Due to emerging digital technologies, a potentially powerful format for online learning is animated videos, which are increasingly low cost, can be efficiently produced, and are often readily scalable. Moreover, animated videos can be optimized for release on small devices and on social media channels to extend the reach of information. Although animated video may offer a substantial opportunity to better relay kidney transplantation information to prospective recipients and donors, there is little existing information on use of animated video in kidney transplantation in relation to knowledge uptake. Therefore, we conducted a scoping review of published studies evaluating standalone animated video in adult health education to identify: (1) intervention design and delivery features; (2) impact on individual knowledge and other outcomes; and (3) whether Randomized Controlled Trials (RCTs) using animated video as a teaching strategy demonstrate greater effectiveness than interventions without animated video.

Methods

Study design and literature search strategy

A scoping literature review was conducted using the Preferred Reporting Items for Systematic Reviews and Meta-analysis Protocols

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(PRISMA-ScR) [9]. This was aimed at acquiring adequate information about existing interventions to establish a basis for understanding the relative utility of standalone animated video to communicate health information. To identify relevant studies, we searched three major electronic databases, PubMed, MEDLINE, and the Cumulative Index to Nursing and Allied Health Literature (CINAHL), through December 2020. In addition, Google Scholar was searched to identify any additional literature not found in these databases. We also manually searched within two pre-selected journals particularly relevant to our research: The Journal of Medical Internet Research (JMIR) and Internet Interventions. To ensure that we included all standalone animated video interventions that have thus far been evaluated, different combinations of broad keywords and medical subject heading (MeSH) terms were formulated. The search strategy was discussed with two experts on epidemiological and transplant studies (LK, TF) to finalize the list of keywords (Figure 1).

Study inclusion and exclusion criteria

We included all original peer-reviewed publications written in English that met the following criteria: (1) human studies of participant's ≥18 years of age; (2) studies that examined change in knowledge; and (3) studies that used standalone animated video as the sole intervention strategy. We included randomized trials, between-group studies (regardless of randomization), and pre- and post-intervention studies. To assess outcomes based on pure animation with audio, articles were excluded if the standalone animated video in the intervention condition lacked audio (i.e., images only or images and text only, without voiceover) or blended animation with live-action. Studies were excluded if they used multicomponent teaching strategies, such as live-action video, text, patient counseling, or an educator. Education delivery device (i.e., laptop, tablet) did not have any bearing on inclusion or exclusion criteria. Secondary outcomes, health behaviors, and clinical outcomes also had no bearing on inclusion or exclusion criteria.

Data extraction

A data-charting form was jointly developed by two researchers (MK and LK) to determine which variables to extract. We extracted data on article characteristics (e.g., country of origin, year of publication), animated video design (e.g., presentation style, duration) and delivery (e.g., site, repeat viewing, navigation control), disease area studied, study type and control condition, participant characteristics (e.g., age, race, education level), and outcomes (e.g., knowledge, beliefs, attitudes). We grouped the studies by study design and summarized the type of videos, populations, and findings in Table 1-3.

Results

The literature search resulted in 2,066 articles, of which 54 met the initial inclusion criteria (Figure 1). Studies were further excluded during full article review if they were non-experimental (n=6), lacked a knowledge outcome (n=2), contained blended live-action and animated video (n=2), or were an animated website or multimedia program (n=34). For the purposes of this paper, we use the term animated video to refer to any kind of motion picture within an isolated video to confine it against the use of animated media within a website or web application (app), which require user navigation. After exclusions, 10 articles remained. We identified an additional 5 articles through reference harvesting, resulting in a total of 15 articles that evaluated the effect of standalone animated video to increase health knowledge among adults (Figure 1).

Study characteristics and prevalence

All studies were published in the last decade and originated predominantly in the USA (n=8) [10-17], followed by Australia (n=1) [18], Germany (n=1) [19], Japan (n=1) [20], the Netherlands (n=1) [21], Saudi Arabia (n=1) [22], Singapore (n=1) [23], and the United Kingdom (n=1) [24]. Study design included 8 randomized controlled trials, 4 pre-post single-group studies, and 3 between-subject studies. The research addressed a range of conditions, which were grouped into one of the following therapeutic areas: kidney transplant (n=3) [13,14,17], colorectal cancer (n=3) [15,21,24], anesthesia (n=1) [20], angiography (n=1) [23], orthopedic surgery (n=1) [19], antibiotics (n=1) [10], genomics (n=1) [11], glaucoma (n=1) [22], opioid use (n=1) [12], Meniere's disease (n=1) [18], and prostate health (n=1) [16].

The most common type of animated video was two-dimensional (2D) (n=9) [11,13-15,17,20-22,24], followed by whiteboard (n=2) [12,23], 3D (n=1) [18], combination 2D and 3D (n=1) [16,19], and not reported (n=1) [10]. Video length ranged from 2 to 16 minutes, with half being 3 minutes or less. The educational content covered the following key dimensions of health education: treatment decision-making [11,13,14,17], understanding surgical or interventional procedures [15,19-21,23], understanding disease process [16,18,22], and treatment adherence [12,17]. Development of the animation's educational content was guided by multimedia learning theory in 5 studies [13,14,16,21,23] or was not reported. During animation development, expert feedback was sought from clinicians, community advocates, and others (i.e., anthropologist, communications expert) in all studies. However, only 3 studies [11,13,14] obtained input from target users (i.e., patients, care partners, public).

The most common location of video delivery was in the clinic, typically using a computer provided by the researchers. A tablet was used in 3 studies [12,23,24], and 1 study provided animation viewing online within YouTube [11]. Most studies conducted a single video viewing session without viewer control options (e.g., play, rewind, pause).

The mean age of participants, when provided, was 57 (range 18 to 68) (Table 1-3). The race of the majority of participants was White in 5 studies [10-14], Black in 3 studies [15-17], and not reported in 7 studies outside the US [18-24]. A majority of the studies predominantly engaged participants with a high-school or college education [10,13,14,16,17,20,23] or did not completely report education level [11,12,21,24]. In one study, participants were primarily illiterate or only educated at the primary level [22].

Knowledge outcome

Change in knowledge was measured by self-report paper-based questionnaire in 13 studies and an electronic questionnaire in 2 studies [12,20]. A significant gain in knowledge was reported in 12 of 15 (80%) studies [10-14,16,17,19-23]. In 7 randomized controlled trials, animation was superior to standard care [10,12,14,20,23], pamphlet [10], and no information [11], and 3 trials found non-significant increases compared to an online pamphlet [11] and usual care [18,24]

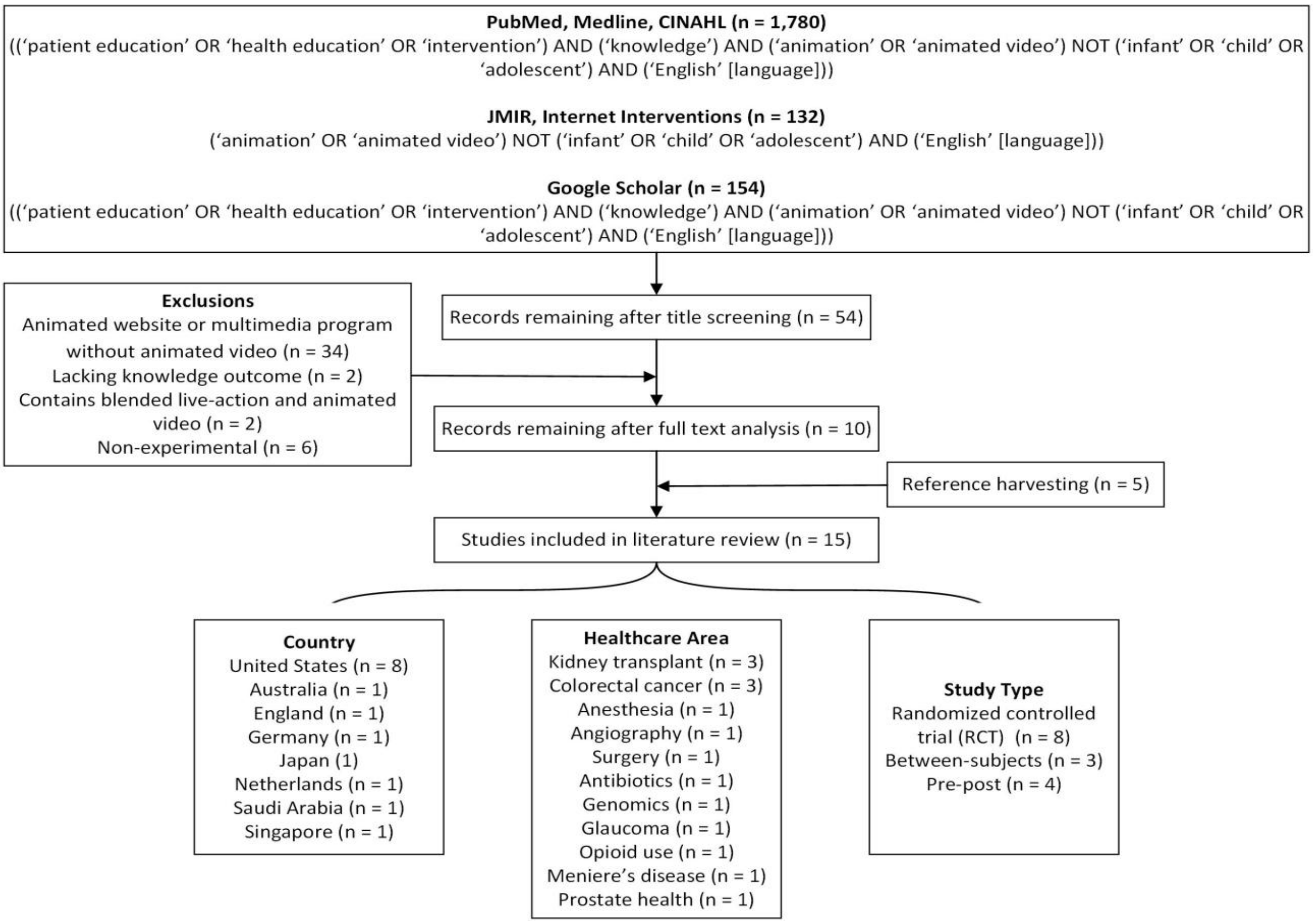

Figure 1: Standalone Animation Article Screening and Inclusion Process.

(Table 1). Among the between-group studies, 2D animated video was superior to 3D realistic video in one study [19] (Table 2). In another study, animation was superior to a range of other educational formats that lacked both moving schematic images and/or audio (i.e., animation without audio, static image video with voiceover, and static image video with captions) among low literacy learners [21]. The third study found non-significant knowledge increases compared to video with static images and usual care [15]. All 4 pre-post studies [13,16,17,22] demonstrated a significant increase in knowledge immediately after viewing the animated education (Table 3).

Five studies assessed knowledge change in diverse subgroups [11,13,14,20,21]. Increasing age was associated with lower knowledge gains in one RCT [20]. In contrast, a pre-post study and an RCT found similar effect size increases in knowledge between older and younger persons [13,14]. Low literacy learners exposed to animated video learned the same amount of information [13,14,17] or more [21] than their higher health literate counterparts in 4 studies: a between-group study [21] that measured health literacy with the Short Assessment of Health Literacy in Dutch, and an RCT [14] and 2 pre-post studies [13,17] that all measured health literacy with 2 screener questions [25]. Regarding other subgroups, knowledge scores increased significantly or similarly among individuals who were Black [13,14,17], Hispanic [17], low income [13,14], or had low technology access [13,14,17] relative to White, higher income, and those with higher technology ownership, respectively.

Impact of standalone animated video on secondary outcomes

A total of 30 secondary outcomes were reported and can be categorized into 5 outcome domains. The most frequently studied domain was (1) perceived understanding or decision-making, followed by (2) attitudes, (3) anxiety, (4) care delivery, and (5) satisfaction with education.

Perceived understanding/Decision making: Measures of self-reported understanding and decision-making were reported in 5 studies - perceived understanding of inner ear anatomy [18], genomic testing [11], kidney allocation [13,14], and live kidney donation [17] were higher with animation compared to usual care [14,18], no information [11], and baseline [13,17]. Three studies found improved decision-making about (1) choosing kidney offers compared to usual education [14]; (2) individual timing of joining the kidney waiting list compared to baseline [13]; and (3) live donor kidney transplantation compared to baseline [17]. Two studies assessing hypothetical decision-making and decisional conflict found similar results compared to no information [11], text [11], and realistic video [19].

Attitudes: Five studies evaluated change in attitudes about

Table 1: Randomized Controlled Trials of Standalone Animated Educational Video.

Ref #	Author Year Country	Healthcare Area	Video design Theory User input	Population	Video (Location) [Device]	Video Total duration (Number of videos) [Views]	Sample: Conditions	Outcomes[1]
10	Schnellinger 2010 US	Antibiotic proper use information	- - No	54% White 66% College 16-72 Years 33% Male	(ED) [DVD player]	3m (1 video) [1 view]	83: Animation 79: Pamphlet 84: Usual Care	Knowledge (+) *vs.* Usual care Knowledge (+) *vs.* Pamphlet 30-day Recall (+) *vs.* Usual care 30-day Recall (=) *vs.* Pamphlet
20	Narimatsu 2011 Japan	Cancer surgery anesthesia informed consent	2D - No	- 53% 3º Ed 23-86 Years 59% Male	(Ward) [Computer]	12m (5 video) [> 1 view x 30 min]	106: Animation 105: Usual Care	Knowledge (+) Anxiety (=) MD Consent time (-) Satisfaction with consent visit (+)
24	Tou 2013 UK	Colorectal surgery perioperative information	2D - No	- - 59 Years -	(Clinic) [Computer]	13m (1 video) [1 view]	16: Animation 15: Usual Care	Knowledge (=) Anxiety (-) Length of stay (=) Complications (=)
11	Sanderson 2016 US	Genome sequencing informed decision-making	2D - Yes[2]	24% Black 13% Hispanic 36% a degree 45 Years 52% Male	(YouTube) [Home device]	10m (1 video) [1 view]	281: Animation 281: Pamphlet 300: No Info	Knowledge (+) vs no info Knowledge (=) vs written Understanding (+) vs no info Understanding (=) vs written Decisional conflict (=) Decision making (=) Intention to be tested (=)
12	Chakravarthy 2018 US	Opioid use discharge instruction	Whiteboard - No	40% Hispanic 6% Asian 6% Black - 37 Years -	(ED) [Tablet]	6m (1 video) [1 view]	25: Animation 27: Usual Care	Knowledge (+)
18	John 2020 Australia	Meniere's disease	3D - No	- - 40 Years 42% Male	(Clinic) [Computer]	2m (1 video) [1 view]	20: Animation 20: Usual Care	Knowledge (=) Understanding (+) Usefulness (+)
23	Yap 2020 Singapore	Undergoing Coronary angiography/ angioplasty	Whiteboard MMLT No	- 52% ≥2º Ed 59 Years 84% Male	(Clinic) [Tablet]	3m (1 video) [1 view]	252: Animation 80: Usual Care	Knowledge (+) Anxiety (-) Vital sign changes (=)
14	Kayler 2020 US	Kidney transplant organ choice	2D MMLT Yes[3]	27% Black 57% <College 60 Years 50% Male	(Clinic) [Computer]	4.21m (2 videos) [1 view]	78: Animation 66: Usual Care	Knowledge (+) Decisional Self-efficacy (+) Beliefs (+) Understanding (+)

Note: US: United States; UK: United Kingdom; 2º Ed: Secondary Education; 3º ED: Tertiary Education; MMLT: Multimedia Learning Theory; m: Minutes; DM: Decision Making.
[1](+) significant positive change, (-) significant negative change, (=) non-significant change;
[2]Input from ethnically/racially diverse community consultants, community members, and patients. [3]50% African American.

undergoing procedures or kidney transplants from different types of donors [13,14,17,19,21]. Positive attitudes were found toward colorectal cancer screening compared to other educational materials [21], toward fairness of organ allocation compared to baseline [13], and toward receiving a transplant with a non-standard kidney compared to usual care in one study [14] but not in another compared to baseline [17]. Attitudes about hypothetical orthopedic surgery were unchanged between animation and realistic video conditions [19].

Anxiety/Affect: Affective outcomes were measured in 4 studies among participants undergoing or considering invasive procedures. Using the State and Trait Anxiety Inventory [20,23,24], 2 trials showed that state anxiety levels about colorectal surgery [24] and coronary angiography [23] were significantly reduced. One trial found no differences in anesthesia anxiety between the animation and usual care [20]. In a between-group study, animation decreased fear and disgust of hypothetical orthopedic surgery compared to realistic video [19].

Care delivery/Behavior: Four out of 15 studies reported data about care delivery or behavioral intention. Compared to usual education, animation groups had shorter time to obtain consent for anesthesia [20] but non-significant differences in length of hospital stay after colorectal surgery [24] and vital signs during coronary angiography [23]. Intention to participate in genome sequencing was unchanged between animation, no information, and written information groups [11].

Usefulness/Satisfaction: Only one study reported a substantive usefulness/satisfaction measure. Animation was reported to be more useful for learning about Meniere's disease compared to usual care [18]. One additional study reported greater satisfaction with the informed consent visit that used animation compared to usual care [20].

Discussion

This scoping review of 8 RCTs and 7 non-RCTs conducted in adults found that standalone animation improved knowledge in the majority of studies for health procedures, including kidney

Table 2: Between-Groups Studies of Standalone Animated Educational Video.

Ref #	Author Year Country	Healthcare Area	Video design Theory User input	Population	Video (Location) [Device]	Video duration (Number) [Views]	Sample: Condition	Outcomes[1]
21	Meppelink 2015 Netherlands	Colorectal cancer screening	2D MMLT No	- - 68 years 52% male	(Clinic) [Computer]	- - -	53: Animation + audio 64: Animation + captions 52: Static video + audio 62: Static video + captions	Knowledge (+)[2] Attitudes (+)
19	Eggeling 2018 Germany	Hypothetical Orthopedic surgery decision support	2D & 3D - No	- 90% 2º Ed 19-≥31 years 24% male	(Clinic) [Computer]	3.30m (1 video) [1 view]	76: Animation 75: 3D Realistic video	Knowledge (+) Attitudes (=) Decision certainty (=) Fear & disgust (-) Hypothetical decision-making (=)
15	Housten 2020 US	Colorectal cancer screening risk probabilities	2D - No	70% Black 80% 2º Ed 49-59 years 57% male	(Clinic) [-]	3.52m (1 video) [>1 view]	63: Animation 62: Static video 62: Audiobook	Animation vs. audiobook (=) Static video vs. audiobook (=)

Note: US: United States; 2D: Two-Dimensional; 3D: Three-Dimensional; 2º Ed: Secondary Education; MMLT: Multimedia Learning Theory; m: Minutes; s: Seconds.
[1](+) significant positive change; (-) significant negative change; (=) non-significant change.
[2]Differences were reported but not statistically analyzed.

Table 3: Pre/Post Studies of Standalone Animated Educational Video.

Ref #	Author Year Country	Healthcare area	Video design theory User input	Population	Video (Location) [Device]	Video duration (number) [views]	Sample Size	Outcomes[1]
22	Al Owaifeer 2011 Saudi Arabia	Glaucoma general information	2D - No	- 29% illiterate 56 years 55% male	(Clinic) [Computer]	3m (1 video) [1 view]	196: animation	Knowledge (+)
16	Wang 2014 US	Prostate health terminology	2D & 3D MMLT No	91% Black 77% ≥ 2º Ed 54 years 100% male	(Clinic) [Computer]	16m - -	56: animation	Knowledge (+)
17	Axelrod 2017 US	Kidney transplantation process and donor choices	2D - No	26% Black 25% Asian 15% Hispanic 80% 2º Ed 52 years 51% male	(Clinic) [Tablet]	3m (13 videos) [≥ 1 view]	81: animation	Knowledge (+) Interest in nonstandard kidney (=) Interest in living donor kidney (+) Informed decision-making (+)
13	Kayler 2019 US	Kidney transplantation allocation	2D MMLT Yes[2]	50% Black 86% 2º Ed 53 years 65% male	(Clinic) [Computer]	2m -1 [1 view]	40: animation	Knowledge (+) Decisional self-efficacy (+) Beliefs[3] (+)

Note: US: United States; 2D: Two-Dimensional; 3D: Three-Dimensional; 2º Ed: Secondary Education; MMLT: Multimedia Learning Theory; m: Minutes; s: Seconds.
[1](+) significant positive change; (-) significant negative change; (=) non-significant change.
[2]Patient representatives; 50% African American.
[3]Beliefs about kidney allocation fairness.

transplantation, general anesthesia, surgery, and various health conditions. Animated video used as an isolated education strategy generally increased knowledge compared to standard care and compared to other strategies that did not blend moving schematic images with audio. Some studies that looked at diverse communities also found that standalone animated video yielded superior knowledge change across age, race, and literacy level compared to control conditions. The vast majority of animated video interventions were focused on single viewing clinic delivery of brief videos. Some studies also showed promise in decreasing learner anxiety and improving attitudes toward health behaviors.

Knowledge

This scoping review highlights the effectiveness of animation to increase knowledge compared to other teaching formats such as text, oral, real video, audiobook, static cartoon, and silent captioned animation. The powerful learning effect of animation has been attributed to the use of audiovisual formats, which allows for dual channels of processing audio and visual information separately and concurrently [26], and also the use of signaling and schematic images that reinforce verbal messages [27]. Information, therefore, can be processed by learners more easily [28]. Ease of learning with animation allows for content to be presented in shorter duration, making animation more efficient. Efficient education may be important for patients' learning since attention spans are known to decline after 10 minutes [29]. The duration of the animations included in this scoping review ranged between 2 and 16 minutes, and the majority were 3 minutes or less. This is in contrast to standalone real video interventions that average 36 minutes [30]. Regarding kidney transplantation, easy and efficient education strategies, like animation, may be useful to impact the ESKD population, who tend to be an older population [31] and have cognitive decline related to uremia, comorbidities, and age [32]. Easy and efficient education may also be useful to impact learning of social network members, who are highly important to enhance a patient's access to transplantation through social support and donating kidneys [2] but who may not have had the benefit of meeting with and learning from providers.

Other outcomes

Secondary outcome data of this scoping review serve to build the profile of the animation effect. A promising effect was on anxiety reduction. Learner anxiety might arise when the content is difficult to learn and in relation to the procedure itself. Ease of learning with animation [28] may help to resolve anxiety of learning difficult content and further enable learning of complex topics. Anxiety reduction may also be due to the fact that the animations, especially cartoons, may be appealing or amusing to viewers [33] and may focus on positive framing of information, resulting in enjoyment of learning and less fear of the procedure. This is underscored by one of the papers in this scoping review, in which live action video increased fear and disgust compared to animation. Animation may therefore be promising for reducing anxiety related to learning about and undergoing procedures beneficial to ESKD patients' health, like kidney transplantation and donation.

