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USES OF MUSIC AND PSYCHOLOGICAL WELL-BEING AMONG THE ELDERLY

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ABSTRACT. A questionnaire was sent to a random sample of 500 community living older adults in Sweden (aged 65–75 years). The questionnaire assessed uses of music in everyday life: frequency of listening, situations where music is encountered, emotional responses to music, and motives for listening (i.e., listening strategies). Also, different facets of psychological well-being (e.g., affective well-being, life satisfaction, and eudaimonic well-being) and selected background variables (e.g., education level, health status, activity level, and Big-5 personality characteristics) were assessed. Results showed that listening to music is a common leisure activity encountered in many everyday situations, and that listening to music is a frequent source of positive emotions for older adults. Also, the participants reported using a variety of listening strategies related to emotional functions (e.g., pleasure, mood regulation, and relaxation) and issues of identity, belonging, and agency. The associations between listening strategies and well-being were explored through correlation and multiple regression analyses where the influence of background variables was controlled for. Health status and personality were the most important predictors of well-being, but some listening strategies were also significantly associated with psychological well-being. The results give important insights into older adults' uses of music in everyday life and give clues regarding possible relationships between musical activities and well-being.

KEY WORDS: emotion, everyday life, identity, music, psychological well-being.

INTRODUCTION

Listening to music is today one of the most common leisure activities for many people. Recent research has begun to unravel the reasons for the massive appeal of music and an emerging explanation is that music listening may satisfy various psychological aims (e.g., DeNora, 2000; Laiho, 2004; Ruud, 1997). Music has also been coupled with the maintenance of

well-being since ancient times. However, there is very little research that progresses beyond the purely speculative when it comes to explaining *why* music should have an effect on well-being. This study proposes that music listening may have an effect on well-being because it satisfies basic psychological aims, and presents an investigation of everyday music listening and its associations with psychological well-being in a sample of older adults.

Evidence from studies that have used a variety of methods like questionnaire studies (e.g., Behne, 1997; Wells and Hakanen, 1991), diary studies and experience sampling methodology (e.g., North et al., 2004; Sloboda et al., 2001), as well as qualitative interviews (e.g., DeNora, 2000; Ruud, 1997), converge on the finding that today's listeners actively use music as a resource to achieve different purposes in everyday life. These purposes are often related to basic psychological aims and may concern both emotional issues (e.g., pleasure, mood regulation, and relaxation) and issues of identity, belonging, and agency.

Strong evidence from a variety of sources indicates that music is capable of inducing affect in listeners (for a review, see Juslin and Laukka, 2004). For instance, questionnaire and diary studies confirm that listeners actively use music for mood regulation and that music induces positive affective states (e.g., North et al., 2004; Thayer et al., 1994). Brain imaging studies suggest that listeners' brain responses to music involve the same regions that are involved in reward and pleasure (e.g., Blood and Zatorre, 2001; Menon and Levitin, 2005). Studies of peak experiences indicate that music is one of the most effective triggers of such psychological states (Panzarella, 1980), and that peak experiences with music often involve strongly felt positive emotions (Gabrielsson, 2001). Mood induction studies further indicate that music may be one of the most effective mood induction strategies available (Västfjäll, 2002), and music is also considered an effective means for decreasing stress-related arousal (Pelletier, 2004).

Though the emotional functions of music have received most attention, music may also serve other psychological aims (see DeNora, 2000; Lull, 1987; Ruud, 1997). For instance, music is

regarded to play an important role in the construction and strengthening of identity and self. Further, music can help to enhance social communication and peer group identification, as well as provide comfort and reduce loneliness. Finally, personal 'agency' refers to the feeling that one can be the cause of events (i.e., of being the one who acts in one's own life). Under the heading of agency, music has been related to issues of control, competency, achievement, and self-esteem.

The above review indicates that music may serve functions that have a bearing on well-being. For example, it is well known from previous research that experiencing positive affective states is related to increased well-being (e.g., Diener et al., 2003; Scherer et al., 2004). Likewise, identity, belonging, and agency are basic psychological needs the fulfillment of which has been posited as essential for well-being (Deci and Ryan, 2000). However, very few studies have directly investigated possible associations between music and well-being.[1] Most studies have considered active music making (e.g., choir singing) and participation in such leisure activities has been reported to increase happiness (e.g., Hills and Argyle, 1998; Kreutz et al., 2004). However, no studies have examined the various psychological functions of music and their possible associations with well-being in everyday life. Also, studies of relevance to the issue of music and well-being have mainly concentrated on affective aspects of well-being, whereas other aspects of well-being, like life-satisfaction (Diener et al., 1985) or aspects related to the realization of personal potential (i.e., eudaimonic well-being; Ryan and Deci, 2001) have not been studied.

