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Review article

The use of film-based interventions in adolescent mental health education: A systematic review

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ABSTRACT

Film-based interventions have been embraced by adolescents as educational tools, but their efficacy in mental health education remains under-explored. In this review, we systematically examined the use of film-based interventions in adolescent mental health education. A systematic review of the empirical literature was conducted using the following databases: Academic Search Complete, Education Full Text [H.W. Wilson], CINAHL Plus with Full Text, Humanities Full Text [H.W. Wilson], MEDLINE, APA PsycArticles, APA PsycInfo, Psychology and Behavioral Sciences Collection, Social Sciences Full Text [H.W. Wilson], Soc Index, ERIC. Risk of Bias were assessed using Version 2 of the Cochrane RoB tool for randomised trials (RoB2) or the Cochrane Collaboration Risk of Bias In Non-randomised Studies of Interventions (ROBINS-I). Ten peer-reviewed studies were included in this review. Film emerged as a promising education method for enhancing metal health literacy and reducing stigma. Mixed reports were found for improving attitudes towards help-seeking, with narrative-based films having a weaker effect on attitudes towards help-seeking when compared with more instructive approaches. No study focussed on resilience. This review highlights the utility and potential for film-based interventions in adolescent mental health education. Further research is warranted around how best to implement such interventions to engage adolescents.

1. Introduction

Mental illness is a significant contributor to disease burden in adolescents. At least one out of four to five young people experience mental illness in any given year (Patel et al., 2007; Sanci et al., 2018). The ways in which psychological and social transitions are negotiated by adolescents affect current and future well-being (Office for National Statistics, 2014; World Health Organisation [WHO], 2014). This is important because it is during this time that people can often first experience symptoms of mental distress (Hoeve et al., 2015). However, adolescents often demonstrate a limited understanding of mental illness (Goodwin et al., 2016). Such limited knowledge has been linked to negative attitudes towards mental illness which can impact adolescents' decisions to seek help (Kutcher et al., 2016).

Accordingly, adolescents should be a primary audience for raising awareness and targeting positive behaviours (Kutcher et al., 2016), yet there is a dearth of interventions that work towards promoting mental health in this group (Patel et al., 2007; Goodwin et al., 2016). Initiatives which optimise mental health awareness could possibly become the foundation for a lifetime of improved mental health and better outcomes (Kutcher et al., 2015). It is important to identify protective factors in adolescent mental health, explore aspects that affect mental health, and address causes of health-compromising behaviours (WHO, 2014). Also, of importance is mental health literacy (MHL), which includes knowledge and recognition of mental illnesses, key risk factors and causes, and knowledge around how to access related information (Jorm et al., 1997). Similarly, the area of resilience has particular salience in adolescence (Seedaket et al., 2020), with the development of resilience-building interventions for adolescent populations highlighted as a priority (Joyce et al., 2019; Government of Ireland, 2020).

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Therefore, determining the right types of interventions may help adolescents deal with difficult issues they face in daily life (Seedaket et al., 2020).

There is evidence to suggest that adolescents respond positively to simple, early interventions, including psychosocial support, self-help strategies, and educational interventions, when offered in non-clinical settings (Patel et al., 2007). However, this task is complicated by the fact that adolescence is complex, and interventions for young people require particular styles and therapeutic skills that are often lacking (Patel et al., 2007). Young adults will often derive their understanding of mental illness from secondary sources, for example, popular culture, which can adversely influence perceptions (Byrne, 2009; Goodwin et al., 2016). With this population in mind, interventions should be contextual, developmentally appropriate, and embedded into everyday social and organisation systems (Kutcher et al., 2016).

Learning in the twenty-first century requires moving from static information to methods that will increase accessibility and appeal to the evolving needs of youths (Kutcher et al., 2013). According to Blasco et al. (2015), use of film as a teaching method promotes the type of engaged learning that is required in youth education. Emotions play a significant role in the formulation of new knowledge, attitudes, and behaviour. Therefore, initiatives such as storytelling, theatre, and film have the capacity to target affective domains and enhance learners' understanding of the human experience (Blasco et al., 2015; Goodwin et al., 2019; Davaasambuu et al., 2020).

Film, also known as cinematograph film or motion picture, refers to any sequence of visual images recorded on any material (e.g., video) capable of being shown as a moving picture (Government of Ireland 1963; Sharma 2018; Murphy et al., 2020). Films include, but are not limited to, documentaries, animations, short videos, and dramas (Botchway et al., 2017). Use of film-based interventions is ideal to the young learner, as film is familiar, developmentally relevant, and can be evocative yet non-threatening (Blasco et al., 2015). Furthermore, owing to developments in media technology, it has become possible to create high-quality, user-friendly film-based interventions which can be used consistently in a wide variety of locations at low cost (Downs et al., 2004). Film has been used previously to explore different facets of mental health, with undergraduate nurses (McCann and Huntley-Moore, 2016), psychology students (Petkari et al., 2017), medical students (Datta et al., 2009), and arts students (Hankir et al., 2017). In relation to adolescents, film-based interventions have been used to explore various topic areas including bullying (Burk et al., 2018), sexual health (Aventin et al., 2019), and smoking (Zhao et al., 2019).

The international literature has identified a lack of evidence and clarity as to which interventions are able to comprehensively improve levels of MHL amongst adolescents (Seedaket et al., 2020). Despite a stated need to identify evidence-based mental health interventions in schools, and the need to ensure such interventions are contextually relevant and youth focussed (Kutcher et al., 2016; Patel et al., 2007), it remains unclear which types of interventions, and which elements therein, are most effective (Vila-Badia et al., 2016). Specifically, few studies have used film as a mental health intervention with adolescents (Vila-Badia et al., 2016).

The aim of this systematic review was to explore the use of film-based mental health interventions in enhancing MHL and resilience, improving attitudes towards help-seeking, and reducing mental health stigma in adolescents.

2. Methods

This systematic review was guided by the Cochrane Handbook for Systematic Reviews of Interventions (Chandler et al., 2019), and reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist (Moher et al., 2009). The review protocol was registered with the International Prospective Register of Systematic Reviews (PROSPERO) under the registration number CRD42020175564.

2.1. Eligibility criteria

Study eligibility criteria were predetermined according to the PICO (Population, Intervention, Comparison, Outcomes) framework (Moher et al., 2009). Empirical studies of any design were eligible for inclusion provided that they (i) were conducted among adolescents (age defined in the reviewed studies); (ii) included a film-based component to provide education about mental health; (iii) involved within or between-group comparisons; and (iv) focused on mental health literacy, resilience building, attitudes towards help-seeking, and/or stigma reduction. Of note, film-based interventions have been used broadly as part of "entertainment-education" initiatives. This approach involves the purposeful design and implementation of a media-based intervention aimed to educate and entertain its audience (Singhal and Rogers, 1999, 2003). Therefore, the current systematic review was not limited to "entertainment" film/video, nor was it limited to author-developed interventions (e.g., interventions which used video clips available on platforms such as YouTube were eligible for inclusion).

