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Background: There is considerable evidence that participating in music making can have benefits for children and young people. This research explored how participation in making music might support the social, emotional and cognitive well-being of older people. *Methods*: Comparisons were made between older people participating in a wide range of musical and other activities in relation to their responses to questionnaires and psychological needs scales (the CASP-12 and the Basic Needs Satisfaction Scale; Deci & Ryan, 2000). Comparisons were also made between those older people participating in the musical activities who were in the third and fourth ages. *Results*: Factor analysis of responses revealed three factors: purpose (having a positive outlook on life); autonomy and control; and social affirmation (positive social relationships, competence and a sense of recognised accomplishment). Comparisons between those participating in the music groups and those participating in other activities revealed statistically significant differences on all three factors with the music groups giving more positive responses. There was also no deterioration in responses in the music groups between those in the third and fourth ages as might have been expected except in relation to purpose. *Conclusions*: Actively participating in making music has beneficial effects on the well-being of older people. Further research is needed to identify the mechanisms through which music is able to achieve these effects.

Keywords: music; community music; psychology; well-being; ageing; quality of life

Introduction

Major demographic transitions are currently underway in the developed world with significant increases in the proportion of older persons (above 60 years) in the population. By 2050, it is anticipated that the number of older persons will exceed the number of young (below 15 years) (United Nations Department of Economic & Social Affairs Population Division, 2011). Typically, older people experience declining health and functional incapacity which may lead to increased dependence on others. At the same time, support from family and friends may be unavailable because of geographical, work and care-giving factors, illness and death. Consequently, many older people are living in social isolation and increasing numbers are suffering from depression (Black, Dobbs, & Young, 2012; Cacioppo, Hawkley, & Thisted, 2010). This can become particularly acute as people progress from the third age (50–75 years), where they typically continue to have active lives, to the fourth age (76+ years), where there tends to be a greater physical and cognitive decline (Laslett, 1989; Schuller & Watson, 2009). It is, therefore, becoming increasingly important to develop initiatives to maintain the well-being, good health and productivity of

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the ageing population (Black et al., 2012; Jamieson, 2007). Increased support from local communities might provide a solution, but currently, many are ill prepared for this role (Black et al., 2012), although community arts projects have been demonstrated to be able to make a contribution (Cohen, 2009). The research reported here explores the possibility that active engagement with making music may contribute to this agenda.

There is already some evidence that participation in music can provide a source of enhanced social cohesion, enjoyment, personal development and empowerment (Sixsmith & Gibson, 2007) and that musically related social networks can contribute to recovery from depression and to the maintenance of personal well-being (Fullagar, 2008). Research focusing on singing in adults has revealed a range of benefits including increased energy; reduction in stress; enhanced self-perceived well-being, self-confidence and sense of purpose; stimulation of a range of cognitive capacities (attention, concentration, memory and learning) and improved health (Clift, Hancox, Staricoff, & Whitmore, 2008; Stacey, Brittain, & Kerr, 2002). In a review of 48 studies of group singing of which eight included samples of people aged over 50 years, Clift, Nicol, Raisbeck, Whitmore, and Morrison (2010) suggested that singing could promote social and personal well-being, encourage social participation and reduce anxiety and depression. Cohen et al. (2006, 2007) carried out non-randomised controlled studies with 166 participants with a mean age of 80 years who participated in 30 singing workshops and 10 performances over 1 year. The participants, in comparison with control groups, reported fewer health issues, fewer falls, fewer doctor's visits and less use of medication. Their morale was higher, and there was less reported loneliness and evidence of increased activity. In the UK, Hillman (2002) surveyed 75 participants who had participated in a community singing project since reaching the statutory retirement age. Long-term benefits attributed to participation in music included overall improvements to the quality of life and no overall deterioration in physical health. Lower mortality rates are also evident amongst those who make music or sing in a choir (Byrgen, Konlaan, & Johnasson, 1996).

Listening to music forms a part of many everyday activities for older people and represents a frequent source of positive emotions (Laukka, 2007). Hays and Minichiello (2005) used focus groups and in-depth interviews to explore the relationship between music making and identity amongst 52 people aged between 60 and 98 years. They found that listening to music and active music making were associated with social and emotional well-being, offering a medium through which participants could express themselves and connect with others. Similarly, Taylor and Hallam (2008) used semi-structured interviews to explore musical self-concept amongst a group of eight keyboard learners aged above 60 years, reporting that learning a musical instrument contributed to feelings of satisfaction, achievement and self-confidence.

Intergenerational research also offers insights. Saarikallio (2010) carried out group interviews with 21 Finnish adults aged 21–70 years, investigating the use of music (listening and active participation) for emotional self-regulation. For the oldest participants, singing or participating in instrumental ensembles offered opportunities for alleviating loneliness and coping with the challenges of ageing, providing opportunities for progression and enjoyment and adding a depth of meaning to life. Focusing on the instrumental ensembles, Gembris (2008) used questionnaires to explore the function of amateur music-making amongst a group of 308 adults aged 40–97 years. Participants attributed enjoyment, happiness and community belongingness to their musical engagement. Although many reported age-related constraints, they also identified compensatory strategies and generally maintained a strong musical self-concept.

The aim of the study reported in this paper was to explore the impact of active engagement with music (mainly, although not exclusively performing) on a sample of older people in the UK, specifically focusing on self-perceived well-being (Daatland, 2005). Well-being is a contested concept with many definitions (Smith, 2000) and approaches to studying it. Carlisle and Hanlon (2007) outline three approaches: quantitative; social constructivist and a strand drawing on ecology, ethics, philosophy and spirituality. This study adopts a quantitative approach based on needs satisfaction conceptualising self-perceived well-being as reflecting the extent to which basic human needs are perceived to be met. While this approach is viewed as problematic by some as it is insensitive to differences between social groups and societies and indifferent to the dynamic nature of attitudes (Allison, Locker, & Feine, 1997), it is supported by evidence that well-being is only weakly related to demographic variables such as age, sex, marital status and ethnicity (Andrews & Robinson, 1991), while positive affect, control beliefs and (in older age) accommodation are associated with cognitive and emotional well-being (Lang & Heckhausen, 2001).

Several models of human psychological needs have been proposed (e.g. Deci & Ryan, 2000; Steverink & Lindenberg, 2006). In self-determination theory, Deci and Ryan (2000) conceptualise basic needs as competence, autonomy and relatedness. These, it is argued, must be satisfied in a sustained fashion in order for humans to function optimally as they strive for effectiveness, connectedness and coherence. From this perspective, the presence or absence of environmental conditions that facilitate the satisfaction of these needs may be a predictor of mental health and vitality. These environmental conditions might include factors such as social belongingness or having interesting, revitalising and challenging goals. Adopting a different perspective, Steverink and Lindberg (2006) tested a model of basic needs that comprised affection, behavioural confirmation and status with a sample of 1,322 community-dwelling people aged 65–98 years (mean age 74 years) in the Netherlands, treating measures of these three needs as potential predictors of reported well-being. The results indicated that, as expected, older people experienced loss in terms of satisfaction of their needs for behavioural confirmation and status. However, even when older people experienced high levels of affection, the other needs continued to be associated with perceived well-being. Their importance did not diminish with advancing age or with increasing levels of physical decline.

Higgs, Hyde, Wiggins, and Blane (2003) argue that the changing nature of ageing demands a special consideration of what might be essential needs in older age. Increasingly, psychological needs for social participation, autonomy and choice are seen as salient. For instance, McKenna et al. (1999) suggest that models relating to older adult life need to move away from a focus on function and emphasise the reasons why individuals want to accomplish things. From this perspective, leisure activities and social networking provide the means by which needs may be fulfilled. Daatland (2005, pp. 375–376) suggests that "successful ageing, and indeed quality of life, has to do with the road (process) more than the destination (end state) – to have goals and a motivation to try and reach them." Similarly, Cohen (2009) argues that humans have a built-in inner push of positive drives that foster psychological growth through the life cycle. He describes four phases that relate to ageing: a mid-life re-evaluation phase (generally from early 40s to the late 50s when plans and actions are shaped by a sense of crisis or quest); a liberation phase (generally from the mid-50s to the mid-70s where plans and actions are shaped by a sense of personal freedom); a summing-up phase (usually from the late 60s to 80s where plans and actions are shaped by the desire to find meaning as individuals look back and reflect) and an encore phase (developing in the late 70s where plans and actions are shaped by the

desire to reaffirm major life themes, explore variations on those themes and attend to unfinished business). Cohen (2009) provides evidence that as individuals progress through these phases creativity may increase and that the arts can support this process and play a major contribution in supporting well-being. Similarly, Higgs et al. (2003) have drawn attention to the positive dimensions of ageing. Their model stresses the role of control and autonomy in sustaining full personal and social development through later years and includes
self-realisation as well as the pursuit of pleasurable activities. The dimensions of self-realisation and pleasure, they argue, are underpinned by autonomy and control.

The research reported here intends to explore the extent to which the basic needs outlined above might be satisfied through making music in community settings. The specific research questions are as follows:

- Are there differences in responses to well-being measures between older people participating in active music making as opposed to other group activities?
- Are there changes in the short term in relation to such measures when individuals are engaged in group activities?
- To what extent are there changes in well-being between those in the third and fourth ages actively engaged in making music?

On the basis of this evidence, we would expect that those participating in musical activities would have higher levels of self-reported well-being than those participating in other activities and that there would be positive change or no reduction in self-reported well-being in the short or long term for those participating in musical groups.

Method

Design

Data were collected from three sites where older people engaged with musical activity. Comparisons were also made with groups participating in non-musical activities. Site 1, the Silver Programme at the Sage Gateshead, provided a wide range of musical opportunities for people over the age of 50 including singing of many kinds, the playing of steel pans, guitars, ukulele, recorder and activities involving folk ensemble, music theory and samba. The programme aimed to develop the current and past skills of participants as well as encouraging and developing new and emerging ones, enhancing musical abilities and encouraging positive mental and physical heath. Participants had the opportunity to perform regularly in public concerts. Site 2, the Connect Programme of the Guildhall School of Music and Drama, ran community projects with people of all ages in East London. The projects were distinctive in that their focus was on activities where participants created and performed music together, linking storytelling and reminiscing to creative music making. The musical activities with older people took place in the community rooms of sheltered housing accommodation in East London. The activities included intergenerational music sessions involving older people making music with children from local primary schools. Site 3, Westminster Adult Education Service (WAES) music department, ran a wide range of musical programmes in a range of musical genres, specialising in singing, playing instruments, sound engineering and using sequencers, music theory and composing. A comparison group comprised adults involved in a range of activities which involved attending classes other than music. These included individuals attending language classes (four groups); art/craft classes (five groups); yoga; social support (two groups) and a book group and a social club. All of the comparison

groups apart from the book group were based in the London area; the book group was based in a rural area of England.

Measures

Participants were asked to provide demographic and background information about their previous musical experiences including instruments played, levels reached, ability to read notation and music in their daily lives. The CASP-12 measure of quality of life and the Basic Psychological Needs test (Deci & Ryan, 2000) were also included. The questionnaires were produced with a large font size suitable for participants with vision difficulties.

CASP-12 Measure of Quality of Life. This measure originally comprised 19 items representing the subscales of control, autonomy, self-realisation and pleasure. Control is conceptualised as the ability to actively intervene in one's environment, whereas autonomy is the right to be free from the unwanted interference of others. Self-realisation represents "the more reflexive nature of life," whereas pleasure refers to "the sense of fun derived from the more active (doing) aspects of life" (Wiggins, Netuveli, Hyde, Higgs, & Blane, 2007, p. 5). Following extensive research with participants from the Boyd–Orr survey of childhood diet and health in the 1930s (see Hyde, Wiggins, Higgs, & Blane, 2003), the 1st wave of the English Longitudinal Study of Ageing (ELSA_1; $N = 9{,}300$) and the 11th wave of the British Household Panel Survey (BHPS_11; $N = 6{,}471$), the number of items was reduced from 19 to 12. The shortened 12-item version of CASP was found to have stronger measurement properties than that of the original CASP-19 measure and was recommended for future applications (Wiggins et al., 2007). The CASP-12 measure is a four-point Likert scale, comprising 12 individual items organised into four subscales (control, autonomy, self-realisation and pleasure) comprising three items in each. Cronbach's alpha values derived from ELSA_1 and BHPS_11 were 0.67 and 0.66 for control, 0.45 and 0.46 for autonomy, 0.77 and 0.76 for self-realisation and 0.80 and 0.77 for pleasure, respectively. The low level of Cronbach's alpha for autonomy made it advisable to use an additional measure which included the concept of autonomy.

Basic Psychological Needs Scales. This scale has 21 items assessed on a seven-point scale (Deci & Ryan, 2000). The three subscales are conceptualised as competence, autonomy and relatedness. The points on the scale range from "1 = not at all true" to "7 = very true." Gagne (2003) reported Cronbach's alpha values for the three subscales as follows: autonomy = 0.69, relatedness = 0.86 and competence = 0.71. The overall index of general need satisfaction has a Cronbach's alpha value of 0.89. Although the scale has been used extensively, there has been little in the way of rigorous study of its psychometric properties (Johnston & Finney, 2010). However, there is an extensive body of research demonstrating the validity of the relationship between well-being and satisfaction on the three subscales (see Johnston & Finney, 2010 for a review). It was adopted in the research as an additional measure of autonomy given the low Cronbach's alpha relating to autonomy in CASP-12.

Procedures

The questionnaires were completed twice, initially in October 2009 (Time 1) and then in June 2010 at the end of the music sessions for the year (Time 2). Questionnaires were

distributed by the music facilitators, returned to them in envelopes to ensure confidentiality and then returned to the researchers.

Participants

Questionnaires were distributed to 500 older people at Time 1 and Time 2. Of those participating in musical activities, 337 returned completed questionnaires at Time 1 and 147 at Time 2. Of those participating in the non-musical activities, 89 returned completed questionnaires at Time 1 and 36 at Time 2. Some people returned questionnaires at Time 2 who had not completed questionnaires at Time 1. Overall, 398 responses (80%) were received from those participating in musical groups and 102 (20%) from those in the other groups.

The sample was predominantly female (81%). The oldest participant was 93 and the youngest was 50. For the analysis, there was a need to define what would constitute the third and fourth ages. While it is acknowledged that this is a contested concept, the age bands 50–75 years (third age) and 76 + years (fourth age) were used (Schuller & Watson, 2009). Of those participating in the music groups, 73% were in the third age (50–75 years), whereas 23% were in the fourth age (76 + years). Of those participating in the non-musical activities, 75% were in the third age and 21% in the fourth age.

There were no statistically significant differences in socio-economic status between the music and non-music groups. In both groups, there was a preponderance of those in professional occupations assessed by the Standard Occupational Classification (Office for National Statistics, 2010). Twenty per cent of the whole sample indicated that they had recently experienced major life changes, and 40% of those experiences were related to personal health, family issues and employment.

For most of those participating in the non-music groups, music was not important in their lives. Fourteen per cent indicated that music had never been important, 20% indicated that they enjoyed music from time to time and 12% indicated that it played a central role in their lives, whereas the remainder did not respond to the question. In contrast, of those participating in the music groups, 62% indicated that they had been involved in group musical activities prior to the research, some in more than one group. Forty per cent were involved in at least two activities at the centre that they were attending, 12% in three activities and 4% in four activities.

Those participating in the music groups were asked about the instruments that they played. Forty per cent indicated a first instrument, 20% the piano, 6% the ukulele and 5% the guitar. Smaller numbers of participants played the recorder, drums, violin, steel pans/drums, flute, trumpet, bass, folk instruments, pan pipes or engaged in theoretical studies. Fourteen per cent of participants reported playing at least one other instrument. The most common was the ukulele.

Of the 40% of the music group who played an instrument, 21% self-assessed their attainment on their first instrument as a child as at beginner level, 41% as average, 32% as good and 6% as very good. When asked to assess the level attained in their best instrument as an adult, more people classified themselves as beginners (28%), whereas 40% considered themselves as average, 28% as good and 4% as very good. Seventy-three per cent of the music group sample indicated that they could read music. Of these, 44% indicated that their level of competency was basic, 28% indicated that it was average, 20% indicated good and 8% indicated very good.

Participants in the musical groups were asked to indicate what role active and passive musical engagement played in their daily lives. Table 1 set out the details.

Table 1. Reported Engagement with Music in the Daily Life of Those in the Music Groups.

	Percentage responses				
Engagement with music	Never	Not often	Sometimes	Often	Total number of responses
Practise at home	42	9	23	26	267
Sing at home	7	13	43	36	305
Play or sing with others	4	5	26	65	309
Listen to recorded music	1	3	30	66	324
Listen to live music	2	17	50	31	311
Play music in background	6	13	26	54	323

Results

Data from the CASP-12 and the Basic Needs Satisfaction Scale quality of life measures collected at Time 1 of the research were used to compare responses from those participating in musical activities and non-musical activities and those in the third and fourth ages. Comparisons were also made between measures taken at the beginning and end of the project.

CASP-12 Measure

The items in the CASP-12 measure were summed into four components of the scale: control, autonomy, self-realisation and pleasure. An independent *t*-test used to compare the differences between those participating in the music groups and those in other activities showed statistically significant differences in relation to control and pleasure but not autonomy or self-realisation. Those participating in musical activities scored significantly higher on control and pleasure, although the effect sizes were small. Cronbach's alpha values were also calculated for CASP-12. Table 2 provides details.

For those participating in the music groups, a dependent *t*-test was undertaken between responses made at the start of the project and its completion. This was broadly a period of 9 months although for individual participants the time scale for completion of the questionnaire may have varied. These analyses were also undertaken for those who had been involved in musical activities for some time and those who were relative novices. Seventy-six per cent of respondents had participated in the musical activity prior to the project, and 24% were inexperienced in music. There were no statistically significant differences over the period of the research in any of the CASP-12 scores for the whole of the music sample or for the novice sample. Similarly, there were no statistically significant differences over the two time scales for those in the non-music groups.

Independent *t*-test comparisons were made for the music groups of responses to the CASP-12 measure between those in the third (50–75 years) and fourth ages (76 + years). Although there were participants in the non-music groups who were in the fourth age, insufficient had completed enough of the questionnaire to enable analysis to be undertaken. There were no statistically significant differences between those participating in active music making on measures of autonomy and pleasure but there were statistically significant differences relating to control, self-realisation and the overall score, with fourth age participants having lower scores, as might have been expected given the evidence of deterioration in well-being in the fourth age. What is surprising is the lack of significant differences in relation to autonomy and pleasure (see Table 3). It seems that engaging in musical activities may sustain levels of perceived autonomy and maintain perceptions of life being pleasurable into the fourth age.

Table 2. Comparisons Between Music and Non-Music Groups on CASP-12.

	Music groups		Non-music groups			
Subscales	Mean*	SD	Mean*	SD	*t*-Test and probability	Effect size
Control (0.67)	9.43 (332)	1.89	8.28 (85)	1.90	$t(415) = 5.03$, $p < 0.0001$	0.24
Autonomy (0.6)	9.92 (338)	1.83	9.67 (86)	1.83	$t(422) = 1.1$, $p > 0.05$	0.05
Pleasure (0.86)	11.32 (335)	1.50	10.59 (87)	1.61	$t(127.6) = 3.8$, $p < 0.0001$	0.19
Self-realisation (0.84)	10.38 (138)	1.80	10.00 (31)	1.82	$t(167) = 1.04$, $p > 0.05$	0.08
Total (0.6)	40.98 (138)	5.13	39.67 (18)	4.95	$t(101) = 0.98$, $p > 0.05$	0.10

Notes: Values in parentheses after the mean values indicate the sample size for that measure. Values in parentheses after the subscales indicate Cronbach's alpha values.
*Maximum score for subscales = 12; maximum score for total scale = 48.

Table 3. Comparisons Between Third and Fourth Age Music Group Participants on CASP-12.

	Third age		Fourth age			
Scale	Mean*	SD	Mean*	SD	*t*-Test and probability	Effect size
Control	9.6 (239)	1.76	8.93 (83)	2.19	$t(120) = -2.96$, $p < 0.01$	0.14
Autonomy	9.89 (243)	1.82	10.00 (85)	1.91	$t(0.48) = 0.63$, $p > 0.05$	0.006
Pleasure	11.38 (243)	1.4	11.12 (83)	1.71	$t(324) = 0.168$, $p > 0.05$	0.05
Self-realisation	10.72 (64)	1.87	9.75 (28)	1.62	$t(90) = -2.5$, $p < 0.02$	0.26
Total	41.67 (61)	4.86	38.96 (21)	5.45	$t(82) = -2.2$, $p < 0.03$	0.24

Note: Values in parentheses indicate the sample size for that measure.
*Minimum score for subscales = 3, maximum score for subscales = 12; minimum score for total scale = 12, maximum score for total scale = 48.

The Basic Needs Satisfaction Scale (Deci & Ryan, 2000)

The individual elements of the Basic Needs Satisfaction Scale (Deci & Ryan, 2000) were summed into their subcomponents (control, autonomy and relatedness) and comparisons using an independent *t*-test were made between those participating in the music and non-music groups. There were no statistically significant differences between music and non-music participants on measures of autonomy or competence. However, there were differences in relation to relatedness and in relation to the total score representing all three of the subscales combined (see Table 4). Those participating in the musical activities responded more positively, although the effect sizes were relatively small.

A *t*-test analysis was also undertaken of changes over the period of the research. There were no statistically significant differences for those participating in the music groups who had prior musical experience and those who had not participated prior to the project. There were too few responses to enable analysis to be undertaken for the non-music groups.

Using an independent *t*-test, comparisons were made between those in the third and fourth ages in the music groups in relation to the subcomponents of the Basic Needs Satisfaction Scale. There were no statistically significant differences in relation to autonomy, relatedness or the whole scale as might have been expected, although those in the fourth age scored lower on competence (see Table 5). This suggests that participation in musical activities can sustain perceptions of autonomy and relatedness into the fourth age.

Factor analysis

The two scales used in the analysis (CASP-12 and Basic Psychological Needs Scale) were selected for the research to assess different aspects of psychological well-being, although there was some overlap between the measures in relation to the concept of autonomy. To explore whether a more parsimonious conceptualisation could be established, a principal component analysis (PCA) with orthogonal rotation (varimax) was undertaken. The Kaiser–Meyer–Olkin (KMO) measure verified the sampling adequacy for the analysis (KMO = 0.849), and all KMO values for individual items were well above the acceptable limit of 0.5 (Field, 2009). Bartlett's test of sphericity (χ^2 (528) = 4,040.336, $p = 0.0001$) indicated that the correlations between items were sufficiently large for PCA. Analysis of the scree plot suggested that the most appropriate solution was a three-factor solution. Factor 1 had an eigenvalue of 7.5, Factor 2 an eigenvalue of 2.9 and Factor 3 of 2.2. Together, these accounted for 38.3% of the variance. Table 6 shows the factor loadings after rotation. Loadings below 0.2 have been

Table 4. Comparisons Between Music and Non-Music Groups on the Basic Needs Satisfaction Scale.

	Music groups		Non-music groups			
Scale	Mean*	SD	Mean*	SD	*t*-Test and probability	Effect size
Autonomy (0.52)	40.3 (319)	5.78	39.17 (72)	9.6	$t(82.8) = 1.3$, $p > 0.05$	0.07
Competence (0.59)	30.19 (308)	5.47	29.7 (70)	6.05	$t(376) = 0.665$, $p > 0.05$	0.03
Relatedness (0.71)	48.17 (319)	5.79	45.73 (71)	6.52	$t(388) = 3.1$, $p < 0.002$	0.15
Total (0.82)	119.29	13.61	113.98	18.32	$t(75.9) = 2.1$, $p < 0.03$	0.14

Notes: Values in parentheses after the mean values indicate the sample size for that measure. Values in parentheses after the subscales indicate Cronbach's alpha values.
*Autonomy: minimum score = 7, maximum score = 49. Competence: minimum score = 6, maximum score = 42. Relatedness: minimum score = 7, maximum score = 56. Total scale: minimum score = 21, maximum score = 147.

Table 5. Comparison of Third and Fourth Agers in the Music Groups on the Basic Needs Satisfaction Scale.

	Third age (50–75 years)		Fourth age (76 + years)			
Scale	Mean*	SD	Mean*	SD	*t*-Test and probability	Effect size
Competence	30.6 (227)	5.0	28.9 (73)	6.5	$t(100) = -2.02, p < 0.02$	0.03
Autonomy	40.45 (232)	5.4	40.45 (79)	6.5	$t(309) = -0.5, p > 0.05$	0.16
Relatedness	48.2 (235)	5.7	48.3 (76)	6.1	$t(309) = 0.2, p > 0.05$	0.01
Total	119.8 (215)	12.6	117.9 (69)	16.7	$t(93.8) = -0.843, p > 0.05$	0.06

Note: Values in parentheses indicate the sample size for that measure.
*Autonomy: minimum score = 7, maximum score = 49. Competence: minimum score = 6, maximum score = 42. Relatedness: minimum score = 7, maximum score = 56. Total scale: minimum score = 21, maximum score = 147.

eliminated from the table. The key indicators for each factor have been highlighted in bold. The loadings for the components on Factor 1 suggest that this factor relates to a sense of purpose and a positive outlook on life. Factor 2 shows high ratings on statements relating to lack of autonomy and control, whereas Factor 3 focuses on positive social relationships, competence and a sense of recognised accomplishment. The three factors were labelled as (1) sense of purpose, (2) autonomy/control and (3) social affirmation.

Comparison of factor scores (music/non-music groups and third/fourth age in music groups)

Factor scores for each individual were used to compare those participating in the music and non-music groups. There were statistically significant differences between the groups on each factor with the scores of those participating in the music groups indicating more positive responses (see Table 7), although the effect sizes were small. Comparisons were also made between music participants in the third and fourth ages. There were no statistically significant differences between the participants in the third and fourth ages on Factors 2 and 3. The scores on Factor 1 (sense of purpose) were lower for those in the fourth age (see Table 7). This suggests that actively participating in music making can maintain perceptions of autonomy/control and social affirmation into the fourth age.

Discussion

The findings from this research suggest that those actively engaged with making music exhibit higher levels of well-being than those engaged in other group activities particularly in relation to having a sense of purpose, feeling in control and autonomous in their lives, and receiving affirmation through positive social relationships which provide them with respect and status, although the effect sizes are small. The findings could be interpreted as indicating that engaging in music has additional value beyond other group work, perhaps because of the social nature of music making, the rewarding nature of performance and the impact of music on mood. Alternatively, the findings could be interpreted as showing that those individuals who had chosen to engage with music as opposed to other activities already had higher perceived levels of control, autonomy, sense of purpose and positive social relationships. As a sizeable proportion of the sample had been involved in making music prior to the research being undertaken, interpretation is complex.

Table 6. Rotated Component Matrix.

	Factor		
	1 – Purpose	2 – Autonomy/ control	3 – Social affirmation
I enjoy the things that I do	**0.819**		
I look forward to each day	**0.812**		
I feel that my life has meaning	**0.785**		
I feel that the future looks good for me	**0.760**	−0.269	
I feel that life is full of opportunities	**0.738**	−0.264	
I feel full of energy these days	**0.678**	−0.347	
I can do the things I want to do	**0.633**		
I feel that I can please myself in what I do	**0.560**		
I feel that what happens to me is out of my control		**0.631**	
Often, I do not feel very competent		**0.585**	
I often do not feel very capable		**0.576**	
I feel pressured in my life		**0.557**	
I feel left out of things		**0.539**	−0.271
There is not much opportunity for me to decide for myself how to do things in my daily life	−0.219	**0.537**	
My age prevents me from doing the things I would like to do	−0.286	**0.518**	
In my life I do not get much of a chance to show how capable I am		0.479	
In my daily life, I frequently have to do what I'm told		0.417	
I pretty much keep to myself and don't have a lot of social contacts		0.410	−0.272
There are not many people that I am close to		0.407	−0.254
Shortage of money stops me from doing things I want to do		0.356	
The people I interact with regularly do not seem to like me much		0.316	
I get along with people I come into contact with			**0.730**
I really like the people I interact with			**0.662**
I consider the people I regularly interact with to be my friends			**0.646**
People are generally pretty friendly towards me			**0.592**
People in my life care about me		−0.207	**0.581**
People I know tell me I am good at what I do			**0.518**
Most days I feel a sense of accomplishment from what I do	0.343	−0.335	**0.500**
I generally feel free to express my ideas and opinions		−0.332	0.490
I have been able to learn interesting new skills recently	0.234		0.464
I feel like I can pretty much be myself in my daily situations		−0.307	0.412
I feel like I am free to decide for myself how to live my life		−0.323	0.407
People I interact with on a daily basis tend to take my feelings into consideration			0.294

Note: Weightings below 0.2 have been omitted.

Table 7. Comparison of Factor Scores: Music/Non-Music Groups; Third/Fourth Agers in Music Groups.

Comparison of music and non-music groups				
	Music ($N = 280$)	Non-music ($N = 62$)	t-Test and probability	Effect size
Factor 1: purpose	0.088	−0.398	$t(340) = 3.52$, $p < 0.0001$	0.19
Factor 2: autonomy/control	−0.068	0.310	$t(340) = -2.72$, $p < 0.001$	0.15
Factor 3: social affirmation	0.052	−0.234	$t(340) = 2.04$, $p < 0.05$	0.11
Comparison of third and fourth age participants in the music groups				
	Third age ($N = 209$)	Fourth age ($N = 64$)	t-Test and probability	Effect size
Factor 1: purpose	0.157	−0.179	$t(271) = -2.4$, $p < 0.01$	0.13
Factor 2: autonomy/control	−0.107	0.032	$t(271) = 0.97$, $p > 0.05$	0.06
Factor 3: social affirmation	0.060	0.056	$t(271) = -0.03$, $p > 0.05$	0.002

There was no evidence of deterioration in autonomy/control or social affirmation between the participants in the third and fourth ages in the music groups, although there was a decline in sense of purpose. Unfortunately, participants in the non-musical activities failed to complete sufficient of the questionnaire to enable comparisons to be made between those in the third and fourth ages in the non-music groups. It may be that any type of group work is effective in promoting well-being. Certainly, there was no deterioration in music or non-music groups during the period of the research albeit that this was a relatively short space of time. Further research will need to address these issues.

What is it about group music making activities that may contribute towards self-perceived well-being beyond participation in other social activities? Those in the comparison groups were engaged in a wide variety of activities including those focusing on physical activity (e.g. yoga classes), intellectual stimulation (e.g. language classes and book clubs), creative activities (e.g. art and craft classes) and social activities (e.g. social support). Participation in music making provides stimulation in relation to all of these. In addition, group music making can support sense of purpose particularly when performances are planned. It also provides opportunities for having fun and deriving pleasure. Control and autonomy may be supported through the following: the physical activity involved in singing and playing instruments; the positive emotions that derive from music making which may impact to reduce depression; being challenged and given the opportunity to learn new skills and enhance already existing skills and the nature of active music making which requires focus and concentration at a specific point in time which is not self-determined. Social affirmation may be supported through the opportunities provided for social interaction; giving and receiving peer support and performance which confers status, a sense of giving something back to the community, pride and opportunities for positive reinforcement. Performance may be particularly important in relation to what Black et al. (2012) describe as "respect and inclusion" (respectful behaviour and being part of a social community) and "meaningful involvement" (making a difference and giving back).

Those participating in the music and other groups were typical of those who tend to engage in such organised educational activities with the majority being from higher socio-economic groups. For most participants, although not all, across all activities, there was a small charge for participation. This may have had an impact on the extent to which respondents reported benefits. However, dropouts in the music groups were minimal and only related to ill health suggesting that participants genuinely valued the activities and felt that they were worth the monetary commitment. Many, although not all, of those participating in the musical activities had been involved at school in music making beyond the normal school curriculum, in choirs or playing instruments in various ensembles. Those selecting music as an activity of choice in later life may do so based on previous experiences with music. The extent to which this is the case requires further research.

Those participating in the research were engaged in a wide variety of musical activities including singing in small and large groups, rock groups and classes for guitar, ukulele, steel pans, percussion, recorder, music appreciation and keyboard. The genres of music engaged with also varied widely. No attempt was made in this research to differentiate between the impact of engagement with different musical genres or activities. Further research might explore whether certain musical activities are more powerful in relation to promoting well-being than others, although musical preferences which we know are important in determining the benefits of music (e.g. Cassidy & MacDonald, 2009) are likely to play a major role.

The research presented here has limitations. It was not based on a randomised sample but members of self-selecting musical groups who may already have had higher self-assessed well-being. There was a considerable attrition between the first and second presentations of the questionnaire and some participants completed the questionnaire at Time 2 but not Time 1. Not all of the participants responded to all of the statements further reducing the sample size for some elements. The comparisons between the participants in the third and fourth ages were between different members of the music groups when, ideally, the analysis would have been based on longitudinal data.

Conclusion

There is growing evidence that active music making in a social context has the potential to enhance well-being and physical and mental health in older people. Providing opportunities in local communities for music making has the potential to meet some of the needs identified as important to and for older people to assist them in remaining active and enabling them to age with dignity and maintain their independence for longer.

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