Most previous studies on everyday music listening have focused on adolescents, and fewer studies have investigated the meaning and importance of music to older adults. The limited evidence regarding older adults' music listening indicates that elderly persons believe that music is important to them (Cohen et al., 2002), and that they experience positive emotions in relation to peak experiences with music (Gabrielsson, 2002). Studies with elderly persons have also shown physiological effects of music assisted relaxation (Lai, 2004), and older listeners have been shown to be susceptible to mood induction through music

(Fox et al., 1998). A qualitative interview study with older adults further gives several examples of how the respondents themselves believed music to be connected with well-being (Hays, 2005).

Using music to serve psychological aims could be particularly suitable for elderly listeners for two reasons. First, the ability to regulate emotions may improve with increasing age (Carstensen and Löckenhoff, 2003) which implies that using music for mood regulation could be an effective strategy for older adults. Second, music listening is an activity that is not cognitively or physically demanding, and may place fewer demands on an aging person than other past enjoyable activities of one's youth. Music listening could thus help to maintain a sense of continuity and identity for elderly persons, also in geriatric care settings (e.g., Rolvsjord, 1998). Continuation of past activities and engagement in meaningful leisure activities (including musical activities) has long been considered an important ingredient for achieving successful aging (e.g., Atchley, 1989; Havighurst et al., 1968). In light of this chain of arguments, further research on elderly persons' uses of music in everyday life is an important endeavor.

This article presents an exploratory study of the music listening habits of Swedish elderly persons. The study has two primary aims: (a) to study older adults' everyday uses of music and (b) to explore possible relationships between music listening and psychological well-being. Various aspects of older adults' everyday music listening were assessed in a questionnaire study: e.g., frequency of listening, importance of music, situations where music is encountered, emotional responses to music, and motives for listening (i.e., listening strategies). The possible associations between music listening and well-being were explored in two different ways. First, the relative frequencies of a number of musical activities relevant to well-being were assessed (e.g., frequency of positive emotional responses and listening strategies). Second, we investigated whether the reported frequencies of specific listening strategies were associated with various aspects of well-being (e.g., affective well-being, life satisfaction, and eudaimonic well-being) controlling for a number of

background variables known from previous research to affect well-being.

METHODS

Participants

A specially designed questionnaire was sent to a random sample of 500 persons between the ages of 65 and 75 years living in Sweden. Addresses were provided by the Swedish population register (SPAR). Two-hundred-and-eighty persons (138 women, mean age = 69.3 years, SD = 2.9; and 131 men, mean age = 69.1, SD = 2.7) returned the questionnaire after 2 postal follow-ups, which yielded a response rate of 57%. Eleven addresses were invalid (recipient moved or deceased) and 10 returned questionnaires were blank. The sample was representative of the population when compared with the population statistics of Sweden, except that highly-educated people were slightly over-represented (Statistics Sweden, 2005). Comparison of the well-being characteristics of the present sample with published norms for the various instruments indicated that the elderly persons in our sample received similar scores to same-aged Canadian and American populations (e.g., Clarke et al., 2001; Pavot and Diener, 1993).

Questionnaire

The questionnaire featured 22 items with varying response formats – forced-choice, quantitative ratings, and open-ended response – and was divided into three sections: background variables, everyday uses of music, and well-being. Some items were taken from instruments used in previous studies on music in everyday life (e.g., Juslin and Laukka, 2004). The complete questionnaire is available upon request from the author.

Background Variables

Various background variables known from previous research to affect well-being were assessed, including age, gender, education level, self reported health, activity level, and personality (e.g., Ryan and Deci, 2001). Regarding education level, the

participants were asked to indicate their highest completed education from a list of alternatives. They were also instructed to rate their health status on a 6-point scale (1 = very poor, 6 = very good). Further, the frequencies of various leisure activities were assessed on 6-point scales (1 = a couple of times/year, 6 = several times/day). An index of activity level was calculated by adding the responses for the following activities: socializing with friends or relatives, church going, home and garden activities, reading books/magazines, walking or other physical activity, and other leisure activity/hobby.

Personality was assessed using the Ten-Item Personality Inventory (TIPI) which is a brief self administered inventory for assessment of the Big-5 personality domains (Gosling et al., 2003). The TIPI consists of 10 statements, and the participants are instructed to indicate the extent to which they agree with each statement on 7-point scales (*1 = disagree strongly, 7 = agree strongly*). Short measures that require little effort from the participants are of paramount importance in questionnaire research where the choice often lies between using a short scale or no scale at all. Scales with few items are usually constructed to emphasize brevity and content validity at the expense of internal consistency, and Gosling et al. (2003) reported adequate levels of convergence with other widely used Big-5 instruments. However, scales with few items have lower internal consistencies than those of multi-item scales where several items overlapping in content are used. TIPI is no exception, though Gosling et al. (2003) reported that the test–retest reliability was acceptable for all scales of the TIPI.[2]

Everyday Uses of Music

This section assessed uses of music in everyday life (e.g., frequency of listening, situations where music is encountered, and emotional responses to music) with a special focus on various motives for listening to music (i.e., listening strategies) related to the psychological functions of music. The design of the questions is explained in detail in the results section. The questionnaire also included additional questions (e.g., music preferences, and free reports about emotional experiences in response to music) which fall outside the scope of the present article.

