

The need for robust critique of research on the social and health impacts of the arts (Clift, Phillips & Pritchard, 2021): Supplementary tables

Below are three supplementary tables that accompany the article by Clift, Phillips and Pritchard (2021) 'The need for robust critique of research on the social and health impacts of the arts' published in the journal *Cultural Trends*. The paper raises critical concerns about two recent reviews of arts and health research, the first for the World Health Organization (Fancourt and Finn, 2019) and the second for the UK Government, Digital, Culture, Media and Sport Department (DCMS) (Fancourt, Warren & Aughterson, 2020), and argues that robust critique of research in this field is required.

References

Clift, S., Phillips, K. & Pritchard, S. (2021). The need for robust critique of research in arts and health. *Cultural Trends*, [to be completed]

Fancourt, D. & Finn, S. (2019). What is the Evidence on the Role of the Arts in Improving Health and Wellbeing? A scoping review. Copenhagen: World Health Organisation (Health Evidence Network Synthesis Report 67). <https://www.euro.who.int/en/publications/abstracts/what-is-the-evidence-on-the-role-of-the-arts-in-improving-health-and-well-being-a-scoping-review-2019>

Fancourt, D., Warren, K. & Aughterson, H. (2020). Evidence Summary for Policy: The role of the arts in arts in improving health & wellbeing. London: University College London, Department of Behavioural Science and Health. <https://www.gov.uk/government/publications/evidence-summary-for-policy-the-role-of-arts-in-improving-health-and-wellbeing>

Supplementary Table 1: Papers cited in the ‘social inequalities and inequities’ body of evidence in the WHO report

Below is the first of three supplementary tables that accompany the article by Clift, Phillips and Pritchard (2021) ‘The need for robust critique of research on the social and health impacts of the arts’ published in the journal *Cultural Trends*. The paper raises critical concerns about two recent reviews of arts and health research, the first for the World Health Organization (Fancourt and Finn, 2019) and the second for the UK Government, Digital, Culture, Media and Sport Department (DCMS) (Fancourt, Warren & Aughterson, 2020), and argues that robust critique of research in this field is required.

Table 1 reports details of 15 sources cited in the section on ‘social inequalities and inequities’ in the WHO scoping review of arts and health (Fancourt and Finn, 2019, pp. 10-12). The sources are of varied types: empirical papers reporting original research, systematic reviews, discussion papers, economic studies and one book. Information is included on the name of the first author, date of the paper, title, country(ies) covered, aims of the publication, design/method, participants involved, art forms and outcomes. A final column indicates whether the source is considered in the *Cultural Trends* paper and offers a short commentary on relevance. The references as provided in the WHO report are reproduced after the table.

All but one of the original sources were accessed. The book by Delgado (2017) (98) was not accessed on account of cost (£25.66). A free sample was obtained courtesy of Amazon Kindle, and this provided a good indication of the discursive tenor of the text.

In the *Cultural Trends* paper, three of these sources are discussed in the section on ‘social inequalities and inequities’ (85, 86, 87). The commentaries included in the table provide further details to justify discounting the remaining sources in our paper. Two studies listed below are cited in the DCMS review on arts and health (Fancourt, Warren & Aughterson, 2020), under the heading of ‘social inclusion’ (88, 90) and these are discussed in the DCMS section of the *Cultural Trends* paper.

Supplementary Table 1: Papers cited in the ‘social inequalities and inequities’ body of evidence in the WHO report									
No in WHO report / First author	Date	Title	Location, Country	Aims	Design / Method	Participants	Art forms	Outcomes	Considered in the Cultural Trends paper / Commentary
84 Parkinson	2013	Inequalities, the arts and public health: towards an international conversation	An international perspective, with reference to the UK, USA, Brazil, Lithuania and Finland	To explore how participatory arts informed by thinking in public health can play a significant part internationally in addressing inequalities in health.	Non-empirical discussion paper focused on the development of in the field of arts and health	N/A	‘Arts’ – no specific references to music, dance, drama, literature	A discursive exploration of developments in the field of arts and health internationally, and challenges faced in addressing health inequalities.	NO Provides no evidence that the arts can effectively address health inequalities. They suggest that ‘artists need to

									critically engage with the big issues of the day – ageing populations, social isolation, addictive behaviours, substance abuse, obesity and mental ill health – all of which are underpinned by inequality.’
85 Cain	2016	Short and long-term outcomes for culturally and linguistically diverse (CALD) and at-risk communities in participatory music programs: a systematic review	Research from various countries reviewed prior to the studies for the systematic review which is primarily from Australia and the USA	To explore the impact of participatory music programs, which aim to promote positive mental and physical health and well-being outcomes for young people from culturally and linguistically diverse communities, characterized as at-risk.	Systematic review including six sources reviewed to address four research questions	Young people – no summary is provided of numbers, ages and other personal details	Participatory music programmes	Participation in music programs may encourage positive mental and psychosocial health outcomes for individuals. However, studies were short-term and there were limitations in data collection and analysis There is a need for rigorous research that explores the potential long-term outcomes of similar programs	YES, as is a systematic review The outcomes described are very diverse and have questionable relevance to addressing social and health inequalities.
86 Kim	2017	Effects of community-based group music therapy for children exposed to ongoing child maltreatment and poverty in South Korea: a block randomized controlled trial	South Korea	To investigate the effects of Community-Based Group Music Therapy on internalizing behavioural problems in children who were exposed to ongoing child	RCT. Music therapy - 12 sessions of sixty minutes	Primary school age children (14 assigned to music therapy and 12 to usual care)	Group music therapy – instrumental improvisation, singing and song writing	Claimed that ‘group music therapy was significantly more effective than standard care at reducing internalizing behavioral problems (depressed/anxio	YES, as is an original report on an RCT However, outcomes of this small-scale study of music therapy are limited. Paper gives some details of the dire