Studies were excluded if they were conducted among children or adults, or where findings from adolescents could not be isolated. We also excluded interventions measuring dimensions other than mental health. Intervention protocols, literature reviews, dissertations, conference proceedings, commentaries, and editorials were also excluded.

2.2. Search strategy

We searched the following electronic databases for relevant studies: Academic Search Complete, Education Full Text [H.W. Wilson], CINAHL Plus with Full Text, Humanities Full Text [H.W. Wilson], MEDLINE, APA PsycArticles, APA PsycInfo, Psychology and Behavioral Sciences Collection, Social Sciences Full Text [H.W. Wilson], Soc Index, ERIC. We also reviewed the reference lists of potentially eligible studies to identify additional studies.

We used subject headings as appropriate and truncation to enable different forms of a keyword. The following keywords were truncated to maximise retrieval, combined using Boolean operators "OR" and "AND," and searched on title or abstract: (film* OR movie* OR "motion picture*" OR cinema* OR video*) AND ("mental health" OR "mental illness*" OR psychiatr*) AND (literacy OR aware* OR knowledge or percept* OR attitude* OR belief* OR opinion* OR view* OR educat*) AND (adolescen* OR teen* OR "young adult*" OR youth* OR "young person*" OR "young people*"). The search was last conducted on January 31st, 2021 and was limited to records published in English. No year limits were used, in order to maximise retrieval.

2.3. Study selection

Records identified from the search were transferred to Covidence, an online software used to streamline the production of systematic reviews (The Cochrane Collaboration, 2020). Duplicates were deleted. Titles, abstracts, and full texts were then screened; all members of the review team contributed to the screening process. Each record was screened twice by two independent reviewers for a screening decision to be made. Screening conflicts were identified through Covidence; these conflicts were resolved by an independent third reviewer at random.

2.4. Data extraction and synthesis

Three reviewers (JG, MMS, LP) extracted data from eligible studies using a standardised data extraction table under the following headings: author(s) (year); country; aim of study; study design; theoretical underpinning; sample and setting; intervention description; data collection process; key outcomes; key outcome measures; and key findings (Saab et al., 2018). Each extracted study was cross-checked by two reviewers

(CD, CK) to ensure accuracy and minimise reporting bias. Due to the heterogeneity in study design, outcomes, and outcome measures, a meta-analysis was not plausible. Instead, we present a narrative synthesis of findings.

2.5. Risk of bias assessment

Risk-of-bias (RoB) for the RCTs in the review were assessed using Version 2 of the Cochrane RoB tool for randomised trials (RoB2) (Sterne et al., 2019). The RoB2 is organised into a set of domains of bias, focusing on various aspects of trial design, conduct, and reporting. A series of signalling questions within each domain are used to elicit information about aspects of the trial that are pertinent to the risk of bias resulting from randomisation; deviations from the intended interventions; missing outcome data; measurement of the outcome and selection of the reported results. For the quasi-experimental studies, the Cochrane Collaboration Risk of Bias In Non-randomised Studies of Interventions (ROBINS-I) was used to assess bias relating to confounding, selection, classification of interventions, deviations from intended interventions, missing data, measurement of outcomes and reporting (Sterne et al., 2016). In both tools, a proposed judgement about the risk of bias arising from each domain is generated by an algorithm, based on answers to the signalling questions. For the RoB2, the overall judgement can be 'low' or 'high' risk of bias or 'some concerns', while the overall judgement for the ROBINS-I is either 'low', 'moderate', 'serious', 'critical' or 'no information'. One author (LFP) completed the RoB assessments for the quasi-experimental studies using the ROBINS-I; these were then independently cross-checked by a second author (CK). Two authors (JG, MS) completed the RoB assessments independently for the RCTs utilising the RoB2; these were then independently cross-checked by a third author (CD). Discrepancies were resolved through consensus between the authors.

3. Results

3.1. Study selection

Our search identified 307 records (Fig. 1). Following deletion of duplicates, we screened 278 papers on title and abstract and excluded 247 irrelevant papers. We screened the full text of the remaining 31 papers and excluded 21 papers. No records were identified from reference list checks. Therefore, 10 studies were included in our review.

3.2. Study characteristics

There were five pre-and post-test studies, three randomised control

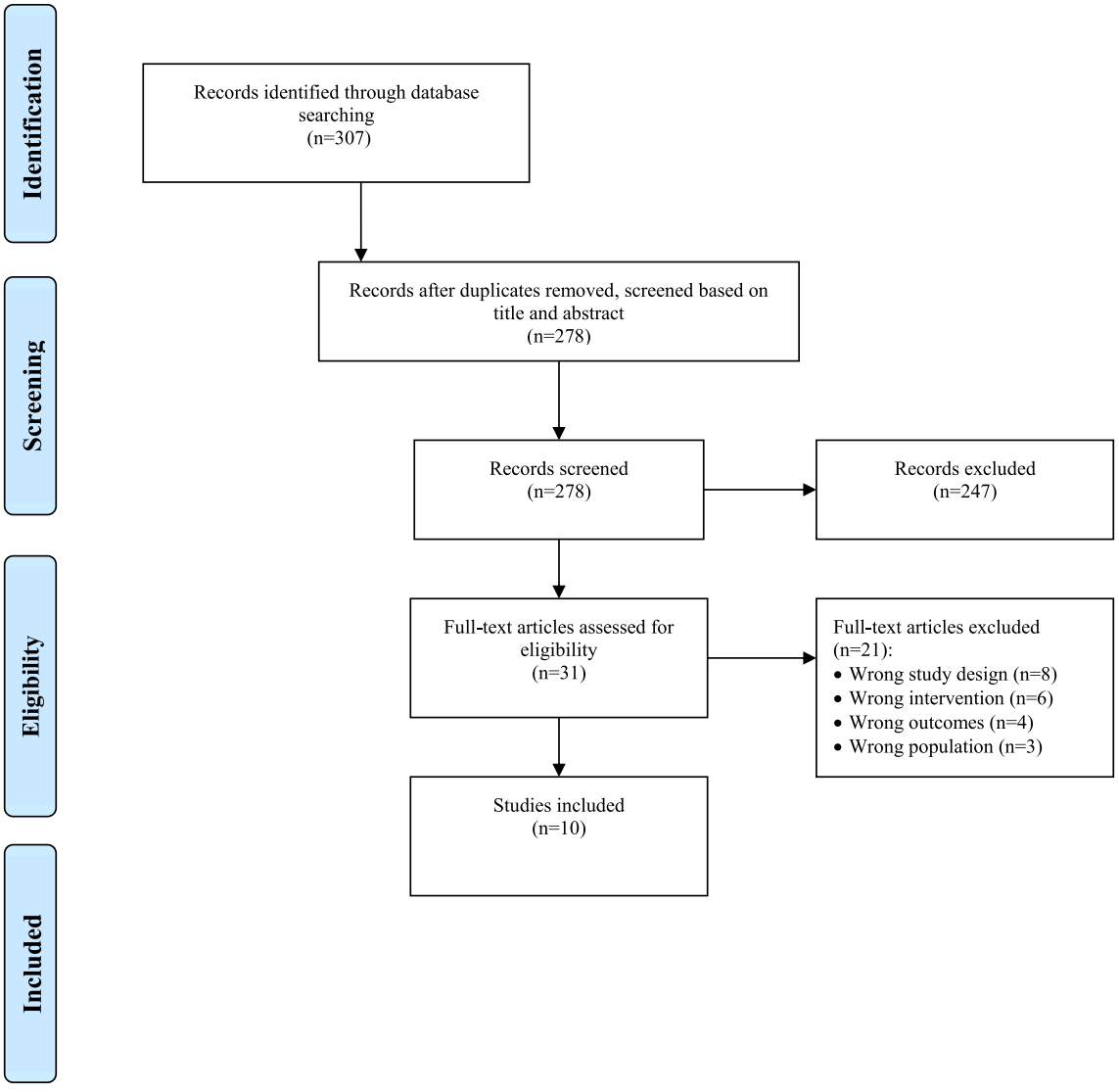


Fig. 1. Study identification, screening, and selection process.