Well-being

Eudaimonic well-being was assessed with a Swedish translation of the 18-item version of Ryff's (1989) Scales of Psychological Well-Being (Clarke et al., 2001; Lindfors et al., 2006; Ryff and Keyes, 1995). This instrument is designed to measure six distinct facets of wellness: *self-acceptance*, or positive attitudes toward oneself; *positive relations with others*, including the ability to achieve close unions with others; *autonomy*, including qualities of self-determination, independence, and the regulation of behavior from within; *environmental mastery*, which is the individual's ability to engage in, and manage, activities in one's surrounding world; *purpose in life*, including the beliefs that give one the feeling that there is purpose in and meaning to life; and *personal growth*, which represents one's continual development and striving to realize one's potential to grow and expand as a person (Clarke et al., 2001, p. 80). The participant is given 18 statements and is instructed to indicate on 6-point scales the extent to which they agree with each statement (1 = disagree strongly, 6 = agree strongly). Clarke et al. (2001) reported that the short measure showed convergence with Ryff's (1989) original 120-item measure, which indicates that the validity of the short version is acceptable. As with other short measures, however, this instrument was designed primarily to maximize content validity and not internal consistency (Ryff and Keyes, 1995). In the present study the internal consistencies as measured by Cronbach's alpha were modest for all scales except purpose in life: self-acceptance (0.57), positive relations with others (0.43), autonomy (0.45), environmental mastery (0.49), purpose in life (0.10), and personal growth (0.62). These values should be interpreted with caution, because alpha may be misleading when applied to scales with few items (e.g., Kline, 2000). However, the purpose in life scale was excluded from the analyses because of its exceptionally low alpha value.

Subjective well-being is often divided into two broad aspects: an affective component (which can be further divided into pleasant/positive and unpleasant/negative affect) and a cognitive component called life satisfaction. Positive and negative affect were assessed using the Positive and Negative Affect

Schedule (*PANAS*) scales (Watson et al., 1988). This instrument consists of two 10-item scales, and the participants were instructed to indicate to what extent various emotion words describe how they have felt lately on a 5-point scale (*1 = not at all, 5 = extremely well*). Also, depression and happiness were measured with the Short Depression-Happiness Scale (*SDHS*; Joseph et al., 2004). SDHS consists of six statements, and the participant is instructed to indicate on a 4-point scale how often they have felt like the statements indicate lately (*1 = never, 4 = oft*en). Life satisfaction was assessed with the Satisfaction With Life Scale (SWLS; Diener et al., 1985; Pavot and Diener, 1993). SWLS is a short 5-item instrument designed to measure global cognitive judgments of one's lives. It consists of short statements and the participants were instructed to state the extent to which they agree with each statement on a 7-point scale (*1 = disagree strongly, 7 = agree strongly*). The above instruments for measuring subjective well-being have both established content validity and reliability (Joseph et al., 2004; Pavot and Diener, 1993; Watson et al., 1988). Regarding internal consistency, the following Cronbach alphas were found in this study: positive affect (0.89), negative affect (0.87), SDHS (0.83), and SWLS (0.89).

RESULTS

Everyday Uses of Music

The participants were first asked to report how often they listened to music. Sixty-four percent reported that they listened to music once or several times/day, 28% listened once or several times/week, 6% listened a couple times/month, and 2% a couple of times/year. Second, the participants were asked to rate how important music is to them now that they are over 65-years-old, on a 6-point scale (*1 = not at all important, 6 = very important*), and also to retrospectively rate how important music was for them when they were (a) in their teens, (b) between 20–30 years of age, and (c) between 40–50 years of age. A repeated measures analysis of variance (ANOVA) with age period (four levels: teens, 20–30, 40–50, >65 years) as within-subjects

factor was conducted on the importance ratings scores. A significant effect of age period was found, $F(3, 780) = 14.79$, $p < 0.0001$. Music received the highest importance rating for the '>65 years' age period (mean rating = 4.51, $SD = 1.25$), followed by '40–50 years' (mean rating = 4.35, $SD = 1.17$), '20–30 years' (mean rating = 4.24, $SD = 1.23$), and 'teens' (mean rating = 4.06, $SD = 1.45$). Post hoc multiple comparisons (Fisher's *LSD*) indicated that all consecutive differences between age periods were significant (p's < 0.05), except for the difference between '20–30 years' and '40–50 years'. These results clearly indicate that elderly persons listen to music quite frequently and perceive music to be important.