				maltreatment and poverty in South Korea vs usual care				us, attention problem, and withdrawn) over time from baseline to post test period' The authors note, however, that 'this was a small sample study with marked variability among participants' and as a result 'we cannot generalize the findings'	circumstances of some of the children receiving therapy. These are not noted in the WHO report.
87 Alemán	2017	The effects of musical training on child development: a randomized trial of El Sistema in Venezuela	Venezuela	To assess the effects of a large-scale music program on children's developmental functioning in the context of high rates of exposure to violence	Cluster RCT involving 16 music centres in several geographical districts	2914 children ages 6–14 participated in the study.	Instrumental music, drumming, singing	After 1 year, evidence of improved self-control) and reduced behavioral difficulties, both significant at 10%. NB: not the conventional 5% significance	YES Clear that engagement is greater for children from more affluent families. The programmes appear to contribute to social inequalities. This is not acknowledged the WHO report
88 Spiegel	2018	Re-approaching community development through the arts: a "critical mixed methods" study of social circus in Quebec	Quebec, Canada	To investigate how social circus affects personal and community development among youth with marginalized lifestyles in Quebec, Canada	Mixed methods – observation, interviews, questionnaires	Young people, instructors, community workers, and coordinators. Precise details are not given	Circus arts e.g. juggling, clowning, acrobatics, partner acrobatics, aerials, and balancing disciplines like unicycle	Authors argue that training in circus arts had positive impacts on participants. As one example: 'participants gained sensory experience of the value of remaining alert and altering their everyday habits,	YES NB: considered in the <i>Cultural Trends</i> paper in the section on the DCMS report (Social inclusion)

								both in order to be proficient performers and to facilitate certain kinds of social interactions.'	
89 Chung	2017	Promoting the Well-being of Urban Youth through Drama-based Peer Education	Trenton, New Jersey	To assess the effects of drama-focused peer education workshops	Audience members perceptions of the workshops analysed	4733 urban students in grades 1 to 12	Drama workshops	School-based peer education that integrates drama is claimed to be a promising approach for promoting wellness and reducing exposure to violence among urban youth	NO All outcomes at the level of perception. No assessments of behaviour and no follow up
90 Coggan	2008	Art and safe communities: the role of Big hART in the regeneration of an inner-city housing estate	Australia	To document a process of community development through the art of storytelling	Qualitative case study of a single area of residential housing	Community members	Storytelling	A central Sydney housing estate became the first public housing estate to achieve the World Health Organization criteria for designation as a Safe Community through the art of storytelling.	YES NB: considered in the <i>Cultural Trends</i> paper in the section on the DCMS report (Social inclusion)
91 Bracalente	2011	The economic impact of cultural events: the Umbria Jazz Music Festival	Umbria, Italy	To assess the economic impact of the Umbria Jazz music festival	Economic evaluation	N/A	Jazz music festival	The festival attracts visitors from outside the Umbria region and they spend money in the local economy	NO Focus of the paper is on economic impacts and it contains no references to health outcomes, wellbeing or inequalities

92 Tohmo	2005	Economic impacts of cultural events on local economies: an input– output analysis of the Kaustinen folk music festival	Kaustinen, Finland	To examine the economic impacts of Finland’s Kaustinen Folk Music Festival as judged on earnings and tax receipts	Economic evaluation	N/A	Folk music festival	Data on incomes and tax receipts show that the festival is a good investment. However, impacts on employment was low. Voluntary participation was ‘considerable’ but not directly studied	NO Focus of the paper is on economic impacts and it contains no references to health outcomes, wellbeing or inequalities
93 Beyers	2008	The Economic Impact of Music in Seattle and King County	Seattle, King County, USA	To estimate the contribution of music to economies of Seattle and King County	Economic evaluation	N/A	Professional musicians and music industries	The music industry in Seattle directly creates 11,155 jobs, with \$1.2 billion in sales and \$487 million in earnings. Within the larger King County economy, the music industry directly creates 20,193 jobs, with \$2.2 billion in sales and \$840 million in earnings. Indirect impacts are greater	NO A non-peer reviewed report focused on the economic impacts of the music industry in a large city and surrounding county in the USA. No references to personal or community health, wellbeing or social inequalities
94 Florida	2010	Music scenes to music clusters: the economic geography of music in the US, 1970–2000	USA	To examine the factors that affect the location of all musicians, professional or employed musicians, and the recording industry, in the USA 1970-2000	A geographic assessment of the distribution of musicians and music industries, with reference to economic dimensions.	N/A	Professional musicians and music industries	Musicians and the music industry were concentrating in a relatively small number of large regional centres over this period	NO A geographic / economic assessment in trends in music industries over a period of three decades in the USA. Paper contains no references to

									health, wellbeing or social inequalities
95 UK Music (research conducted by John Todd)	2013	The economic contribution of the core UK music industry	UK	To provide a robust definition of the core music industry in the UK and identify all forms of revenue that are captured within this definition. It measures the GVA (Gross Value Added), export and employment directly contributed by these activities	Economic evaluation	N/A	Music industry	The core music industry made the following economic contribution in 2012: GVA of £3.5bn, Exports of £1.4bn, Employment of 101,680	NO No reference to health inequalities. One reference to the contribution of music to the cultural wellbeing of the UK
96 No author	No date	Sistema Europe (Title of the website) https://www.sistemaeurope.org/	Europe	To provide access to details of music projects across Europe inspired by El Sistema.	N/A Descriptive presentation of website contents	N/A	Instrumental / orchestral music	N/A A link is provided to a research and evaluation resource: https://marshallmarcus.wordpress.com/sera-sistema-evaluation-research-archive/	NO Website provides no direct indication of impacts on health, wellbeing or inequalities
97 Heath	2001	Three's not a crowd: plans, roles, and focus in the arts	USA but drawing on literature from the UK and elsewhere	To examine the benefits of arts activities offered by community organisations for young people	Discussion paper with a narrative review of sources on the benefits of arts participation	Young people but no data gathered	'Arts' with a focus on visual arts and dance	Important learning takes place for young people in pursuing arts activities in the community. As an example of outcomes: 'Dance fosters reallocation of traditional masculine roles'	NO No consideration of the role of the arts in relation to health, wellbeing or inequalities

98 Delgado	2017	Music, song, dance, and theatre: Broadway meets social justice youth community practice	USA	To explore the benefits of creative arts participation in community settings for young people	Book which offers a narrative review of literature and discussion of case examples of community engagement with young people through the arts	Young people	Performing arts – music, drama, dance	A Broadway metaphor captures the ... 'energy, fun, purpose, creative outlet, camaraderie, and determination associated with the performing arts.' They represent 'an attractive outlet for marginalized youth'	NO
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Supplementary Table 2: Papers cited in the ‘Frailties’ body of evidence in the WHO report

Below is the second of three supplementary tables that accompany the article by Clift, Phillips and Pritchard (2021) ‘The need for robust critique of research on the social and health impacts of the arts’ published in the journal *Cultural Trends*. The paper raises critical concerns about two recent reviews of arts and health research, the first for the World Health Organization (Fancourt and Finn, 2019) and the second for the UK Government, Digital, Culture, Media and Sport Department (DCMS) (Fancourt, Warren & Aughterson, 2020), and argues that robust critique of research in this field is required.

Table 2 reports details of 24 sources cited in the section on ‘frailty’ in the WHO scoping review of arts and health (Fancourt and Finn, 2019, p. 25). The sources are of varied types: empirical papers reporting original research (RCTs, quasi-experimental studies, single group observational studies, cohort studies), and systematic reviews. Information is included on the name of the first author, date of the paper, title, country(ies) covered, aims of the publication, design/method, participants involved, art forms and outcomes. A final column indicates whether a source is considered in the *Cultural Trends* paper and offers a short commentary on relevance. A decision was made to focus on those sources that the WHO report identifies as directly addressing falls prevention in older people through dance interventions. Many of the studies included in this section explored the impact of dance activities, or other forms of structured exercise supported by music, on factors that might affect risk of falls (e.g. balance and strength). The results are generally positive and indicate that dance (as a form of exercise) for older people can be beneficial. This is hardly surprising, but it should be noted that the participants in these studies are primarily or exclusively women. Column eight in the table gives details of the arts activities investigated. For studies focused on dance, or movement paced by music, links are provided to videos which illustrate the dance forms or interventions. With respect to different cultural traditions of dance it is clear from viewing these videos and some dance forms are more energetic than others.

One of the concerns raised in the *Cultural Trends* paper is that several of the studies included in the review were concerned with forms of activity which could not be regarded as dance or a form of artistic engagement. These are highlighted in the table below. In addition, two studies were concerned with children or young adults and it is not clear what relevance they have to a discussion of frailty.

The references as provided in the WHO report are reproduced after the table.

This exercise of following up on research papers also revealed dance studies published within the time frame of the WHO review which were not located through the search strategy adopted. This indicates that the search strategy employed did not locate all relevant papers.

Supplementary Table 2: Papers cited in the ‘frailties’ body of evidence in the WHO report

No of source in WHO report / First author	Date	Title	Location, Country	Aims	Design / Method	Participants	Art form	Outcomes	Considered in the Cultural Trends paper / Commentary
377 Federici Not available open source. Authors contacted via publisher, but email failed	2005	Does dance-based training improve balance in adult and young old subjects? A pilot randomized controlled trial	Urbino, Italy	To assess the efficacy of a dance exercise program in improving balance in adult and young old subjects	RCT Four different methods of assessing balance	40 residents in an institution 20 in the dance group, 20 in the control. Ages 58-68	Dance-based exercise training for three months	Significant improvement in balance in the dance group	NO Authors suggest that the improvement in balance may be protective against falls – but no data gathered on falls
378 Alpert	2009	The effect of modified jazz dance on balance, cognition, and mood in older adults	Las Vegas, Nevada, USA	To evaluate the impact of jazz dance class instruction on balance, cognition, and mood (specifically depression)	Single group pre-post pilot study	13 community dwelling women mean age 68	15 weekly jazz dance classes See link for an example of a US Jazz Dance class (all female)	Findings suggest that jazz dance does not impact cognition or mood but may improve balance in older women. This finding may have significant implications for fall prevention for women	NO A small-scale uncontrolled study. No data gathered on falls
379 Jeon	2005	The effects of a Korean traditional dance movement program in elderly women	Icheon City, Korea	To identify the effects of a 12-week Korean traditional dance movement program on balance, depression, service use and falls among elderly women	Quasi-experimental trial Details could not be ascertained	130 women in the dance programme, 123 comparison group	12-week, three times a week, Korean traditional dance program See link for examples of Korean traditional dance	A Korean traditional dance movement program improved balance, depression, and decreased falls and medical cost sin elderly women	NO In Korean but abstract in English and tables of balance, depression, and decreased falls and medical cost sin elderly women Difficult to evaluate impact on falls as the measure reported is ‘changes in falls’ (yes or no) over

									the course of one year
380 Eyigor	2009	A randomized controlled trial of Turkish folklore dance on the physical performance, balance, depression and quality of life in older women	Izmir, Turkey	To assess the effects of group-based Turkish folk dance on physical performance, balance, depression and quality of life	RCT 8-week group-exercise program for 1 hour three times per week. Participants asked to walk for half an hour, at least twice a week during the trial Control group continued usual physical activities Standardised measures of outcomes	40 women over the age of 65. 20 in the dance arm, 20 in the control	8-week dance-based exercise programme See link for examples of Turkish folk dance . Notice single sex with dance routines for men	Findings demonstrated that dance resulted in improvements in physical performance, balance and QoL in elderly females compared with the control condition	NO Intervention quite intensive and included extra walking outside the dance sessions No data gathered on falls
381 Noopud	2018	Effects of Thai traditional dance on balance performance in daily life among older women	Thailand	To assess the effects of Thai traditional dance on balance performance among older women.	RCT Three dance sessions of 30–60 min per week over the course of 12 weeks Control followed their normal daily activities Standardised measure of outcomes	43 older women 60-80, 22 in the dance group, 21 control group	12-week, three times a week, Thai traditional dance sessions, of increasing length over the programme See link for example of Thai traditional dance (all female)	A 3-weekly Thai traditional dance intervention significantly improved balance and mobility among older community-dwelling women as compared to normal daily activities	NO No data presented on falls Paper suggests that Thai traditional dance could potentially prevent age-related mobility and balance decline and its related fall risk
382 Trombetti	2011	Effect of music-based multitask training on gait, balance, and fall risk in elderly people: a	Geneva, Switzerland	To assess the effects of a music-based multitask exercise program on gait, balance	RCT Intervention – six-month structured exercise programme, with	134 community-dwelling individuals older than 65 years, who are at increased risk of	Six-month, weekly, multi-task exercise paced to music	ARS improved stride length variability. Balance and functional tests also improved	NO Structured exercise supported by music is not an

		randomized controlled trial		and falls risk in elderly individuals	a wait control group. Six-month further follow up Standardised measures of outcomes	falling. They were randomly assigned to an intervention group (n=66) or a delayed intervention control group scheduled to start the program 6 months later (n=68)		and there were fewer falls Benefits maintained on follow up	arts/dance intervention
383 Filar-Mierzwa	2017	The effect of dance therapy on the balance of women over 60 years of age: the influence of dance therapy for the elderly	Krakow, Poland	To evaluate the effects of dance therapy on balance and risk of falls in older women	Single group pre-post-test design. Standardised measures of outcomes	Twenty-four older women (mean age 66.4 years old)	Dance therapy – Three 45 min sessions weekly for three months. This link demonstrates dance movement therapy for older people in the US	Pre-post comparisons with the Postural Stability Test, the Limits of Stability Test, and the Fall Risk Test M-CTSIB. Limits of Stability Test was significantly higher after dance classes	NO No data reported on falls
384 Hackney	2013	Dancing for balance: feasibility and efficacy in oldest-old adults with visual impairment	Atlanta, Georgia, USA	To assess the feasibility and participant satisfaction of a tango program for oldest-old adults with visual impairment	Single group pre-post, immediate follow up and one month later	13 adults (7 women) 77-95 with visual impairment in residential care	Tango classes, 20 sessions over 11 weeks, amounting to 30 hours of training. This link demonstrates dance training for visually impaired people over a wide age range in London	12 participants completed and enjoyed the course. Significant improvements in dynamic postural control and general vision-related quality of life	NO Small scale study. Very specific focus. No assessment of falls
385 Lui Not accessible online and	2014	Effects of square dance on bone mineral density, oestrogen and	China	To assess the influence of square dance on bone mineral	RCT	Post-menopausal women	Square dance is a remarkable phenomenon in China. See link	Square dance reduced the speed of the decline of BMD,	NO

contact details not available		balance ability of postmenopausal women		density, oestrogen and balance ability of postmenopausal women			for examples. Said to promote 'health and happiness' in 'Chinese grannies'	increased serum oestrogen and improved balance ability of postmenopausal women	Unfortunately, the paper could not be accessed. No assessment of falls
386 Matthews	2006	Dancing for bone health: a 3-year longitudinal study of bone mineral accrual across puberty in female non-elite dancers and controls	Melbourne, Australia	To assess the effects of ballet dancing on bone mineral accrual in female non-elite dancers and normally active controls for 3 years across puberty	Longitudinal comparative study	8-11-year-old girls. 82 dancers and 61 controls at baseline followed for three years	Ballet	Children Bone density	NO A study of children of questionable relevance in a section of the report concerned with frailty
387 Kudlasek	1997	The impact of a senior dancing program on spinal and peripheral bone mass	Vienna, Austria	To assess whether senior dancing has any effect on peripheral or lumbar bone density	Prospective longitudinal study	28 female senior members (mean age: 67± 2 years) of a dancing group in Vienna (two groups osteoporosis and normal)	The 12-month dance program ran weekly for approximately three hours and included folk dances, Viennese waltz, and aerobic movements	No significant effects of dancing on bone density found but there was some evidence of benefit for women with osteoporosis	NO No assessment of falls
388 Ghai	2018	Effect of rhythmic auditory cueing on aging gait: a systematic review and meta-analysis	International	A systematic review and meta-analysis to assess the effects of rhythmic auditory cueing on spatiotemporal gait parameters among healthy young and elderly participants	Systematic review	34 studies	Rhythmic auditory cueing (RAC) was the intervention – but this cannot be regarded as dance See this video for a demonstration rhythmic auditory stimulation which is equivalent to RAC	RAC can produce enhancements in spatiotemporal parameters of gait, stride length and cadence, amongst both age groups	NO Not concerned with dance and no assessment of falls
389 Coste	2017	Standing or swaying to the beat: discrete auditory rhythms entrain stance	Montpelier, France	To assess the effectiveness of discrete auditory rhythms on postural	Single group experiment with several conditions	Twenty healthy participants (9 women) aged between 18 and 26 years	Audio rhythmic entrainment by a metronome beat – no music employed	Bipedal posture can be actively or spontaneously modulated by a	NO It is not clear why this paper is included in the

		and promote postural coordination stability		movement, especially for postural regulation (a rather complex statement is given)				external discrete auditory rhythms	WHO review as it is not concerned with engagement with arts. Also, it's relevance to this section on frailty is unclear as the study involves young people
390 Ferrufino	2011	Practice of contemporary dance promotes stochastic postural control in aging	Paris, France	To assess the effects of contemporary dance (CD) and of fall prevention (FP) on postural control in older adults	RCT One hour of training in either CD or FP once a week for four months	41 participants aged 59–86 years (2 men)	Contemporary dance focused on improvisation once a week for four months	A very sophisticated analysis of outcomes leads the authors to conclude, that CD encourages flexible postural control in older adults compared to FP	NO No data gathered on falls
391 Cruz-Ferreira	2015	Creative dance improves physical fitness and life satisfaction in older women	E'vora, Portugal	To evaluate the effects of creative dance on physical fitness and life satisfaction in older women	RCT Experimental group engaged in creative dance, control group usual activities	57 women (65–80 years old) were randomized to either an experimental group or a control group	24 weeks of Creative dance three time a week	Three 50-min CD classes/week for 24 weeks improved strength and flexibility of lower limbs, aerobic endurance, motor agility/ dynamic balance, and body composition) and life satisfaction of older females	NO No data gathered on falls
392 Gallo	2019	Effects of virtual dance exercise on skeletal muscle architecture and function of community dwelling older women	Parana, Brazil	To assess the effects of virtual dance exercise on skeletal muscle architecture and function in community-	Quasi-experimental group comparison dance group (22) vs non-random control (20). Women given choice of group.	42 moderately active Community dwelling older women	Group 'virtual' dance exercise using Dance Central game for Xbox 360® and Kinect for 40 min, 3 times/week, for 12 weeks.	Virtual dance exercise increased muscle mass, ankle plantar flexion strength and improved dorsiflexion. May improve daily	NO A form of dance exercise with progressive demands

				dwelling older women	Sophisticated array of physical assessments undertaken		See video for a demonstration of what is involved. Dance Central 'combines the authentic dance experience you love with more hit songs and more routines than ever before.'	function and fall avoidance in moderately active older women	Whether this can be regarded as an arts activity is moot. No dance artist is needed to lead the programme No assessment of falls
393 Veronese	2017	Dance movement therapy and falls prevention	International	A systematic review of randomized controls trials (RCTs) assessing whether dance can reduce falls and improve fear of falling in older adults	Systematic review. 10 RCTs were identified, which included a total of 680 people (n = 356 dance, n = 324 control). Overall, the mean age of the samples was 69.4 years, and 75.2% were female.	Older people at risk of falls	Dance movement therapy. This link demonstrates dance movement therapy for older people in the US	Across four RCTs, dance therapy reduced falls versus usual care in only one study. Dance therapy improved fear of falling in two out of three included RCTs	YES A key source on falls. Attention is given to the studies included in this systematic review and some problems of reporting are noted
394 Thaut	2018	Rhythmic auditory stimulation for reduction of falls in Parkinson's disease: a randomized controlled study	Toronto, Canada	To test whether rhythmic auditory stimulation (RAS) training reduces the number of falls in Parkinson's disease patients with a history of frequent falls.	RCT - A total of 60 participants (aged 62–82 years, 53% female) with Parkinson's and at least two falls in the past 12months. The experimental group completed 24 weeks of RAS training, whereas the control group discontinued RAS training between weeks 8 and 16	People with Parkinson's – 30 in each arm of the trial. At the conclusion of the trial, experiment group n=25 and control group = n=22	Rhythmic auditory stimulation (RAS) See this video for a demonstration rhythmic auditory stimulation	RAS had a positive effect in preventing falls	YES Argued that this paper should not have been included in the WHO review as RAS is not a form of dance

395 Fernández-Argüelles	2015	Effects of dancing on the risk of falling related factors of healthy older adults: a systematic review	International	To review research on the effects of dancing as a physical exercise modality on balance, flexibility, gait, muscle strength and physical performance in older adults	Systematic review of seven research papers judged to be relevant to the purpose of the review	Older adults over 60 years of age with no disabling disease	Ballroom dance or dance based physical exercise	Studies showed positive effects on the risk of falling related to factors (balance, gait and dynamic mobility, strength, and physical performance). However, methodological issues 'do not enable us to confirm that dance has significant benefits on these factors...'	YES The conclusions drawn are noted in the Cultural Trends paper
396 Merom	2016	Social dancing and incidence of falls in older adults: a cluster randomised controlled trial	Australia	To assess whether social dance is effective in reducing the number of falls and improving physical and cognitive fall-related risk factors of older adults living in retirement villages	Cluster RCT, 23 retirement villages, 12 in the intervention arm and 11 in the control arm	Residents of intervention villages (12 clusters, n=279) were offered twice weekly one-hour social dancing classes (folk or ballroom dancing) over 12 months (80 h in total). Participants in the control villages (11 clusters, n=251) continued with their regular activities	Social dancing and folk dancing vs usual activities Video showing what life in an Australian Retirement Village has to offer puts the idea of dance as an intervention into context. Residents of such villages are clearly affluent and have a wide range of opportunities for physical and social recreation	Social dancing did not prevent falls or their associated risk factors among retirement village residents	YES Argued that this large-scale RCT deserved more attention as the negative results are very instructive. Evidence that dancing may increase risks of falls in older people with a history of falls
397 Britten		Dancing in time: feasibility and acceptability of a contemporary dance programme to modify risk	Leeds, UK	To assess the feasibility, and impact of an 8-week dance programme on modifiable	Single group pre-post	Three groups of older (60 yrs.+) adults from local community groups. Three separate 8-week	Contemporary dance	Dance programme shown to be feasible but limited to women. Evidence of	NO No direct assessment of falls

		factors for falling in community dwelling older adults		physical and psychosocial risk factors for falls		dance programmes comprised of two, 90 min dance classes per week		positive effects on the measures employed	
398 Chabot	2019	Decreased risk of falls in patients attending music sessions on an acute geriatric ward: results from a retrospective cohort study	Montreal, Canada	To examine the influence of music listening on the risk of in patients admitted to a Geriatric Assessment Unit	Retrospective cohort study comparing patients who attended music listening sessions and those who did not	Elderly patients on a geriatric ward mean age 86 years, 88% female. 61 participants exposed to the music listening sessions 91 in the non-exposed group	Four live music concerts lasting an hour took place. Listening group on average attend one or two of these concerts	Participation in the listening sessions appears to have reduced the risk of falls. Authors note that a controlled trial is needed	NO No direct assessment of falls. No attention to dance. Intervention appears very minimal and it is not clear how music listening might impact on falls risk
399 Rogers	2019	Cultural engagement is a risk-reducing factor for frailty incidence and progression in non-frail adults	UK national	To assess whether community cultural engagement is associated both with a reduced risk of becoming frail and a slower trajectory of frailty progression in older adults	Retrospective study. English Longitudinal Study of Ageing cohort. Use of regression analysis	4,575 adults aged 50+ followed over ten years	Self-reported visits to (a) the theatre, concert, or opera; (b) the cinema; and (c) an art gallery, exhibition, or museum combined and coded as: never, less than once a year, once or twice a year, and every few months or more	Older adults who engaged in cultural activities every few months or more had a reduced risk of becoming frail and a slower progression of frailty over time	NO No attention to dance, no assessment of incidence of falls
400 Fancourt	2018	Physical and psychosocial factors in the prevention of chronic pain in older age	UK national	To identify activities that could help older adults reduce the incidence risk of chronic pain	Retrospective study. English Longitudinal Study of Ageing cohort. Use of regression analysis	2,631 adults aged 50+ years who were free from chronic pain at baseline followed over ten years	Cultural activities (museums, art galleries, exhibitions, concerts) assessed as a binary variable: every other month or more	Regular physical activity and cultural engagement shown to be helpful in preventing chronic pain	NO No attention to dance, no assessment of incidence of falls

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Supplementary Table 3: Papers cited in the ‘Social Inclusion’ body of evidence in the DCMS report

Below is the third of three supplementary tables that accompany the article by Clift, Phillips & Pritchard (2021) ‘The need for robust critique of research on the social and health impacts of the arts’ published in the journal *Cultural Trends*. The paper raises critical concerns about two recent reviews of arts and health research, the first for the World Health Organization (Fancourt and Finn, 2019) and the second for the UK Government, Digital, Culture, Media and Sport Department (DCMS) (Fancourt, Warren & Aughterson, 2020), and argues that robust critique of research in this field is required. The DCMS review differs from the WHO review as it included an assessment of the quality of research studies considered based on a standard ‘hierarchy of evidence’ (RCTs high – qualitative studies low), and appraises bodies of studies concerned with defined social and health issues, in terms of how strong the evidence is, how generalizable and applicable and the size of impact of the activities researched on outcomes (see p.4 for details of the quality assessment undertaken).

Table 3 reports details of 20 sources cited in the section on ‘social inclusion’ in the DCMS review of arts and health (Fancourt et al., pp. 6-7). The sources are of varied types: empirical papers reporting original research (RCTs, quasi-experimental studies, single group observational studies, cohort studies, qualitative studies), and systematic reviews. Information is included on the name of the first author, date of the paper, title, country(ies) covered, aims of the publication, design/method, participants involved, art forms and outcomes. A final column indicates whether a source is considered in the *Cultural Trends* paper and offers a short commentary on relevance. Particular attention is given to the outcomes from systematic reviews and experimental studies. In addition, comments are made about qualitative studies and scepticism expressed how generalizable and applicable the findings are in UK contexts.

Supplementary Table 3: Papers cited in the ‘Social Inclusion’ body of evidence in the DCMS report									
No in DCMS / First author	Date	Title	Country / countries	Aims	Design	Participants	Art form/s	Claimed outcomes	Included in Cultural Trends paper / Commentary
32 Dodell-Feder	2018	Fiction reading has a small positive impact on social cognition: A meta-analysis	Not stated	To evaluate whether, and to what extent, fiction reading improves social cognition i.e. processing, interpreting, and responding to social information	Meta-analysis of 14 short-term experimental studies on fiction reading and social cognition	Primarily ‘students’	Fiction reading vs. no reading or non-fiction	Fiction reading led to small improvements in social cognition when compared with no reading or reading of non-fiction	YES A systematic review high on the hierarchy of evidence Small effect sizes detected not consistent with the claims made using FORM

33 Montgomery	2015	The effectiveness of creative bibliotherapy for internalizing, externalizing, and prosocial behaviours in children: A systematic review	USA, Israel, Italy, England	To assess the efficacy and effectiveness of creative bibliotherapy in preventing and treating of internalizing and externalizing behaviour / strengthening prosocial behaviour in children	Systematic review of 8 'creative bibliotherapy' studies	Children aged 5–15 years old (healthy and with emotional or behavioural issues)	Guided reading of fiction and poetry relevant to therapeutic needs	Reading had small to moderate effect for internalizing and externalizing behaviour. Only three included studies looked at prosocial behaviour outcomes Small to large effects found (0.37-1.20) but none of the measures externally validated	YES A systematic review as above Small to moderate effect sizes detected not consistent with the claims made using FORM
34 Poscia	2018	Interventions targeting loneliness and social isolation among the older people: An update systematic review	Australia, Netherlands, Norway, Italy, Japan, New Zealand, Israel, UK	To summarize and update the current knowledge on the effectiveness of the existing interventions for alleviating loneliness and social isolation among older persons	Systematic review of 15 quantitative and 5 qualitative studies of varied interventions (only 3 concern creative arts / music) addressing social isolation and loneliness	Older people with varied social and health challenges	Three studies were of arts activities. Two qualitative studies involved community arts and one mixed methods study evaluated group singing	Community arts and singing helped to address social isolation and loneliness in older people, but for singing no significant changes were found on the quantitative measures employed	YES A systematic review as above Noted that only three studies were concerned with creative arts Updates review: Cohen-Mansfield, J., Perach, R., (2015) which for some reason is not referenced in the DCMS report
35 Greitemeyer	2014	Employing music exposure to reduce prejudice and discrimination	Vienna, Austria	To assess whether listening to songs with pro-integration lyrics would reduce prejudice and discrimination	Three controlled laboratory experiments on the effects of 'exposure' to recorded songs with either prosocial or 'neutral' lyrics	University students (n=296 across the three studies)	'Exposure' to recorded songs with prosocial vs. 'neutral' lyrics for approximately 10 minutes (estimated as the length exposure to the songs not stated)	Exposure to songs with prosocial lyrics said to reduce prejudice and discrimination compared with 'neutral' songs	YES But argued that the study is highly flawed and should have been excluded. Students had relatively low

									prejudice scores on the scales used
36 Kreutz	2014	Does Singing Facilitate Social Bonding?	Cologne, Germany	To determine the effects of group singing on mood, social bonding and physiological variables including oxytocin (linked to bonding)	Participants in a newly formed choir compared for the effects of singing together for 30 minutes vs conversation in pairs for 30 minutes	Singers with no previous experience of choral singing (n=21)	Group singing vs paired conversations	Singing enhanced wellbeing and social bonding and release of oxytocin compared with paired conversations	YES But highlighted as a having a small sample, and assessing a very short period of singing
37 Pearce	2015	The ice-breaker effect: Singing mediates fast social bonding	Oxford, England	To test the hypotheses that, compared with non-singers, singers would feel significantly closer to their group	Comparative longitudinal study of participants involved in 4 singing groups and 3 creative activities groups, set up specifically for the study	Singers (n=58-66), non-singers engaged in creative craft and writing (n=32-46)	Group singing and creative craft and writing activities	Singers and non-singers reached similar levels of closeness to their classmates by the end of the study but singing bonded groups more quickly than the other activities	YES Noted that while bonding appeared more rapid in the singing group, both singing and control groups were equivalent at the end of the study. Not clear this study addresses social inclusion
38 Fancourt	2016	Singing modulates mood, stress, cortisol, cytokine and neuropeptide activity in cancer patients and carers	5 locations across South Wales	To assess the impact of singing on mood, stress and immune response in three groups affected by cancer	Members of five established choirs assessed before and after singing (one hour) on psychological measures and biomarkers	Cancer patients (n=55), carers (n=72), bereaved carers (n=66)	Group singing	Singing reduced negative feelings, increased positive feelings, and produced improvements in biomarkers of stress and immune system function	YES Noted that the singing activity was short, and the study does not address wider issues of social inclusion
39 Smigelsky	2016	Performing the peace: Using playback theatre	Tennessee, USA	To assess the feasibility and acceptability of	Quantitative and qualitative data gathered before	5 Police officers and 5 ex-offenders	Theatre production addressing	Participation improved attitudes of both	YES

		in the strengthening of police–community relations		an arts-based intervention, bringing together police officers and formerly incarcerated individuals from the same community	and after a theatre performance		police-community relations	police and ex-offenders towards the other group	Noted that this qualitative study small in scale and difficult to see how the findings generalize to the UK
40 Spiegel	2017	Re-approaching community development through the arts: a ‘critical mixed methods’ study of social circus in Quebec’	4 locations across Quebec, Canada	To assess the effects of participation in a social circus programme on the personal and community development of marginalized youth	Retrospective questionnaire completed by social circus participants plus semi-structured interviews and focus groups with participants, instructors, community workers, and coordinators	Unspecified numbers of ‘Street involved youth’ plus adult workers on the programme	Social circus arts: e.g. juggling, clowning, acrobatics, aerials, and balancing	Three themes emerged: personal transformation, improved social relationships, and optimism about the future	YES Question raised about the whether the findings from this study can be generalized to the UK
41 Van de Vyver	2018	The arts as a catalyst for human prosociality and cooperation	UK	To test the hypothesis that engagement in the arts may act as a catalyst that promotes prosocial cooperation	UK ‘Understanding Society’ survey data, regression analysis to explore relationships between arts participation and social behaviours	A nationally representative longitudinal sample of people in the UK (n=30,476)	Participation in 14 arts activities, and attendance at 14 types of arts events in the last 12 months.	Arts participation and attendance ‘explained’ between 6-10% of the variance in pro-sociality and cooperation (as assessed by volunteering and charitable giving)	NO One of only three UK studies included, but concerned with very different issues compared with the other studies in this section of the DCMS report
42 Madsen	2018	Raising social consciousness through verbatim theatre: a realist evaluation	Queensland, Australia	To explore the role of the arts in bringing about social and health change within communities	A mixed methods study with an online survey and ethnographic data	Two surveys of audience members (n=45 and n=27)	Verbatim theatre on the topic of domestic and family violence	Participants gained a greater understanding of the issues associated with domestic violence	YES Question raised concerning the generalizability of this study to the UK context

43 Skinner	2018	Improving social inclusion for people with dementia and carers through sharing dance: a qualitative sequential continuum of care pilot study protocol	Peterborough, Ontario and Brandon, Manitoba	To evaluate the innovative Baycrest NBS Sharing Dance Seniors programme	Protocol for two pilot qualitative studies of a dance programme for people with dementia and their carers'	People with dementia and their carers NB: no data are presented in this paper	Sharing Dance Seniors pilot programmes in rural regions of two Canadian provinces	NB: this is a protocol paper and no data are reported	YES Argued this paper should not have been included in the DCMS review
44 Murrock	2016	Depression, social isolation, and the lived experience of dancing in disadvantaged adults	Akron, Ohio, USA	To explore the experience of dance as an adjunct therapy, depression, and social isolation	Two focus groups using semi-structured interviews	16 disadvantaged adults with mental health challenges	12-week dance intervention as an adjunct therapy	Dance helped to reduce depression and social isolation	NO Not considered due to space restrictions – but generalization to the UK an issue
45 Smart	2018	Creating an inclusive leisure space: strategies used to engage children with and without disabilities in the arts mediated program Spiral Garden	Toronto, Ontario, Canada	To document service providers' practical strategies to create an inclusive leisure space for children with disabilities	Qualitative study using 'critical mixed methods'	14 'providers of services' in the Spiral Garden. NB: no data is directly gathered from children on the impacts of participation	Spiral Garden is a space associated with a children's hospital where children with disabilities can engage in spontaneous play and exploration	Strategies are identified which adults can use to enable children to experience opportunities for spontaneous free play, individualized structured support, and meaningful social participation	YES Argued this study should not have been included in the DCMS review
46 MacLeod	2016	Connecting socially isolated older rural Adults with older volunteers through expressive arts	Rural Ontario, Canada	To evaluate an innovative program from rural Ontario, Canada, designed to address social isolation among older people	Qualitative evaluation using narrative logs	8 Older adults in rural locations working with 8 volunteers in their homes	Expressive arts: drawing, painting, collage, sculpture, fabric craft	Five themes from the artwork and narrative logs document the value of the activities for: new relationships, personal development, creation of	NO Not considered due to space restrictions – but generalization to the UK an issue

								meaning, aesthetic appreciation, and lasting impacts beyond the visits	
47 Moody	2012	A community-engaged art program for older people: Fostering social inclusion	Vancouver, Canada	To explore the impacts of a community arts program on social inclusion of older people living in the community	A realist mixed methods evaluation	20 older adults participating in an 'Arts, Health, Seniors' (AHS) programme	Creative arts activities facilitated by artists	AHS program fostered social inclusion by: expanding community connections; contributing to the community through the creation of art, and group working towards shared goals	NO Not considered due to space restrictions – but generalization to the UK an issue
48 Anderson	2016	Translating knowledge: Promoting health through intergenerational community arts programming	Edmonton, Alberta, Canada	To assess the benefits of creating and performing ensemble-created plays to older adults' and university students' well-being and the key processes that promote well-being	Qualitative evaluation	15 Older adults and 17 university students	Intergenerational theatre group: Creating and performing ensemble-created plays	Participation increased older adults' and university students' well-being by building social networks, confidence, and self-esteem and developed a sense of social justice, empathy, and support for others	NO A very small-scale qualitative study. Not considered due to space restrictions – but generalization to the UK an issue
49 Clini	2019	Assessing the impact of artistic and cultural activities on the health and well-being of forcibly displaced people using participatory action research	London, England	To develop a participatory action research (PAR) method for assessing the impact of arts interventions on forcibly displaced people	Qualitative study involving two focus groups and interviews	12 Forcibly displaced people (asylum seekers and refugees), 4 volunteers and 15 charity staff	A creative arts programme (CAP) led by volunteers: includes painting and drawing, photography, dressmaking and knitting, and singing	The arts programme helped participants find a voice, create support networks, and learn practical skills	NO One of only three UK studies included in the review. May well have value in the development of other arts-based programmes for

									asylum seekers in the UK
50 Fanian	2015	Evaluation of the Ko` ts'ii`htla ("We Light the Fire") Project: building resiliency and connections through strengths-based creative arts programming for Indigenous youth	Northwest Territories, Canada	The objective of this study was to evaluate a creative arts workshop for Th_cho_ youth where youth explored critical community issues and found solutions together using the arts	Semi-structured interviews	4 indigenous youth and 5 indigenous artist facilitators	5-day creative arts and music workshop to explore issues facing young people using the arts e.g. film, photography, multimedia arts, jewellery and visual arts	Engagement and participation in the arts helped build resiliency, form relationships, and stimulate discussions for community change	YES Question raised concerning the generalizability of this study to the UK context
51 Coggan	2008	Art and safe Communities: The role of Big hART in the regeneration of an inner city housing estate	Sidney, Australia	To describe how a notorious central Sydney housing estate nicknamed 'Suicide Towers' became the first public housing estate to achieve the World Health Organization criteria for designation as a Safe Community	Analysis of artistic creations, weekly logs, evaluations, and field notes	Narrative accounts of the process and its impacts from unspecified numbers of participants	Collaborative community activities, which allowed people to tell their stories and with others to create art	Use of arts and storytelling helped increase a sense of belonging and safety among participants	NO Not considered due to space restrictions – but generalization to the UK an issue

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