trials (RCT) and two post-test only studies. Participants included school students, community organisations and youth groups, and boarding and public-school classes. The sample sizes ranged from 98 (Jaber et al., 2015) to 571 (Stuart, 2006) participants. Three of the included studies were conducted in the USA, while one study was conducted in each of the UK, Australia, Germany, Spain, Portugal, Canada and Malaysia. The duration of film-based interventions ranged from 90 s (Marshall and Dunstan, 2014) to 100 min (Conrad et al., 2014). Most studies (n = 7) were conducted in the school setting. Other settings included at a film festival (Conrad et al., 2014), community organisations (Jaber et al., 2015), and a combination of school and community settings (Marshall and Dunstan, 2013). Full study characteristics with findings from individual studies are presented in Table 1.

3.3. Mental health literacy (MHL)

Five papers reported on MHL. Educational, film-based programs have shown to have positive effects on increasing knowledge on mental illnesses. An early study by Petchers et al. (1988) in the USA evaluated the knowledge and opinions about mental health and mental illness after a video-based education intervention program was introduced into two high schools. The study suggested that video-based instruction may hold considerable promise for increasing mental health knowledge and encouraging more sensitive attitudes towards mental illness among adolescents. A pre-post-test designed study of two secondary schools in the UK evaluated the impact of a mental health workshop on pupils' MHL. A short video on common mental health problems formed part of this workshop (Bentham et al., 2013). The study observed that, pre-workshop, 90% of pupils either agreed or strongly agreed with the statement, "I think it is useful to learn about how young people can be affected by mental health" (p. 225). Post-workshop, this number increased to 99.1% of pupils. In addition, the same study observed a more than 100% increase in the correct response to the statement, "What proportion of young people has mental health problems?": 47% pre-workshop to 97.8% post-workshop. Furthermore, the study observed a 15% increase in the correct response to the statement, "Mental health can have just as much impact on overall health as physical health": 72.4% pre-workshop to 87.8% post-workshop.

Film-based interventions also had positive effects on increasing knowledge around specific mental illnesses, such as schizophrenia and depression. A study by Stuart (2006), which evaluated the impact on high school students of a video-based anti-stigma program developed by the Schizophrenia Society of Canada portraying real-life experiences of individuals with schizophrenia reported students to be four times more likely to achieve a high knowledge in relation to schizophrenia. At baseline, 47.7% of the students had achieved 80% or higher on the knowledge items which improved to 78.8% after receiving the intervention ($p < 0.001$).

Results from a quasi-experimental study of boarding school residents indicated that, at 3-month follow-up, an intervention which included a 4-min researcher-developed animation significantly increased depression literacy ($p = 0.040$) (Ibrahim et al., 2020). Bentham et al. (2013) observed a 43% increase in pupils correctly choosing depression as the leading cause of disability worldwide (33.6%–76.1% post-workshop). Furthermore, low levels of knowledge in relation to symptoms of depression (29%–53.5% post-workshop) and anxiety-related problems (21.7%–44.8% post-workshop) were observed. Although participants in a post-test study (Marshall and Dunstan, 2011) were better able to recognise symptoms of depression through a written vignette than a researcher-developed short film, the authors acknowledged that comparisons were difficult to draw as the films and vignettes were not matched for severity of symptoms. Additionally, at 90 s' duration, the short films used in this study were markedly shorter than in all other studies.

3.4. Mental health stigma

Six studies reported the effects of film-based interventions on mental health stigma, reporting on both self-stigma and personal stigma. A pilot RCT by Gonçalves et al. (2015) examined the effectiveness of a researcher-developed video-based mental health de-stigmatization intervention. The study found the intervention to significantly reduce self-stigma for seeking help, social stigma, and for seeking help. This decline was significantly greater in the intervention group compared to the control group ($p < 0.05$). In their quasi-experimental study, Ibrahim et al. (2020) also observed significant decreases in self-stigma at 3-month follow-up ($p < 0.001$).

A pre-post study by Conrad et al. (2014) evaluated the impact of the Germany-wide film festival "AUSNAHME | ZUSTAND" on "social distance" (a commonly used concept in measuring mental illness stigma and acts as a proxy for social acceptance, or the distance one wants to have between oneself and a person with a mental illness [Baumann et al., 2007]) and help-seeking attitudes of the adolescent audience. Significant decreases in social distance were observed for two films: Film 2, titled 'Bonkers', ($p < 0.001$) and Film 3, titled 'Proof of Life'. ($p = 0.006$). Although an increase in social distance was observed for Film 1, titled a 'Hero's welcome', ($p < 0.001$) the protagonist in this film was depicted as being aggressive, which the authors acknowledged may have re-enforced stereotypes about mental illness. Bentham et al. (2013) reported large increases in knowledge of stigma post-workshop. Pre--workshop, 15.2% of pupils disagreed or strongly disagreed with the statement, "People with mental illness are usually dangerous to others", in contrast to 61.3% post-workshop. This was supported by 73% of pupils agreeing that the workshop changed how they thought about people with mental health problems. Similarly, in a pre-post study, Stuart (2006) observed students to be twice as likely to achieve a high social distance score following the intervention program. Specifically, 41.5% achieved 80% or better on social distance at pre-test, improving to 52.1% post-test, a small but statistically significant difference ($p = 0.02$). An RCT by Vila-Badia et al. (2016) evaluated the effectiveness of a 20-min researcher-developed documentary for reducing social stigma towards mental illness in adolescents. Key outcomes for stigma included authoritarianism (view of people with a mental disorder as an inferior class), benevolence (attitudes that are encouraging of people with mental disorders but which exhibit a paternalistic attitude) and social restrictiveness (danger to society and suggests that people with a mental disorder should be restricted both during and after hospitalisation). Results found the program to be effective with statistically significant differences between intervention and control groups in the authoritarianism and social restrictiveness subscales only ($p < 0.001$ and $p = 0.019$, respectively).

3.5. Help-seeking knowledge and behaviour

Help-seeking knowledge and behaviour were examined in five studies. An early pre-post study by Ciffone (1993) examined the effectiveness of a suicide prevention program in the USA through a 15-min video on suicide, followed by a 40-min discussion. The study found results that dismiss the "normal belief" that linking mental illness with suicide would "diminish self-disclosure." The program led to a significant shift to desirable responses. More specifically, the program significantly influenced those adolescents who would otherwise counsel a suicidal friend without obtaining help ($p < 0.034$) and encourage the disclosure of personal thoughts of suicide to a peer ($p < 0.0067$). There was also a similar effect on those adolescents who would otherwise keep suicidal confidences a secret ($p < 0.0046$) and willingness to refer a friend to a professional counsellor ($p < 0.0001$).

These results are similar to more recent research whereby Ibrahim et al. (2020) observed significantly increased depression help-seeking attitudes at 3-month follow-up ($p = 0.004$). A study by Bentham et al. (2013) observed pre-workshop, that pupils were more likely to endorse

Table 1
Data extraction.

Author(s) (Year); Country Study Design	Aim of Study	Sample and Setting	Intervention Description	Data Collection Process	Key Outcomes and Measures	Key Findings
Bentham et al. (2013) UK Pre-post-test	To evaluate the impact of a mental health workshop on pupils' mental health literacy.	Two secondary schools, eight classes: 12-13-year olds. Pre-workshop N = 217 Post-workshop N = 230	50-min workshop on mental health, its relevance to adolescents, mental health issues, stigma, help-seeking. The workshop included a short video about common mental health problems. Videos, visual stimuli, role play and class discussion were used to teach pupils on these issues.	Pre-workshops surveys completed approx. one week before intervention. Post-workshop surveys completed immediately after intervention.	**Outcomes**: Knowledge of common mental illnesses Knowledge of stigma Knowledge of help-seeking **Measures**: Multiple-choice question-based surveys. Open-text boxes for participants to report sources of help they would consult.	-Pre-workshop 33.6% (n = 73) of pupils correctly chose depression as the leading cause of disability worldwide vs 76.1% (n = 175) post-workshop -Pre-workshop 29.0% (n = 63) pupils correctly identified all symptoms of depression compared 53.5% (n = 123) post-workshop. -Pre-workshop 21.7% (n = 47) correctly identified all the anxiety-related problems compared to 44.8% (n = 103) post-workshop. -Pre-workshop 90.8% (n = 197) pupils agreed or strongly agreed that drug or alcohol abuse can worsen a person's mental health compared to 97.0% (n = 223) post-workshop. -Pre-workshop 15.2% (n = 33) pupils disagreed or strongly disagreed that people with mental illness are usually dangerous to others compared to 61.3% (n = 141) post-workshop -Pre-workshop pupils were more likely to endorse general medical (65.0%), mental health professional/ institution (32.7%), and family (29.9%) over the internet (9.7%), Childline (11.5%), and friends (15.7%) for mental support. -Post-workshop, students were able to recall more specific places that they could access support. Higher endorsements were reported for "Talk to Frank" (54.78%), Childline (50.43%), Centre 33 (49.13%), and Youth2Youth (41.3%)
Conrad et al. (2014) Leipzig, Germany Pre-post-test	To evaluate "the impact of the Germany-wide film festival "AUSNAHME | ZUSTAND" on	Data for 525 of 532 young school class participants, mean age 15.6 years were reported across studies:	Five films about the emotional and intellectual world of adolescents, are studied. ***Film 1:* 91 min** 25-year-old man returns to	Surveys completed before and immediately after watching the films. After post-test, discussions with	**Outcomes**: Social distance among adolescents Willingness to interact with people with mental illness	Overall, social distance significantly increased by 0.62 points. Largest increase was for Film 1 (2.83-point increase

(*continued on next page*)

Table 1 (*continued*)

Author(s) (Year); Country Study Design	Aim of Study	Sample and Setting	Intervention Description	Data Collection Process	Key Outcomes and Measures	Key Findings
	social distance and help-seeking attitudes of the adolescent audience."	Film 1: n = 75 Film 2: n = 83 Film 3: n = 170 Film 4: n = 154 Film 5: n = 43	Germany a different man after a mission in Afghanistan. ***Film 2:* 83 min** 9-year-old girl left alone with a mother with bipolar disorder after grandmother dies ***Film 3:* 100 min** Five girls talking about their experiences with self-harm and struggles to fight the urge to hurt themselves ***Film 4:* 70 min** Five short films on the difficult and exiting times between infancy and adulthood. ***Film 5:* 100 min** Survivor child soldier becomes a hip-hop star in Africa and sings about war and hope	affected individuals and experts were held	Help-seeking attitudes **Measures**: Socio-demographic questionnaire 7-item scale of social distance among adolescents (Schulze et al., 2003). 5-point Likert scale assessing willingness to interact with people with mental illness 7 item survey of participants assessment of how likely they were to seek help from friend; family; teacher; psychologist, psychiatrist, or doctor; internet sources	(SE 0.44), $p < 0.001$). Social distance significantly decreased for Films 2 (1.47-point decrease, (SE 0.42) $p < 0.001$) and Film 3 (0.92-point decrease, (SE 0.34) $p = 0.006$). - Older participants were more willing to interact with people with mental health problems ($p = 0.001$) prior to watching the film - Females showed significantly less social distance at baseline compared to males ($p = 0.015$) - Not knowing someone with a mental health problem was associated with higher social distance ($p < 0.001$) - Help-seeking scores did not change on the 5 films. - No significant relationships found between help-seeking and age, gender, and knowing/not knowing someone with a mental health problem
Ciffone (1993) USA Pre-post-test design	Analysis of the effectiveness of a suicide prevention program.	Students in sophomore-level health classes at three suburban high schools in the Chicago metropolitan area. A test group of 203 students (119 males and 84 females) and a control group of 121 students (53 males and 68 females.	A 15-min video filmstrip, "Teens Who Choose Life: The Suicidal Crisis, Part II. Gail Chooses Life" (1986) which depicts adolescents who are lonely and need to belong, thereby showing viewers their emotional experiences are not unique. A 40-min structured discussion followed	One day before the suicide prevention presentation and again about 30 days later.	**Outcome**: The probability of correct responses to questions on soliciting help from peers, self-disclosure, supportive behaviour toward peers and showing anti- suicidal responses **Measures**: A short survey including demographics (birth date, race, classroom) and teacher which was used to match surveys.	The program significantly influenced those adolescents who would otherwise counsel a suicidal friend without obtaining help ($p < 0.034$)., those who would otherwise keep suicidal confidences a secret ($p < 0.0046$) and willingness to refer a friend to a professional ($p < 0.001$). The programme encouraged the disclosure of personal thoughts of suicide to a peer ($P < 0.0067$). Boys were more to seek help from a mental health professional. ($p < 0.038$). The programme had a positive impact on the resistant minority of adolescents who hold disconcerting views on suicide.
Gonçalves et al. (2015) Portugal	"To present results from a pilot test of a video-based mental	n = 207 7th, 8th, 9th graders of a public	IG: A 10-min video featuring a 15-year-old who had had a positive	Both the IG and CG were surveyed over three survey	**Outcomes**: Stigma towards receiving help for mental distress	-The intervention significantly reduced scores on all three

(*continued on next page*)

Table 1 (*continued*)

Author(s) (Year); Country Study Design	Aim of Study	Sample and Setting	Intervention Description	Data Collection Process	Key Outcomes and Measures	Key Findings
Randomised Controlled Trial (Pilot)	health de-stigmatization intervention administered in a school setting"	school Intervention group (n = 115) Control group (n = 92) 13 declined to participate	experience with a psychologist. They spoke about their hobbies, favourite books, and then spoke about their experiences with the psychologist. This was followed by a group discussion on the video. CG: No intervention	periods: pre, post and 1-month follow-up.	**Measures**: Self-Stigma of Seeking Help Scale (SSOSH) (10 items) Social Stigma for Receiving Psychological Help Scale (SSRPH) (5 items) Attribution Questionnaire-Children form (AQ-8-C) (7 items)	stigma scales. This decline was significantly greater in the IG compared to the CG ($p < 0.05$). -On follow-up, perceived sigma was lower IG. -The video proved a suitable tool for de-stigmatization of mental issues in Portugal at week 4 but not at the week 8 post-test
Ibrahim et al. (2020) Malaysia Quasi-experimental study using preintervention and postintervention measures with a 3-month follow-up	To demonstrate the efficacy and stability of a Malaysian Depression Literacy Program immediately after the program ended and at 3-month follow-up among adolescents with elevated depression	Residents from a boarding school for lower income families (N = 101); 53 underwent the program and 48 served as the control group.	The participants received a depression literacy intervention in the form of small group activities, an explanatory talk, and a 4-min animation video, delivered in the Malaysian language, which. depicted Malaysian characters and settings.	Before the intervention, pre-test questionnaires assessing depression literacy, mental help-seeking attitude, self-stigma on seeking help, as well as negative beliefs toward mental illness was gathered. The same questionnaire was administered post-test	**Outcome**: Knowledge and understanding in identifying symptoms of depression, sigma and suicidal responses towards mentally ill **Measure**: Depression Literacy Scale (D-Lit): 22-items Mental Help Seeking Attitude Scale (MHSAS): 9 items Self-Stigma of Seeking Help Scale (SSOHS): 10 items Beliefs Toward Mental Illness (BMI): 21-items designed to measure negative and stereotypical views of mental illness.	-The program significantly increased MHSAS at post-test ($p < 0.001$) and follow-up ($p = 0.034$); and significantly decreased BMI at post-test ($p < 0.001$) and follow-up $P < 0.001$. Results also indicated that the program significantly increased D-Lit at post-test ($P < 0.001$) but not at follow-up ($p = 0.143$). Similarly, for SSOHS, significant decreases at post-test ($p = 0.001$) could not be maintained at follow-up ($p = 0.242$). -Results indicated that at 3-month follow-up, significant results were maintained for increased D-Lit ($p = 0.040$) and MHSASP ($p = 0.004$). There was also a significant decrease in SSOHS scores ($p < 0.001$).
Jaber et al. (2015) USA Randomised Control Trial	To examine the prevalence of depression and attitudes towards depression and mental health treatment in Arab-American adolescents.	n = 98 Arab-Americans, aged 12–17 years, recruited from two local community organisations IG (n = 46); CG (n = 42)	IG: 4-5-min YouTube video on mental health awareness (interview with a mental health professional) CG: 4-5-min YouTube video on childhood obesity (interview with a health professional)	Online surveys were administered One of two videos was randomly allocated to each participant. Each participant then completed two surveys.	**Outcome:** -Rates of depression -Levels of stigma associated with both depression and seeking psychological help -Effect of an educational video about mental health stigma **Measures**: Patient Health Questionnaire-9 (PHQ-9) Depression Scale (9 items) Self-Stigma of Depression Scale	-There was no statistically significant difference between the IG and the CG on the SDSS ($p = 0.16$). There was a weak but statistically significant correlation between PHQ-9 score and SSDS score ($p = 0.024$), suggesting that the PHQ-9 scores only explained approximately 5% of the variance of SSDS scores. -Nearly one in seven (14%) exhibited moderate or moderately severe depression based on PHQ-9 scores with only 2% of participants reporting a prior diagnosis of depression by a health

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Table 1 (*continued*)

Author(s) (Year); Country Study Design	Aim of Study	Sample and Setting	Intervention Description	Data Collection Process	Key Outcomes and Measures	Key Findings
						professional. −13% of adolescents reported previously talking with a health professional about a mental health issue. Of those who did not or were unsure (n = 85), 35% of them said they would never consider talking to a health professional about any mental health issues
Marshall and Dunstan (2011) Australia Post-test design	To examine the mental health literacy (MHL) of rural-based young people with respect to identifying individuals with depressive symptoms.	122 participants (49 males and 73 females) aged 12–18 years. All were born in Australia and all resided in the New England/North West area of NSW. 81 participants were recruited from high schools and 51 from community youth groups	Two short films and two vignettes were developed based on the Friend in Need Questionnaire (FINQ). The vignettes used were Emily (depressive symptoms including suicidal ideation) and Nick (upset about his grandmother's death). The two films were approximately 90 s in duration Ben (upset about a relationship break up) and Louise (depressive symptoms). The order of presentation of each scenario was: Emily (vignette—depression/ suicidal ideation), Ben (film—control), Nick (vignette—control), Louise (film—depression symptoms).	Participants attended group sessions (maximum 20 per group) held at venues within the school or organisation from which they were recruited. To maintain procedural continuity, all sessions were conducted by the same researcher. Sessions took around 30 min to complete.	**Outcome**: Identifying depressive symptoms, knowledge of recovery times, evaluate concerns for people with depression, available help, and potential self-help strategies **Measures**: The Modified Friend in Need Questionnaire (FINQ) containing demographic questions, adolescents experiencing emotional difficulties and questions about the two short films.	-Recognition of Depressed Individuals Emily (depressed), and Ben and Nick (control) characters were labelled as depressed by 68.0%, 13.1%, and 6.6% of participants, respectively. -Recognition of the Symptoms of Depression: The most commonly identified symptoms for Louise (depression film) were weight loss and/ or decreased appetite (65.6%) and insomnia (59.0%), and for Emily (depression/ suicidal vignette) were suicidal thoughts (55.7%) and depressed mood (47.5%). -Identified Sources of Help for Depressed Individuals: Asked if each protagonist needed help from another person to cope with his/her problems, for the nondepressed stories of Ben and Nick, 75.4% and 80.3%, respectively, said "yes." For the depressed stories of Emily and Louise, 95.1% and 96.7%, respectively, said "yes." -Suggested Self-help Strategies for Depression: Do different (new) activities 11.5%; Talk to someone 41.8%; Go out with friend 23.0%; Do activities to take mind off things 6.6%; Adjust thinking 27.1%; Take a break/ holiday 7.4%; Improve sleep 8.2%; Write in journal/diary 6.6%; Improve diet 23.8%; Physical

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Table 1 (*continued*)

Author(s) (Year); Country Study Design	Aim of Study	Sample and Setting	Intervention Description	Data Collection Process	Key Outcomes and Measures	Key Findings
						exercise 12.3%; Do things that make you happier 11.5%; Other 7.4%. -Females were significantly better than males at identifying depression in both the Emily (depressed/suicidal) vignette, c2(1, n = 122) = 10.90, p = 0.001, OR = 3.72, and the Louise (depressed) film, c2(1, n = 120) = 4.82, p = 0.03, OR = 2.87, The study concurs with the known gender inequality in MHL.
Petchers et al. (1988) USA Post-test-only design.	To describe the development and evaluation of a video based educational program designed to teach adolescents in the general high school population about serious mental illness.	102 high school students from two schools located in predominantly white suburban communities in metropolitan Pittsburgh.	The educational program featured a videotape and a six-lesson curriculum supplement. The videotape features teenagers who talk about basic and universal adolescents' issues with a mentally ill family member	At each school, psychology students in two classes participated One class served as the experimental group who were exposed to the new educational program. The other class served as the control group who followed the usual psychology curriculum.	**Outcome**: Knowledge and opinions about mental health and mental illness **Measures**: A self-administered questionnaire focusing on knowledge and opinions about mental health. The survey consisted of 25 true or-false statements and 15 multiple choice questions. A follow-up survey was given to the experimental group after they viewed the videotape.	-The mean score for the experimental group was 74.77, compared with 63.81 for the control group ($p < 0.001$). 91% rated the videotape as either excellent or good. -The students noted that the videotape was interesting, informative, and realistic in its portrayal of the feelings of family members and of their reactions to mental illness. -A small minority of students felt that the videotape was not interesting.
Stuart (2006) Canada Pre- and post-test design	To evaluate the impact on high school students of a video-based anti-stigma program portraying real life experiences of individuals with schizophrenia	571 students from 8 high schools across Canada.	The program included 2 lessons. 1st lesson students are introduced to schizophrenia and given an opportunity to share their knowledge. This is followed by a 20-min video introducing the signs and symptoms of schizophrenia The 2nd lesson uses role-play to reinforce these messages and to help students relate to the experience of schizophrenia.	The baseline survey was conducted prior to initiating the program, and the post-test survey was conducted immediately following the final class discussion.	**Outcome**: Knowledge of schizophrenia, social distance. **Measures**: Adapted instrument using 12 self-reported items used by in the World Psychiatric Association's global anti-stigma program Post-test surveys assessed student's assessment of the video and willingness to learn more about mental illnesses	-Female students showed greater gains in knowledge and social distance. Improvements in knowledge increased significantly with each age group. -At baseline, 47.7% (n = 114) of students had achieved 80% or higher on the knowledge items. -This improved to 78.8% (n = 260) on the post-test $p < 0.001$). -Similarly, 41.5% (n = 100) achieved 80% correct or better on the social items at pre-test, improving to 52.1% (n = 169) at post-test (p = 0.02).
Vila-Badia et al. (2016) Spain Randomised Controlled Trial	"To evaluate the effectiveness of an intervention for reducing social stigma towards mental illness in adolescents" and to	n = 280 across 4 secondary school students aged 14–18 years (intervention group (IG) n = 128,	*IG:* Participants shown a 20-min documentary featuring three adolescents doing a school project about mental disorders raising many questions and bringing out	The Community Attitudes towards Mental Illness (CAMI) questionnaire at was completed at two time points.	**Outcomes**: Authoritarianism, Benevolence, Social restrictiveness, Community mental health ideology **Measures**: 40-item	-Statistically significant differences between IG and CG in the authoritarianism and social restrictiveness subscales ($p < 0.001$

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Table 1 (*continued*)

Author(s) (Year); Country Study Design	Aim of Study	Sample and Setting	Intervention Description	Data Collection Process	Key Outcomes and Measures	Key Findings
	"analyse differences regarding gender and knowing someone with a mental disorder"	control group (CG) n = 152)	stereotypes Following the film, there was a brainstorming session with two specialised mental healthcare staff *CG:* No intervention	The intervention group completed the questionnaire one week before and again one week following the intervention. The control group completed the questionnaire twice within one week.	CAMI Scale for the assessment of social Stigma (Spanish)	and p = 0.019, respectively). - Benevolence and community mental health ideology subscales did not show significant changes. - At baseline, girls scored significantly lower in all CAMI subscales: authoritarianism (p < 0.001), benevolence (p = 0.002), social restrictiveness (p = 0.019), and community mental health ideology (p = 0.013) - Those who knew someone with a mental disorder at baseline had significantly lower scores on authoritarianism (p = 0.005) and social restrictiveness (p < 0.001) - At post-test, boys had a statistically significant decrease in authoritarianism scores (p < 0.001) whereas girls had a statistically significant decrease in authoritarianism (p = 0.010) and social restrictiveness (p = 0.037) - Statistically significant difference seen in authoritarianism (p < 0.001) and social restrictiveness (p = 0.018) for those who knew someone with a mental illness and only a change in authoritarianism (p = 0.010) among those who did not know anyone with a mental disorder. - Controlling for gender and whether or not participants knew someone with a mental disorder, authoritarianism and social restrictiveness subscales showed statistically significant differences during the intervention in IG and CG (p < 0.001 and p = 0.017, respectively)

general medical (64.98%), mental health professional/institution (32.7%), and family (29.9%) over the internet (9.68%), Childline (11.52%), and friends (15.67%). Post-workshop, students were able to recall more specific supports. However, endorsements for general practitioners/doctors (15.65%), school nurse (8.26%) and school pastoral team were low (13.91%). Higher endorsements were reported for "Talk to Frank" (54.78%), Childline (50.43%), Centre 33 (49.13%), and Youth2Youth (41.30) (Bentham et al., 2013). In an RCT of Arab-Americans in the USA, Jaber et al. (2015) found that 87% of adolescents had not previously spoken with a health professional about a mental health issue. Following a screening of a YouTube video featuring an interview with a mental health professional, however, 65% of these individuals said they would consider talking to a health professional about any mental health issues (Jaber et al., 2015). In contrast, a study by Conrad et al. (2014), observed that help-seeking attitudes of the audience were not affected by four out of five films. The only film that had a positive influence on help-seeking attitudes was Film 2 (Bonkers) ($p = 0.049$), which was aimed at slightly younger audiences.

3.6. Risk of bias

For the RCTs included in the review, RoB due to randomisation was rated as 'low' (Jaber et al., 2015), 'high' (Vila-Badia et al., 2016) and 'some concerns' (Gonçalves et al., 2015). RoB for domain 2, deviations from the intended interventions was 'high' in 2 studies (Gonçalves et al., 2015; Vila-Badia et al., 2016), and 'low' in one (Jaber et al., 2015). For domain 3 which is related to missing outcome data, both Gonçalves et al. (2015) and Vila-Badia et al. (2016) were 'low' RoB, with a judgement of

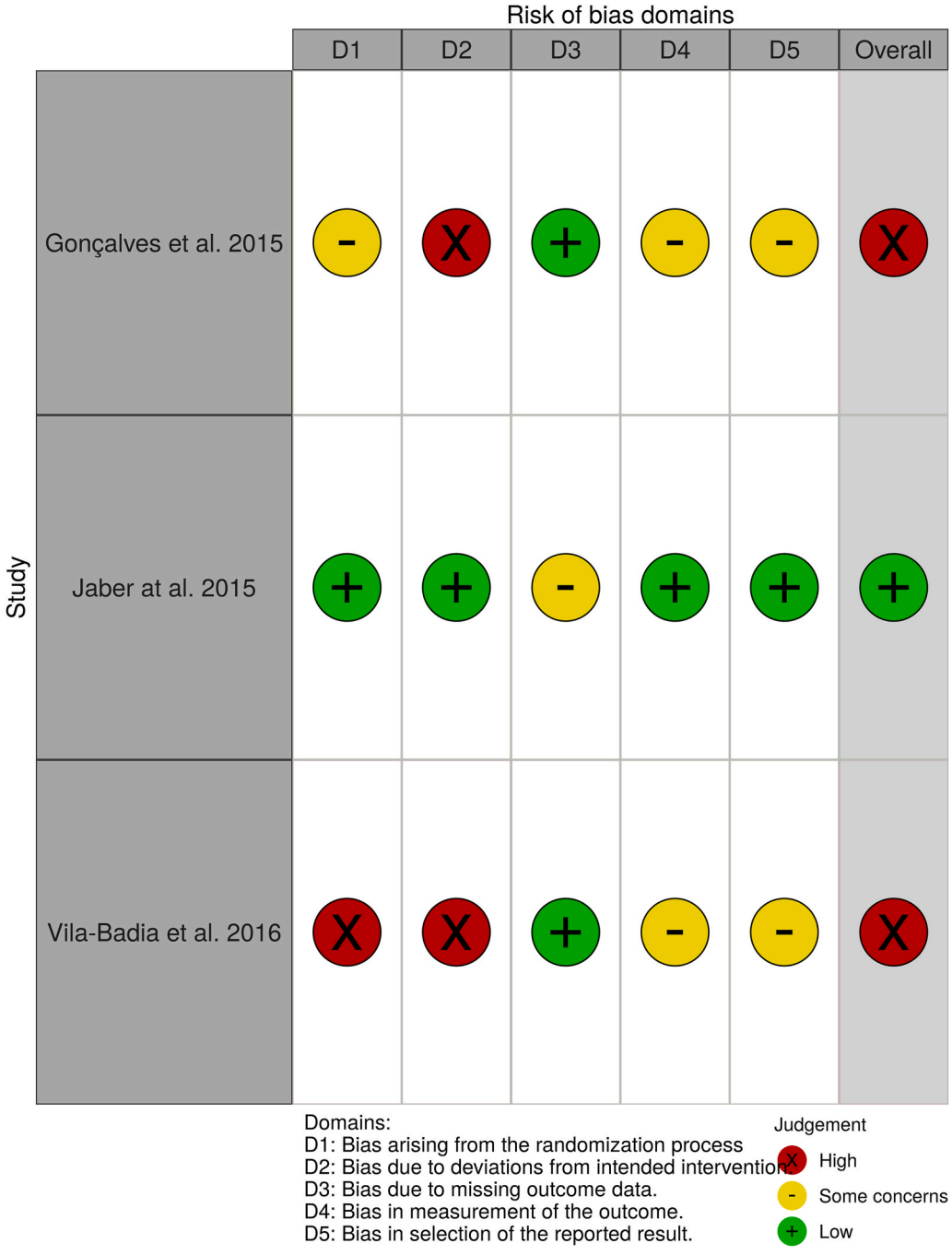


Fig. 2. Risk of Bias Assessment (RoB2).

'some concerns' rendered for Jaber et al.'s (2015) study. For the remaining domains, namely outcome measurement and selection of the reported results, a judgement of 'some concerns' was rendered for Gonçalves et al. (2015) and Vila-Badia et al. (2016), while Jaber et al. (2015) was 'low' RoB. The overall judgment for Gonçalves et al. (2015) and Vila-Badia et al. (2016) was 'high' RoB, while Jaber et al. (2015) was 'low' RoB.

For the quasi-experimental studies, only Clifone (1993) had 'serious' RoB due to confounding variables, while all studies had a 'low' RoB for selection of participants except for Petchers et al. (1988), who had a 'moderate' RoB. In domain 3, only Bentham et al. (2016) had 'high' RoB. For domains 4 and 7 all studies had 'low' RoB, while only 1 study had 'high' RoB in domains 5 (Petchers et al., 1988) and 6 (Clifone et al., 1993). All the studies in the review had an overall judgement of 'moderate' RoB except for Clifone et al. (1993) who had a 'high' RoB. RoB plots were created using the tool designed by McGuinness et al. (2020) (see Figs. 2 and 3).

4. Discussion

This systematic review identified that, amongst adolescent populations, film-based interventions can enhance MHL, reduce self-stigma and personal stigma, and improve attitudes towards help-seeking. No study included in the review focussed on the use of film to enhance resilience in adolescents.

Film-based interventions were shown to significantly improve MHL. Previous research has identified interventions which have shown to improve the MHL of adolescents. For example, Lindow et al. (2020) found that the Youth Aware of Mental Health (YAM) programme, which utilised creative methods such as role-plays to engage adolescents,



Fig. 3. Risk of Bias Assessment (ROBINS-I).

significantly improved MHL ($p = 0.008$) and mental health knowledge ($p < 0.001$). Despite the success of such interventions, globally, the MHL of adolescents is poor (Melas et al., 2013; Coles et al., 2016; Sharma et al., 2017; Saraf et al., 2018) and there is a need to draw on a range of techniques and modalities to engage and educate adolescents about MHL. In a systematic review, Brijnath et al. (2016) reported that, amongst adults, interventions that adopted a traditional didactic approach did not have a significant impact on MHL, indicating that more creative means of engagement are warranted. Film-based interventions have shown considerable promise in enhancing MHL among adult populations (Linton et al., 2017) and university students (McCann and Huntley-Moore, 2016; Petkari et al., 2017; Yagamuch et al., 2020). However, this approach is underexplored with adolescents. Films, through their use of narrative and the communication of life story appeal to people's emotions. This helps lay the foundations to convey information and complex concepts such as those pertaining to MHL (Blasco et al., 2015). Given the existing research and findings from the current review, there is a need for further integration of film-based approaches within adolescent MHL education.

Film-based interventions also significantly reduced stigma about mental illness in adolescents, specifically in relation to personal stigma (one's personal attitudes towards those who experience mental distress [Griffiths et al., 2006]) and self-stigma (internalised negative stereotypes [Pattyn et al., 2014]). Very few studies have explored the use of film in reducing personal and self-stigma. In relation to personal stigma, Petkari et al. (2017) reported mixed results for their film-based intervention in university students. Although no statistically significant improvements were observed for general attitudes towards people with mental illnesses ($p = 0.21$) and social distance ($p = 0.86$), significant improvements were noted for the item "more than half of people with mental illness don't try hard enough to get better" ($p = 0.029$). MacDougall et al. (2020) employed participatory video techniques to reduce self-stigma in service users, where people filmed documentary-style videos of their experiences. They found that self-stigma amongst participants was significantly reduced ($p < 0.05$) at three-month follow up. Corrigan et al. (2012) commented that there are three ways to combat stigma: social contact, education, and protest. Education has emerged as the most effective strategy for reducing stigma amongst adolescents (Chisholm et al., 2016). The current study review indicates more promising results for film-based interventions in reducing both personal and self-stigma in adolescents. This is important, given that both personal stigma and self-stigma can negatively influence adolescents' decisions to seek help for their mental health (Yap et al., 2011, 2013; Kaushik et al., 2016).

Improving attitudes towards help-seeking is important, as adolescents are unlikely to seek help for mental health issues (De Luca et al., 2019). We found that film-based interventions resulted in mixed attitudes towards help-seeking amongst adolescents. Strunk et al. (2014) employed reading activities, discussion, and role plays to enhance attitudes towards help-seeking. Although a significant positive increase in attitudes was reported ($p < 0.0005$), this was not sustained at three-month follow up. Role plays were also used by Lindow et al. (2020) as a method to educate adolescents, with no positive effect on attitudes towards help-seeking ($p = 0.76$). Regarding use of film, although Petkari et al. (2017) reported improvements in MHL amongst participants, there were no significant changes in attitudes towards seeking help ($p = 0.23$). It should be noted the authors used narrative films in their study, which do not provide information around help-seeking. Similarly, Bentham et al. (2013) reported low endorsements for professional support; however, information about such supports was not conveyed in their video intervention. More positive results were observed for studies where information around help-seeking was provided (Ciffone, 1993; Jaber et al., 2015), indicating that a narrative approach may not be the most suitable way to enhance attitudes towards help-seeking.

No studies identified aimed to enhance resilience. Developing resilience – the ability to adapt to or manage significant stress – is essential in preventing and reducing mental distress (Salvi et al., 2017; Fenwick-Smith et al., 2018). Although there is some evidence that resilience-building interventions are effective (Fenwick-Smith et al., 2018), there is a wealth of evidence to suggest that efforts to enhance resilience have been unsuccessful amongst adolescents (Araya et al., 2013; Burckhardt et al., 2015; Buttigieg et al., 2015; Dray et al., 2017), indicating a need for advancement in this area. Promotion of resilience involves emotion recognition and management and empathy (Leventhal et al., 2015; Fenwick-Smith et al., 2018). Given the ability for film to provoke emotion and promote reflection (Blasco et al., 2015), there may be untapped potential in using film as an intervention to enhance resilience amongst adolescents.

Studies employed films heterogeneously, with documentaries (Gonçalves et al., 2015; Vila-Badia et al., 2016), educational videos (Jaber et al., 2015; Bentham et al., 2016), animation (Ibrahim et al., 2020), fictional vignettes (Marshall and Dunstan, 2014), or a combination of fiction and documentary (Stuart, 2006; Conrad et al., 2014). Of note, older studies did not make it clear whether their interventions, "After the Tears: Teens Talk About Mental Illness in Their Families" (Petchers et al., 1988) and "Teens Who Choose Life: The Suicidal Crisis, Part II. Gail Chooses Life" (Ciffone, 1993) were fictional or otherwise. Most studies used film in combination with other approaches such as role play or discussion, so it was not always possible to evaluate the individual impact of film in comparison with other approaches. However, all studies which used only film as an intervention reported significant improvements in either MHL, stigma, or attitudes towards help-seeking (Petchers et al., 1988; Ciffone, 1993; Conrad et al., 2014; Marshall and Dunstan, 2014; Jaber et al., 2015). Future research in this area should evaluate which film-based approaches are most embraced by adolescents, and if the impact of a film-based intervention is significantly bolstered through a combination of education strategies.

It is also important to consider the development of the interventions used in the reviewed studies. Author-developed film-based interventions were employed in four studies (Gonçalves et al., 2015; Jaber et al., 2015; Vila-Badia et al., 2016; Ibrahim et al., 2020), which reported either reduction in stigma or enhanced MHL. Four studies (Petchers et al., 1988; Ciffone et al., 2013; Bentham et al., 2013) did not provide sufficient information regarding intervention development. Nevertheless, each study reported either reduction in stigma or enhanced MHL. Three studies reported using externally developed interventions, including an intervention developed by the Schizophrenia Society of Canada (Stuart, 2006), films screened at a festival (Conrad et al., 2014), and videos on YouTube (Jaber et al., 2015). Stuart et al. (2006) reported enhanced MHL while Jaber et al. (2015) reported improved attitudes towards help-seeking. Conrad et al. (2014) reported reduced stigma ("social distance"), but only one film (of five) significantly improved attitudes towards help-seeking. Indeed, iImplementing interventions developed externally is common practice, with adaptations often made to tailor the intervention to a particular population (Escoffery et al., 2018; Movsisyan et al., 2019). Future studies employing film-based interventions should ensure that sufficient information is provided about the films, including details about where these films can be sourced.

This review has limitations. Only published peer-reviewed literature was included. It is possible that many more film-based interventions have been reported on through the greater literature. Another limitation was the wide heterogeneity of included studies, which only allowed for broad generalisations to be made. For example, seven out of the 10 reviewed studies were conducted in the school setting. The remaining three studies were conducted in various community and social settings with no apparent patterns emerging when compared to studies conducted exclusively in schools.

The quality of studies included may also be viewed as a limitation, given that no study's RoB was graded as low, and one study (Ciffone et al., 1993) had a high RoB. Furthermore, the ROBINS-I which was used to assess risk of bias in the quasi-experimental studies has not been

subject to a formal test of construct validity to date (Waddington et al., 2017). However, it has undergone extensive development involving many methodological experts, has considerable face validity, and was developed from the Cochrane Risk of Bias tool for RCTs which is a well-established and validated instrument (Bilandzic et al., 2016). It should be acknowledged that there are other forms of media with which adolescents engage, such as video games (Morris and Forrest 2013) and comic books (Bosqui et al., 2020), and such media were not explored in the current review. Future reviews should consider the potential of such media in educating adolescents about mental health.

5. Conclusion

Given the vulnerability of the adolescent period and the wealth of evidence to suggest that adolescents require support for their mental health, the development of more youth-friendly educational initiatives is timely. Film-based interventions are a useful tool in enhancing MHL and attitudes towards help-seeking and reducing mental health stigma in adolescents. Despite their utility and potential, such approaches to education have been underexplored, and film remains virtually untapped as an invaluable resource to support the mental health needs of adolescents. It is recommended that educators capitalise on film as an educational initiative and a way in which to engage adolescents. However, it is crucial that the appropriate mode of film is used to target the relevant outcome, as it appears that narrative approaches impact on MHL, whereas a more didactic process may be preferable when aiming to enhance attitudes towards help-seeking. It is recommended that further research is conducted on how best to use film as part of adolescent mental health education to enhance well-being and positive attitudes towards mental health. Quantitative research approaches are recommended to determine the effects of specific approaches, such as narrative or documentary film, on adolescents' MHL, levels of resilience, attitudes towards seeking help, and stigma. Qualitative research is also warranted, in order to provide in-depth insights into adolescents' reception of film-based interventions.

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Declaration of competing interest

The authors report no conflict of interest.

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