The participants were further asked about how often they personally chose the music they listen to. Three percent reported that they 'never' chose the music (0% of total listening time), 12% chose the music 'seldom' (1–33% of total listening time), 32% chose the music 'sometimes' (33–66% of total listening time), 42% chose the music 'often' (66–99% of listening time), and 10% reported that they 'always' (100% of listening time) chose the music by themselves. The alternatives 'sometimes' and 'often' were chosen significantly more often than the other alternatives, as indicated by chi-square tests ($p < 0.0001$). Older adults thus seem to take interest in, and have control over, what music they choose to listen to. In a similar vein, the participants were also asked about how frequently listening to music is the main activity in situations where music occurs. Two percent reported that listening to music is 'never' the main activity, 15% reported listening to be the main activity 'seldom', 45% 'sometimes', 33% 'often', and 5% reported that music listening was 'always' the main activity. 'Sometimes' and 'often' were again more frequently chosen than the other alternatives (chi-square tests, $p < 0.0001$). Thus, music was frequently encountered in situations where music listening was not the main activity.

Next, the participants were asked about how often they encounter music in various situations by rating a list of alternatives on a 6-point scale (*1 = very seldom, 6 = very often*). 'Attentively listening to records or radio' (mean rating = 4.12, $SD = 1.50$) received significantly higher ratings than the other

situations, as indicated by a *t*-test for dependent samples ($t_{257} = 2.39$, $p < 0.05$). The other situations received the following ratings, in descending order: 'doing housework' (mean rating = 3.87, *SD* = 1.68), 'in the car' (mean rating = 3.45, *SD* = 1.96), 'while dancing' (mean rating = 3.19, *SD* = 1.99), 'watching TV' (mean rating = 2.95, *SD* = 1.60), 'concerts' (mean rating = 2.92, *SD* = 1.56), 'eating/dining' (mean rating = 2.67, *SD* = 1.53), 'socializing with friends' (mean rating = 2.46, *SD* = 1.32), 'church going' (mean rating = 2.39, *SD* = 1.65), 'reading' (mean rating = 1.54, *SD* = 1.09), and 'walking/other physical activity' (mean rating = 1.42, *SD* = 0.98).

The participants were also asked to rate how often they feel emotions in response to music. One percent reported that they 'never' (0% of listening time) feel emotions, 11% reported feeling emotions 'seldom' (1–33% of total listening time), 43% answered 'sometimes' (33–66% of total listening time), 40% answered 'often' (66–99% of listening time), and 5% reported that they 'always' (100% of listening time) feel emotions in response to music. Chi-square tests revealed that 'sometimes' and 'often' were chosen significantly more often than the other alternatives ($p < 0.0001$). Emotional responses to music thus seem to occur quite frequently. As a follow-up, the participants were also asked to rate the relative frequency with which they feel various emotions in response to music from a list of 45 emotion terms in random order (on a 4-point scale; *1 = never, 4 = always*). The emotion terms were based on a survey of the literature on emotion (e.g., Plutchik, 1994) complemented with emotion terms frequently found in musical contexts (e.g., tension, solemnity, chills/thrills; Gabrielsson and Juslin, 2003). The results are shown in Table I and clearly indicate that positive emotions were among the most frequently felt in response to music.

Finally, the participants were asked about their motives for listening to music (i.e., their listening strategies). They were asked to rate the relative frequency of how often they listened to music for various reasons on a 6-point scale (*1 = very seldom, 6 = very often*). The listening strategies were compiled

TABLE I
Responses to the question "How common is it that you feel each of the following emotions in response to music?" in terms of the mean rating of each emotion term (1 = never, 2 = seldom, 3 = often, 4 = always)

1. Happy	3.10	16. Hopeful	2.31	31. Disappointed	1.53
2. Enjoying	3.02	17. Longing	2.27	32. Indifferent	1.52
3. Nostalgic	2.94	18. Relieved	2.22	33. Tense	1.36
4. Relaxed	2.86	19. Thrills/chills	2.21	34. Angry	1.30
5. Calm	2.84	20. Curious	2.21	35. Frustrated	1.26
6. Moved	2.82	21. Empathic	2.13	36. Anxious	1.24
7. Amused	2.78	22. Spiritual	2.04	37. Jealous	1.24
8. Interested	2.73	23. Sad	1.94	38. Confused	1.23
9. Admiring	2.61	24. Desiring	1.90	39. Regretful	1.19
10. Loving	2.58	25. Proud	1.85	40. Disgusted	1.18
11. Content	2.54	26. Lonely	1.82	41. Contempt	1.17
12. Enchanted	2.53	27. Honored	1.81	42. