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## **Multimedia psycho-educational interventions to support patient self-care in degenerative conditions: a realist review**

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# **Multimedia psycho-educational interventions to support patient self-care in degenerative conditions: a realist review**

## **ABSTRACT**

**Objectives:** Multimedia interventions are increasingly used to deliver information in order to promote self-care amongst patients with degenerative conditions. We carried out a realist review of the literature to investigate how the characteristics of multimedia psycho-educational interventions combine with the contexts in which they are introduced, to help or hinder their effectiveness in supporting self-care for patients with degenerative conditions.

**Methods:** Electronic databases (Medline, Science Direct, PSYCHinfo, EBSCO, and Embase) were searched, to identify papers containing information on multimedia psycho-educational interventions. Using a realist review approach, we reviewed all relevant studies to identify theories that explained how the interventions worked.

**Results:** Ten papers were included in the review. All interventions sought to promote self-care behaviours amongst participants. We examined the development and content of the multimedia interventions; the impact of patient motivation and of the organisational context of implementation. We judged seven studies to be methodologically weak. All completed studies showed small effects in favour of the intervention.

**Significance of results:** Multimedia interventions may provide high quality information in an accessible format, with the potential to promote self-care amongst patients with degenerative conditions, if the patient perceives the information as important and develops confidence to self-care. The evidence-base is weak so research is needed to investigate effective modes of delivery at different levels of resource. We recommend that developers consider how an intervention will reduce uncertainty and increase confidence to self-care; and the impact of the context in which it will be used.

Key words: realist review; multimedia; psycho-educational; self-care; degenerative conditions; palliative care

## **INTRODUCTION**

Degenerative diseases such as heart disease, stroke, cancer, chronic respiratory illness and diabetes are currently the leading cause of mortality in the world, representing approximately 63% of all deaths (W.H.O., 2013). It is widely acknowledged that patients who experience degenerative and chronic illness should have the opportunity to fully participate in decisions relating to their health and care (Greenhalgh, 2009). Consequently, many governments and healthcare providers are moving away from traditional paternalistic models of healthcare where the healthcare professional is viewed as 'expert' toward an approach characterised by

joint decision making and shared care (Department of Health, 2010; US House, 2010). This 'shift' will require patients to be provided with sufficient information to allow them to become knowledgeable, active contributors capable of making informed decisions about their own treatment (Greenhalgh, 2009). However, while there is an increasing volume of material to assist in patient education there is limited research on the most effective modes of delivery (Greenhalgh, 2009; Wilson et al., 2012). Although printed materials have traditionally been used, this medium is constrained in that it is poor at conveying complex information such as explaining all the steps in a multi-step procedure or demonstrating movements (Wilson et al., 2012). The use of printed materials also assumes a level of literacy and a degree of motivation which may be lacking in some patients. Recently, multimedia technology such as DVDs, audio recordings, and the internet have been used to deliver health care information to patients, and their ease and economy of use make them an increasingly popular choice (Jerant, Sohler, Fiscella, Franks, & Franks, 2011). Multimedia interventions could deliver information and support to patients experiencing a range of degenerative conditions and may have the potential to reach a broader audience over a longer duration than traditional print materials (Jeste, Dunn, Folsom, & Zisook, 2008). However, there is concern that multimedia interventions are being developed without a concomitant advance in learning theory to support their design, and without fully considering how the social and organisational context may affect implementation (Angus, Cairns, & Purves, 2013; Riley et al., 2011). For these reasons, it is important that interventions are not simply technology-led, but are developed and implemented with due regard for how, whom, and in what circumstances such multimedia approaches may work.

## **METHODS**

We are concerned not simply with whether or not multimedia interventions work but also how they may work in a range of contexts. Consequently we have undertaken a realist review of the literature (Pawson, Greenhalgh, Harvey, & Walshe, 2005). Realist review entails a number of assumptions. First, interventions embody the theories of those who devise them about what is likely to produce the desired outcomes. Second, interventions are introduced into a particular context. Context is not simply “the spatial or geographical or institutional location into which programs are embedded”, but “the prior set of social rules, norms, values and interrelationships gathered in these places which sets limits on the efficacy of program mechanisms” (Pawson & Tilley, 1997, P. 70). Third, an intervention works by providing new resources which enable people to change their behaviour. These changes (i.e. outcomes) are brought about by mechanisms, by which we mean the resources or sanctions, inducements or discouragements designed to change people’s behaviour in relation to a particular goal (Pawson & Manzano-Santaella, 2012). A realist review seeks to identify the underlying theories and circumstances by critically examining the interaction between context, mechanism, and outcome (characterised as CMO configurations) in a sample of identified studies (Wong, Greenhalgh, & Pawson, 2010). Consequently, we examined the literature not only to gauge the outcomes of interventions but to identify their underpinning theories (whether explicit or implicit), use of resources, mechanisms at work and the impact of context. We sought to conceptualise these factors in ways that are consistent with our realist assumptions, so that we could make recommendations to those producing and implementing multimedia psycho-educational interventions on which resources,

in what contexts are likely to trigger mechanisms that will produce the desired outcomes (Wong, Greenhalgh, Westhorp, Buckingham, & Pawson, 2013).

### **Review questions**

1. What mechanisms are triggered by multimedia psycho-educational interventions to support self-care for patients with degenerative conditions?
2. Which contextual factors help or hinder implementation of the interventions?

### **Search strategy**

#### *Inclusion and exclusion criteria*

Studies were included if they provided information on a multimedia psycho-educational intervention intended to support adult patients (i.e. over 18 years) with degenerative conditions. The provision of multimedia education to patients and their carers has been a relatively recent development, so only papers published between 2000 and April 2014 were included in the review. Due to resource constraints only abstracts written in English were considered. Studies were excluded if they focused on supporting people who were undergoing a time-limited process (e.g. surgery, investigation, temporary treatment or side-effect); and studies where the multimedia intervention was delivered as a real-time intervention by another person using media as an alternative to face-to-face interaction (e.g. telemedicine interactions), as this approach allows a type of interaction not available through recorded media.

### *Resources searched*

The search strategy for Medline is presented in Table 1. This was modified for use in Science Direct, PSYCHinfo, EBSCO, and Embase. We did not include search terms limiting to degenerative conditions because we found including these terms led to us missing potentially relevant studies. In addition, 'key word' searches were completed on Google and Google Scholar. Further potentially relevant studies were identified from both the 'hand searching' of key journals and reference lists of all retrieved articles.

### *Table 1.*

### *Identifying primary studies*

The search process identified 1143 citations (Figure 1). Removal of duplicates left a total of 949 papers. One member of the review team (DS) read the retrieved titles and removed papers which were clearly not related to the subject, or population of interest; ambiguous titles were included for abstract screening. Sixty relevant papers were selected for review of abstracts. The abstract review, applying inclusion and exclusion criteria, was completed by two reviewers (DS and PO), leaving a total of 31 articles to be included in a full text review. Hand searching reference lists of these papers identified an additional five papers which met the inclusion criteria for the review. Thus 36 papers were selected for full-text review using a standardised data extraction form. This form included sections related to the



realist assessment, requiring the reviewer to seek information on the theoretical background to the intervention, how it was thought to work, and characteristics of the context thought to influence outcomes. Ten papers met inclusion criteria and were subjected to a further quality assessment by both reviewers.

*Figure 1.*

### **Quality appraisal**

A strength of realist synthesis is that it allows a broad spectrum of studies to be included in the review but the quality of studies is used to moderate findings. The methodological quality of each included study was assessed using the appropriate Critical Appraisal Skills Programme (Public Health Resource Unit, 1993) appraisal tool.

### **Identifying candidate theories**

Candidate theories were identified through the close reading of texts by two reviewers (DS and PO). Explicit theories were noted and, where these were absent, implicit theories deduced from the elements of the interventions. Data synthesis involved the two reviewers independently assessing each paper, identifying common components of interventions and reflecting on the utility of the candidate theories before coming together to discuss findings and achieve a consensus regarding the utility of each theory.

## RESULTS

The ten studies selected for review are summarised in Table 2 in terms of their objectives, population, intervention, design, and results; together with qualitative data on how the interventions are thought to work and how context has influenced implementation.

*Table 2.*

*Intended recipients of the interventions*

Three papers were focused on people with heart failure (Albert, Buchsbaum, & Li, 2007; Boyde et al., 2013; Veroff et al., 2012); two on those with cancer pain (Capewell, Gregory, Closs, & Bennett, 2010; Syrjala et al., 2008); and one each on people with sexual dysfunction following radical prostatectomy (Chambers et al., 2008); end-stage renal disease (Chiou & Chung, 2012); peripheral vascular disease (Collins, Krueger, Kroll, & Sharf, 2009); haemophilia related joint pain (Elander, Robinson, & Morris, 2011); and spinal cord injury (Hoffman et al., 2011).

*Objectives of the studies*

The interventions evaluated in the studies were intended to reduce urgent healthcare resource consumption (Albert et al., 2007); to enhance patient knowledge and decision-making skills (Boyde et al., 2013; Capewell et al., 2010; Chiou &

Chung, 2012; Hoffman et al., 2011) ; to improve sexual and psychosocial adjustment after treatment for localised prostate cancer (Chambers et al., 2008); to increase readiness to self-care (Elander et al., 2011); and to improve self-management of patients' conditions (Collins et al., 2009; Syrjala et al., 2008; Veroff et al., 2012). One study sought to evaluate the acceptability and feasibility of the intervention (Capewell et al., 2010). Thus, the majority of studies were intended, at least in part, to lead to new self-care behaviours amongst participants. All completed studies showed some small effects in favour of the intervention, some achieving statistical significance.

### *Multimedia content*

Multimedia content was often reported as being developed on the basis of research evidence and expert opinion (Boyde et al., 2013; Capewell et al., 2010; C - P Chiou & Chung, 2012; Collins et al., 2009; Hoffman et al., 2011). A number of videos showed patients (or actors as patients) role modelling desirable behaviours, whilst others focused on experts giving opinions. Only one of the interventions consisted entirely of audio-visual material and this was the only intervention delivered online (Hoffman et al., 2011). The remainder consisted of audio-visual content supplemented by written material (Capewell et al., 2010; Elander et al., 2011; Veroff et al., 2012), some also with professional led face-to-face education or support (Albert et al., 2007; Boyde et al., 2013; Collins et al., 2009; Syrjala et al., 2008), or telephone contact (Chambers et al., 2008; C -P Chiou & Chung, 2012).

### *Study designs*

Included studies followed various designs. Five were randomised controlled trials (Albert et al., 2007; Collins et al., 2009; Elander et al., 2011; Syrjala et al., 2008; Veroff et al., 2012) as was one study protocol (Chambers et al., 2008). Two were single group pre-test, post-test designs (Boyde et al., 2013; Capewell et al., 2010); one a quasi-experiment (Chiou & Chung, 2012); and one an observational study (Hoffman et al., 2011). We judged three of these studies to be of moderate methodological quality (Albert et al., 2007; Elander et al., 2011; Syrjala et al., 2008) and the remainder as methodologically weak.

### **Candidate theories**

Only three of the included studies made reference to specific theories that informed the development and implementation of their interventions. Boyde et al (2013, P. 45) referred to Knowles's (1998) theory of adult learning, stating that,

*'Education for patients is more likely to be successful when it is based on a learning theory which recognizes the uniqueness of the adult learner. Knowles's principles of andragogy focus on the characteristics of adult learners identifying their problem-centred, self-directed approach and the importance of their previous life experiences.'*

This approach was also espoused by Chambers et al. (2008) but without reference to a specific theory.

Elander et al. (2011) developed their intervention based on Jensen et al's (2003) motivational model of pain self-management. Their DVD targeted influences on readiness to self-manage such as 'beliefs about costs and benefits, learning histories, experiences, contingencies, modeling, verbal persuasion, and perceived barriers' to self-management (Elander et al. 2011, P. 2333). Jensen et al. (2003) propose that readiness to undertake self-care is a product of the patient's beliefs regarding the importance of engagement and their self-efficacy in relation to engaging in the necessary behaviours. Veroff et al. (2012) refer to Riegel & Dickson (2008) who characterise self-care as a decision-making process involving behaviour choices that maintain physiologic stability and the response to symptoms. Confidence in self-care is thought to mediate the effect of self-care on various outcomes.

Other papers, whether explicitly or implicitly, put forward more common sense theories about how the intervention was thought to work. Some argued that audio-visual information was more easily understood by patients and their carers than printed materials (Albert et al., 2007; Hoffman et al., 2011; Syrjala et al., 2008). DVDs or videos were thought to be superior to face-to-face education in that they could be viewed at a time and place convenient to the viewer (Albert et al., 2007; Boyde et al., 2013; Hoffman et al., 2011); and could be watched repeatedly (Albert et al., 2007; Boyde et al., 2013; Capewell et al., 2010; Chiou & Chung, 2012); thus aiding retention of the information, and allowing patients to access the information at 'teachable moments' (Hoffman et al., 2011). A number of the audio-visual presentations featured patients in real-life situations, often role-modelling desirable self-care behaviours. This was thought to increase viewers' confidence to carry out

these behaviours themselves (Albert et al., 2007; Boyde et al., 2013; Elander et al., 2011; Hoffman et al., 2011). Authors argued that once viewers had gained information and confidence from the multimedia content, their anxiety about their condition and treatment would be reduced, and they would be more likely to adhere to recommended self-care behaviours (Capewell et al., 2010; Chiou & Chung, 2012; Elander et al., 2011; Veroff et al., 2012). Two papers argued that multimedia materials could encourage better communication between patients and physicians (Collins et al., 2009), especially two-way communication (Syrjala et al., 2008), so leading to increased self-care behaviours.

### **Contextual features thought to influence the effectiveness of interventions**

Some authors located the need for the multimedia intervention in characteristics of the wider health care context. Albert et al. (2007) noted that in the USA health care reimbursement does not encourage extensive one-to-one education, so this is usually brief and inadequate. Hoffman et al. (2011) argued that as length of hospital stay has decreased, many patients are discharged before they have absorbed necessary information; and that patients and families are often overwhelmed by the psychological and physical consequences of the condition (in this case spinal injury) and therefore, not ready to receive and retain all the information that they will eventually need. This contextual limitation is confirmed by authors who believe that when a multimedia intervention is available for viewing only in hospital, whilst this may ensure that the material is actually seen, the lack of ongoing access to the material means patients are less likely to retain the information (Chiou & Chung, 2012; Collins et al., 2009). On the other hand, it is

proposed that ease of access to multimedia materials allows patients to view the material at home in a relaxed atmosphere and with the support of relatives (Albert et al., 2007; Boyde et al., 2013; Hoffman et al., 2011). However, two papers which described interventions mailed to patients hypothesised that the lack of personalised contact and individualised material may have led to less use of the material and reduced impact (Elander et al., 2011; Veroff et al., 2012). This judgement is implicitly borne out by the fact that all but three of the interventions (Elander et al., 2011; Hoffman et al., 2011; Veroff et al., 2012) included some contact (either face-to-face or by telephone) with a professional. Finally, some authors identified patient characteristics as influencing the effectiveness of their interventions. Boyde et al. (2013) argued that audio-visual materials are particularly well-suited to older patients who typically have lower health literacy; whilst Elander et al. (2011) propose that there is some evidence that where patients have pre-existing low readiness to self-care they are less likely to watch a DVD.

### **Synthesis of candidate theories**

In the following section we draw together the mechanisms (M) and the contexts (C) that tend to produce the outcome (O) of increased adherence to self-care, as far as we could deduce them from the literature. It is evident that mechanisms themselves have their effect by influencing the perceptions and motivations of individual stakeholders – a stage in the causal chain not fully recognised in the C+M=O configuration. Therefore, we have added the component of agency (A); by which we mean the cognitive, affective and conative micro-mechanisms involved in individual decision-making (Bandura, 1997). Putting these

ideas together, we can see that a multimedia intervention that is developed on the basis of the evidence and on what is known of the learning styles, needs and preferences of the patient group; and which contains relevant expert opinion together with a portrayal of patients modelling self-care behaviours; is likely to be perceived by the patient as acceptable, credible relevant and important (M). Patients are therefore more likely to give their attention to the material, which has the potential to reduce their uncertainty and anxiety about their conditions, and to increase their confidence to self-care (A), thus resulting in greater adherence to self-care behaviour (O). These processes are more likely to occur in a context where there is ongoing access to the material in a supportive home setting and where there is contact with a professional allowing the patient to ask questions and the professional to tailor the information. They are less likely to occur in a context where the patient is overwhelmed by their condition with low readiness to self-care, or when hospital stays are short and there is lack of professional time (C) (Figure 2.).