Behavioral outcomes

It is important to note that none of the studies in this scoping review measured the effect of animation on individual-level behavior. One relevant paper that was excluded against review criteria (i.e., lack of knowledge outcome) may be useful to inform this discussion. Jones et al. [34] found that myocardial infarction patients who viewed a 15-minute educational animated video delivered in the hospital before discharge reported greater exercise and faster return to normal activities compared to usual care at 7-weeks post-baseline. Adherence to secondary prevention was attributed to increased confidence that their heart disease was under control, through lower reported levels of avoidance and reduced anxiety about exertion, and increased patient perceptions of their ability to exercise and return to their normal activities. Although behavior change was not assessed in any of the studies that were included in this scoping review, the effectiveness of standalone "real" video education in changing health behaviors has been previously described. A systematic review of studies using a real video [30] found that behaviors such as cancer screening, treatment adherence, and self-care were increased using a single real video as the sole educational tool compared to various control conditions, supporting the potential utility of standalone animated video to enhance behaviors and potentially kidney transplant-seeking and donating.

Intervention design

Unfortunately, there was a paucity of evidence relevant to design features of the animations. The majority of the animations evaluated in this scoping review were 2D animations with a duration of 3 minutes or less. Only a few studies provided some guiding principles used in the development of the educational animation [13,14,16,21,23]. For instance, Schnellinger et al. [10] used animated characters to demonstrate proper pediatric antibiotic usage to parents. This strategy, known as modeling, refers to active and visual demonstrations of desired behaviors [30]. Video modeling has been found to increase self-care behaviors in numerous studies [30]. Another strategy used in 3 studies [11,13,14] is editing the animation in response to learner feedback. Editing is easier with digital mediums than film and allows an iterative process to meet users' needs and for optimal communication of health messages [33]. It is notable that of 4 studies showing knowledge gains in at-risk groups, 2 had iterated the video in response to patient input, suggesting the potential importance of responding to learner feedback when creating animations for difficult to educate populations. Examination of the studies that did not differentially increase knowledge may provide insights. For example, one study [15] aimed to teach probabilistic information using animation. While there is some evidence that using a written approach may be more appropriate for this type of education, teaching probabilities may be difficult to achieve, regardless of the medium. In another study [18], 3D animation was not effective to increase knowledge. Motion sickness during viewing is a known limitation of 3D media, which might affect learning [35]. In 2 studies, the lack of difference may be due to low sample size, possibly indicative of insufficient power to find associations [18,24].

Intervention delivery

We found little, if any, technological integration to enhance access to learning materials or sharing of information. Most of the animations were viewed by participants on computers and were not available to patients or the healthcare community after initial exposure. Digital health interventions offer the potential to promote health education and behaviors in a way that gives users flexible and convenient access, but the full potential of current technological offerings has not been realized. As such, we were unable to glean insights of facilitators or barriers with respect to implementing standalone animated video remote from the clinical setting.

Our scoping review is limited by the design of many of the studies; only eight were RCTs. As quality assessment is not a requirement of scoping reviews, articles were not excluded on this basis; this may be a source of bias in this review [36]. The reporting of animated video development methods varied considerably in their completeness across the literature, and, as such, our data are limited by the details described in the studies. For example, most papers described the type of animation produced but did not provide details on the use of theory or key informants to develop the intervention. Incomplete reporting of outcomes may be due to the exclusion of 3 studies that did not measure knowledge change. Also, our limited selection to English language studies removes many innovative international models for this intervention. Lastly, our group published 2 of the studies included in this scoping review. An initial review of the studies was initiated prior to our video development and evaluation and this scoping review was later completed by a pre-doctoral student towards her dissertation.

Conclusion

Current patient educational methods about kidney transplantation have limitations to reach vulnerable populations and to empower patient sharing of education with salient others. There is a need for innovative strategies, such as standalone animated video, which offers ease and efficiency of learning and potentially sharing information.

Practice implications

The primary aim of this scoping review was to assess the effect of standalone animated video to increase knowledge among adults within any healthcare context. Our finding that this single medium may be a powerful format for instruction advocates for its usefulness in future educational interventions, including in diverse populations with challenges of age, literacy, and technology access, such as in individuals who could benefit from kidney transplantation or who may consider donating a kidney.

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