*Figure 2.*

## **DISCUSSION**

All completed studies showed some effects in favour of the interventions, suggesting that the use of multimedia material is potentially valuable in these patient groups. However, the effects were small and many did not reach statistical significance, indicating the need for further work to refine these approaches. Only three included papers were judged to be methodologically strong, emphasising the need for the development and evaluation of such tools.



The concern that multimedia interventions are being developed without a concomitant advance in learning theory to support their design and without fully considering how the social and organisational context may affect implementation (Riley et al. 2011; Angus et al. 2013) is partially borne out in our review. The majority of studies evinced only common sense theories to support their use and few provided explicit discussion of the impact of organisational or social factors.

The broader organisational context that provided part of the rationale for the interventions was reduced healthcare resources to support patient education, manifested in lack of professional time and reduced length of hospital stay. Nevertheless, most interventions included some direct contact with a professional. This serves to illustrate a tension in the underlying rationale for interventions of this type. Namely, that they are often introduced as a substitute for professional time spent educating the patient (because lack of resources in a given context mean that such time is unavailable), yet may work better if they are supplemented by interaction with a professional so that information can be tailored and questions answered.

Shortened length of hospital stay feeds into this context in another way in that patients are likely to be acutely ill for the majority of their stay in hospital and so potentially overwhelmed by their conditions, and unreceptive to educational input from professionals even if this is available. Healthcare providers will need to consider carefully how such multimedia interventions are delivered within available resources in order to strike the optimum balance of cost and effectiveness.

The mechanisms at the heart of the interventions underline the importance of a patient-centred approach to the development and presentation of multimedia content – including involving patients and their relatives in the creation of the intervention - and the significance of agency in achieving changes in behaviour. Unless the multimedia material engages the patient’s attention and proves credible, relevant and important, it cannot exert any effect. And if the material does not reduce uncertainty about the patient’s condition and increase their confidence to attempt self-care, it will not change the patient’s behaviour. Role-modelling of the desired behaviours by patients (or actors) appears to be particularly important in this respect.

## **Conclusions and recommendations**

Multimedia interventions may provide high quality, standardised information in an accessible and interesting format, with the potential to produce a change in self-care behaviour amongst patients with degenerative conditions. This change in behaviour is mediated by the patient perceiving the information as credible, relevant and important and developing the confidence to carry out self-care practices. However, the evidence for efficacy is generally weak and the effects relatively small. Further research is needed to investigate the most effective mode of delivery for this information at different levels of resource. Meanwhile, we recommend that those producing multimedia interventions for patients with degenerative conditions take the mechanisms and contextual issues we have identified into account when developing and implementing their materials (Table 3.)

*Table 3*

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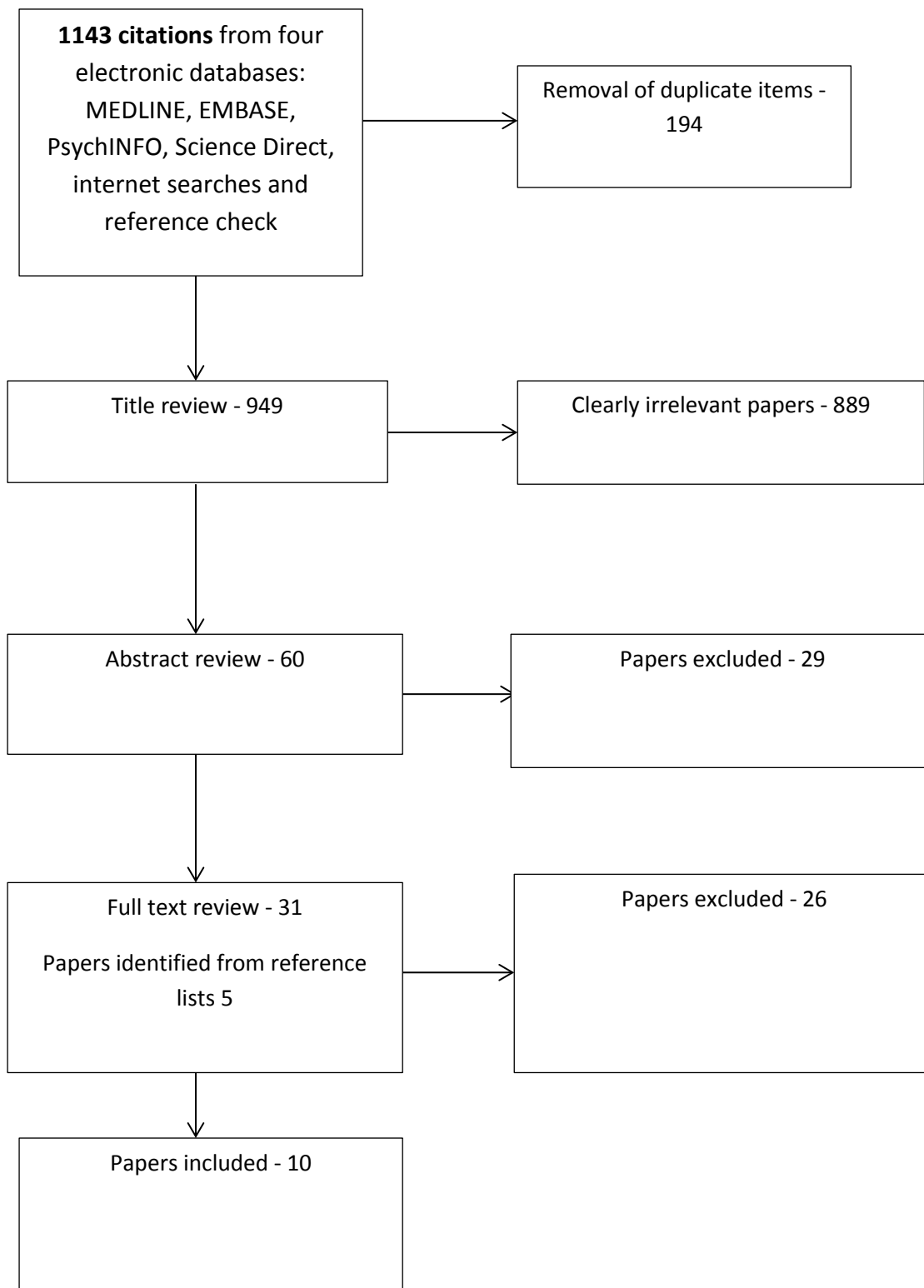
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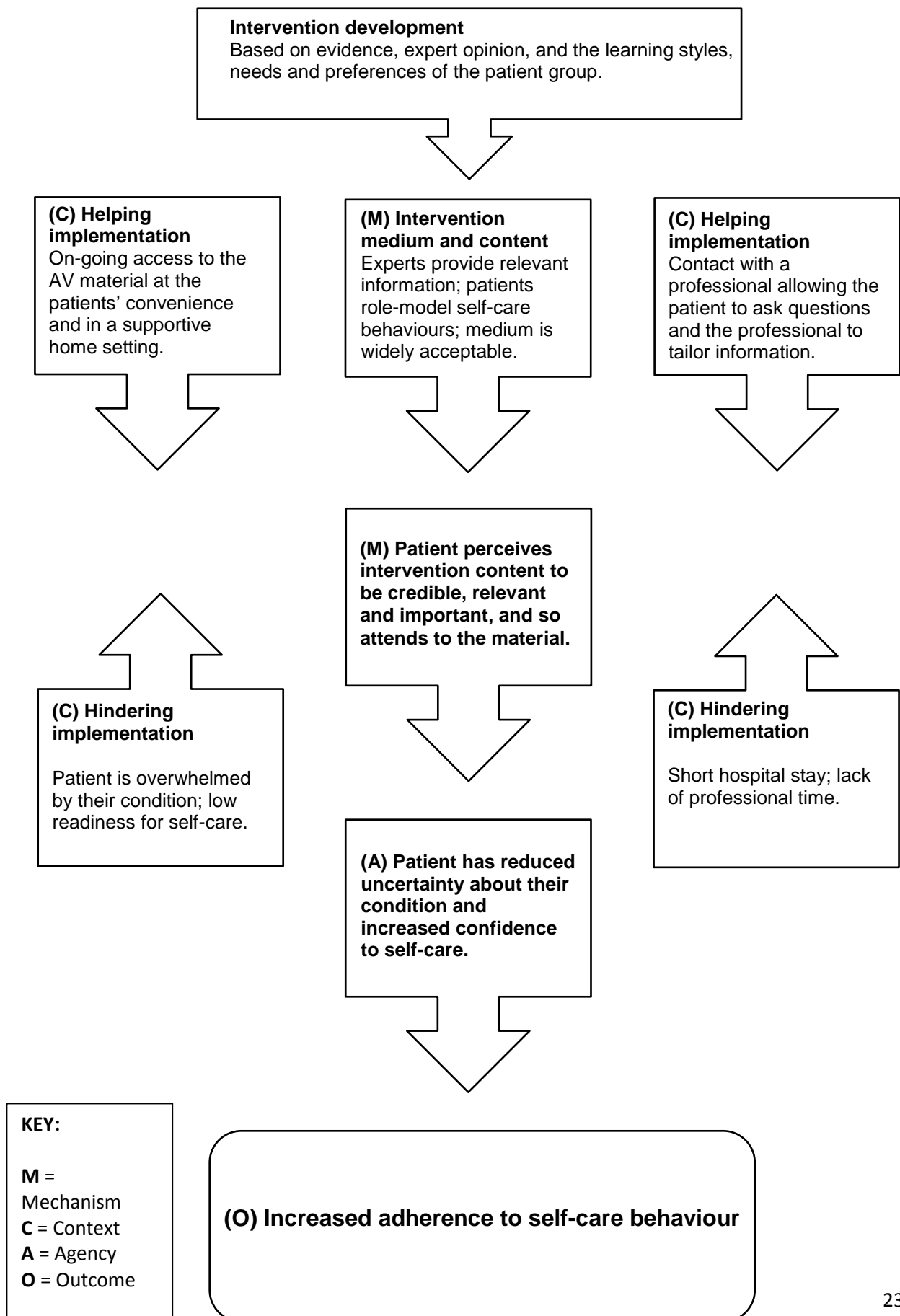
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**Figure 1. Flow diagram illustrating search process.**



**Figure 2: Theoretical model of how multimedia psycho-educational interventions to support patient self-care in degenerative conditions may work**





**Table 1. Medline search strategy**

1. exp video recording/
2. exp audio visual aids/
3. dvd.mp.
4. digital versatile disc.mp.
5. interactive multimedia.mp.
6. interactive tutorial/
7. media-based.mp.
8. videotape.mp.
9. video\*.mp.
10. audio visual\*.mp.
11. (media adj3 (video or audio)).mp.
12. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11
13. psychological.mp.
14. psychoeducation.mp.
15. psycho-education.mp.
16. Psychosocial.mp.
17. Psycho-social.mp.
18. Psychotherapy.mp.
19. Counselling.mp. or directive counselling/ or counselling/
20. (behaviour\* or behavior\*).mp.
21. 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20
22. Patient Education as Topic/
23. 12 and 21 and 22

**Table 2. Summary of included studies**

Author(s), country and objectives	Population, setting, and intervention	Design and methodological rigour (strong/moderate/weak)	Key results	How the intervention was thought to work	Contextual features thought to influence implementation
<p>Albert et al (2007)</p> <p>USA</p> <p>Objectives: to determine if video education (VE), in addition to standard education, reduces urgent healthcare resource consumption.</p>	<p>Patients discharged home from hospital with a diagnosis of chronic heart failure.</p> <p>Intervention: all patients received multi-disciplinary education in hospital and extensive written material with the same sort of information as is found in the video. Intervention group also received a specially developed one hour video, "Living with heart failure: A home video guide to self care". Video uses repetition, role modelling and demonstration, and can be watched with family.</p>	<p>Randomised controlled trial: 37 participants intervention; 39 participants control.</p> <p>Follow-up: 3 months.</p> <p>Rigour: moderate/weak (convenience sample; planned sample size not reached).</p>	<p>Overall no difference between groups in urgent healthcare resource consumption; but VE patients needed less extra diuretic dosing and healthcare team telephone communication; and had greater symptom reduction and greater self-care adherence.</p>	<p>Audio-visual information on self-care is more readily absorbed than print. It could be viewed at the patient's chosen time and place, and could be repeated. This led to improved attention and increased comprehension. Material featuring actual patients in real-life situations increased confidence in replicating this behaviour through role modelling.</p>	<p>Health care reimbursement does not encourage extensive 1:1 education, so this is usually brief and inadequate. The video can be viewed at home in a familiar, relaxed environment with family support.</p>
<p>Boyde et al (2012)</p> <p>Australia</p> <p>Objectives: To determine the efficacy of a self-care manual</p>	<p>Patients enrolled in a multidisciplinary chronic heart failure management Program.</p> <p>Intervention: evidence-based written manual plus</p>	<p>Pilot study involving 38 patients with CHF. A single group, pre-test/post-test design to assess changes in knowledge and self-care abilities. Knowledge was assessed with the Dutch</p>	<p>A statistically significant difference in the pre- and post-test scores for knowledge, and self-care</p>	<p>Audio-visual and printed materials which are developed with adult learning theory in mind (i.e. they are problem-centred, self-directed, and relevant to life experience), which could</p>	<p>The life-experience of patients (the learning is intended to be relevant to important challenges for patients). The DVD</p>

combined with a DVD for patients with CHF. Outcomes of interest included heart failure-related knowledge and self-care behaviours.	DVD focused on implementing and role-modelling self-care activities through seven 'how to' scenes; focus group to discuss DVD content, followed by eight weeks self-directed learning at home.	Heart Failure Knowledge Scale and self-care behaviours were assessed using the Self-Care of Heart Failure Index.  Follow-up: 8 weeks  Rigour: Weak (small, single group study with short follow-up period and single pre-post measurement points).	maintenance, management and confidence.	be repeatedly viewed at the patient's chosen time and place, and which bring to mind and role-model self-care activities, provide the knowledge and confidence to engage in self-care behaviour.	can be viewed at home in a familiar, relaxed environment with family support. Thought to be suitable for older patients with low health literacy.
Capewell et al (2010)  United Kingdom  Objectives: to assess the feasibility and acceptability of a brief DVD-based educational intervention for cancer pain in palliative care patients.	Patients using palliative care services, living at home, with pain from active cancer, and their carers.  Intervention: 6-minute evidence-based DVD containing interviews with multidisciplinary palliative care staff focused on cancer pain and the use of strong opioids, with accompanying booklet shown in the outpatient clinic and then taken home.	Pilot study involving 15 patients and 10 carers. A single group, pre-test/post-test design to assess changes in pain, knowledge, coping, anxiety, and adherence to medication.  Follow-up: 3 occasions over 25-35 days.  Rigour: Weak (small, single group study with short follow-up period).	DVD acceptable to patients and carers, although most did not watch it at home; significant improvements in knowledge and attitudes; small and non-significant improvements in pain intensity.	Educational interventions improve psychological function (improved attitudes and knowledge, and reduced anxiety), which leads to improved medication adherence, which in turn leads to reduced pain intensity. Repeated viewing beneficial.	The DVD could be viewed at home (although few did so).
Chambers et al (2008)  Australia	Men undergoing radical prostatectomy and their partners in a heterosexual cohabiting relationship.	This is a study protocol for a randomised controlled trial.	Outcome measures include: sexual adjustment; unmet sexuality	Attending to the couple relationship, promoting a sense of conjoint coping and	Not discussed.

<p>Objectives: to compare the efficacy of peer-delivered telephone support with DVD educational resource, vs. oncology nurse-delivered telephone counselling with DVD educational resource, vs. usual care in improving both men's and women's sexual and psychosocial adjustment after treatment for localised prostate cancer.</p>	<p>Intervention: peer or nurse delivered telephone support, plus an audio-visual DVD resource with Tip Sheets to enhance the psycho-education and sexuality education components and also to provide actor role models for effective couple communication about sexuality and intimacy.</p>		<p>supportive care needs; attitudes to sexual help seeking; psychological adjustment; benefit finding and quality of life.</p>	<p>addressing sexual needs within the relationship, will enhance both partners' adjustment to prostate cancer and increase the chance of adherence and better sexual outcomes including erectile function. An adult learning approach in which partners' self-select goals to focus on while working through the program. Couple relationship education focussed on relationship enhancement and helping the couple to conjointly manage the stresses of cancer diagnosis and treatment</p>	
<p>Chiou and Chung (2012) Taiwan Objectives: to test the efficacy of a multimedia interactive DVD as an education tool for patients with end-stage renal disease in terms of enhancing patient</p>	<p>Patients (in hospital and outpatients) with end-stage renal disease. Intervention: Interactive patient education multimedia DVD based on the literature and expert opinion viewed on a single occasion in hospital; followed by repeated phone interviews with patients to clarify learning and address</p>	<p>Quasi-experimental design: 30 patients in intervention and 30 in control group. Changes in knowledge, uncertainty and decision-regret assessed. Follow-up: immediately after viewing the DVD and at 1, 2, and 4 months. Rigour: weak (poorly reported quasi-experimental</p>	<p>Experimental group showed significant increase in knowledge scores, with decreased scores for uncertainty and decision regret.</p>	<p>Increasing patients' knowledge will enable them to make better informed decisions, so reducing uncertainty and decision-regret, resulting in improved quality of life. An interactive multi-media DVD will enable patients to engage with a complex decision-making process because content is easy to</p>	<p>DVD is viewed in the hospital which ensures it is seen, but limits subsequent interaction with the material.</p>

<p>knowledge and decision-making skills and decreasing uncertainty.</p>	<p>issues of remaining concern to subjects.</p>	<p>design with ‘purposive sampling’ and significant attrition at 4 months)</p>		<p>interpret and understand; audio, video, 3D animation and videos that demonstrate the complete treatment process enhance interest in learning patient motivation; delivery is tailored to the specific need of each patient; and patients can preselect DVD education segments for repeated replay to facilitate familiarisation and absorption.</p>	
<p>Collins et al (2009) USA</p> <p>Objectives: to compare the efficacy of a face-to-face intervention (a discussion of patient responses to a survey) versus an educational video to improve the use of physical activity and walking ability in patients with peripheral vascular disease (PAD).</p>	<p>Patients aged 50 years or above, living at home, with a diagnosis of PAD.</p> <p>Interventions: (i) a questionnaire to establish knowledge about PAD as a disease, beliefs about its causes, perceptions about the role of walking for disease management, and beliefs about the factors that facilitate or hinder regular use of walking; followed by 15-20 minute motivational interviewing based on the q’aire, and walking prescription. (ii) 7 minute video with presentation of</p>	<p>A pilot study. Patients randomised to face-to-face (n22) or video-watching (n29) groups. Patients were assessed by self-report for activity level, leg symptoms and walking impairment.</p> <p>Follow-up: every two weeks by telephone and face-to-face at 12 weeks.</p> <p>Rigour: weak (small sample size and self-reported outcomes).</p>	<p>There were no statistically significant differences between the 2 groups in reported activity level or walking ability at 12 weeks. For within group changes, the patients in the video-watching group improved their walking speed.</p>	<p>Patient adherence to chronic disease management is influenced by physician-patient communication.</p>	<p>It appears the video is viewed in the hospital which ensures it is seen, but limits subsequent interaction with the material. Most of the participants randomised to the video group did not recall much of the video presentation.</p>

	expert opinion and advice on walking with PAD.				
Elander et al (2011)  UK  Objectives: to evaluate a DVD intervention to increase readiness to self-manage joint pain secondary to haemophilia.	People living at home with a diagnosis of haemophilia and registered with the Haemophilia Society UK.  Intervention: a 25 minute film; mailed to participants with brief instructions and no need for personal instruction or clinical support; featuring 5 people who described their own experiences of living and coping with haemophilia joint pain; plus a booklet with the same information.	A randomised controlled trial: 57 participants received the DVD plus the booklet; 51 participants just the booklet. Participants were assessed for readiness to self-manage pain (comparing changes in Pain Stages of Change Questionnaire scores - precontemplation, contemplation, and action/maintenance - between groups) , pain coping, pain acceptance, and health-related quality of life.  Follow-up: baseline and 6-months.  Rigour: moderate (effective randomisation and measurement of outcomes; planned sample size not reached).	The DVD reduced precontemplative thinking more than written information alone, suggesting the DVD format can increase perceived personal responsibility for pain control and interest in adopting self-management. There were no differences between groups on any of the secondary outcomes.	Clinicians could increase patient readiness to self-manage joint pain by encouraging patients to expect positive outcomes from pain self-management, and negative outcomes from neglecting this; helping the patient identify and manage factors that reinforce or hinder self-management (Jensen et al, 2003). The film provided information about behaviour-health links and consequences, prompts to intention formation and barrier identification, prompts to goal-setting, general encouragement, and modeling behaviour (Abraham and Michie, 2008).	The DVD was posted to the participant's home. Some evidence that use of the DVD is less likely amongst participants with pre-existing low readiness to self-manage. Intervention could be improved by providing more information in advance, using counselling techniques to enhance motivation to change, and tailoring the intervention with respect to participants' motivation and concerns.
Hoffman et al (2011)  USA	People with spinal cord injury (SCI) living in the community, their families, and health professionals.	Observational study comparing the responses of people attending a forum (n422) with those viewing	Eighty-eight percent of online evaluators and 96% of in-person	Persons with SCI are at high risk of developing complications but many of these conditions can be	As length of hospital stay has decreased, many patients are

<p>Objectives: to compare responses to live public education forums with responses to online video recordings of the forums.</p>	<p>Intervention: professionally videotaped education forums on a range of SCI-related issues made available online. Presenters are specialists in the subject or panels of community members with SCI.</p>	<p>videotaped forums (n66).  Rigour: weak (only about 2.6% of those who viewed a video completed a survey; no information on those who did not respond in either setting; outcomes are measured by self-report).</p>	<p>evaluators reported that they gained new information from the forum; 52 and 64% said they changed their attitude, and 61 and 68% said they would probably change their behaviour or take some kind of action based on information they learned. Ninety-one percent of online evaluators reported that video is better than text for presenting this kind of information.</p>	<p>prevented or minimized through informed self-care practices. People with SCI have difficulty attending forums whilst online information is often more accessible; video material increases understanding more than written or face to face presentations. People are able to access information when they are ready to receive it, and the use of both professional and peer presenters may enhance the credibility and uptake of information presented.</p>	<p>discharged before they have absorbed necessary information. Patients and families are often overwhelmed by the psychological and physical consequences of the injury and therefore, not 'ready' to receive and retain all the information that they will eventually need. Video media delivered via the Internet can overcome geographic, temporal, and built-environment barriers to critical health information.</p>
<p>Syrjala et al (2008)  USA  Objectives: to test the efficacy of training patients to work with</p>	<p>Adults registered with regional oncology clinics, who are suffering cancer pain and have a life expectancy of at least 6 months.</p>	<p>Multi-site randomised controlled trial: 48 allocated to pain training; 45 to control (nutrition training). Participants were assessed for barriers to treatment, pain, symptom severity, and</p>	<p>Intervention versus control patients reported reduced barriers to pain relief, lower usual pain, and greater opioid use.</p>	<p>The video provided engaging standard information, freeing professional time for personalised training. This enables patients to understand treatment options and to communicate</p>	<p>Administration of the training intervention was targeted to 'learnable moments', when patients had</p>

<p>professionals to manage their cancer pain.</p>	<p>Intervention: patient-completed checklist to identify barriers to pain relief; 15-min videotape with basic information, featuring cancer patients with pain talking about their experiences with treatment; an accompanying handbook; material reviewed with research nurse who also supervised completion of a 'Things to Tell Your Doctor' assessment checklist to take to the next doctors' appointments. Follow-up phone call after 72 hours to address treatment content and pain communication.</p>	<p>opioid use.</p> <p>Follow-up at 1, 3, and 6 months.</p> <p>Rigour: moderate (a well-executed trial but with no sample size calculation, a relatively small sample, and significant [47%] attrition).</p>	<p>Physician and nurse ratings were closer to patients' ratings of pain for trained versus nutrition group.</p>	<p>more effectively with professionals, leading to more appropriate treatment, reduced barriers to treatment, and better pain relief.</p>	<p>cancer-related pain, but were healthy enough to learn and apply new information. Intervention delivered in the clinic or patients' homes.</p>
<p>Veroff et al (2011) USA</p> <p>Objectives: to assess the impact on patients with heart failure of providing a medical decision aid, 'Living with Heart Failure' DVD and booklet.</p>	<p>People living at home with a diagnosis of heart failure, aged 64 years or older, covered by a large not-for-profit health plan.</p> <p>Intervention: basic program information, a simple fact sheet, and a Shared Decision-Making Program mailed to participants,</p>	<p>A randomised controlled trial: 1170 in the intervention group; 1269 in the control (this group received only basic program information and a simple fact sheet). Patients were surveyed by telephone to assess self-care, health care provider interaction, health status, and satisfaction with</p>	<p>Intervention group respondents were more likely to: weigh themselves daily (44% versus 38% in the control group – this was the only significant difference, <math>P = 0.05</math>); monitor fluid intake (47% versus</p>	<p>Successful disease management for individuals with heart failure relies on self-care (defined as a decision-making process involving behaviour choices of self-monitoring and treatment adherence. Education and support enhance self-care and these can be delivered less</p>	<p>A clinician sending the material after introducing it in a telephone consultation is likely to make the intervention more acceptable to patients.</p>



	entitled 'Living with Heart Failure: Helping your Heart Day-to-Day' comprising a 29-minute DVD decision aid, with a 38-page booklet on the same subject material.	the program.  Follow up: 1 month.  Rigour: weak (short follow-up, single data collection point, self-reported measures; low survey response [20%]).	44%); and follow a low-sodium diet (83% versus 77%).	effectively but more economically than professional face-to-face support.	
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**Table 3. Recommendations for the development and implementation of multimedia interventions for patients with degenerative conditions**

Developers and implementers of multimedia interventions should:

- Specify the intended outcomes of the intervention
- Aim for an intervention that will reduce uncertainty and increase confidence to self-care
- Investigate the learning styles, needs and preferences of the intended users and involve them in the development of the intervention
- Consider at what stage in the patient's life and health care journey the intervention will be used
- Consider the context in which the intervention will be used
- Consider the resources, including face-to-face time with a professional, that are likely to be available
- Consider whether the intervention is designed to stand alone or to be used in conjunction with other resources
- Produce evidence-based materials
- Include role-modelling of desired self-care behaviours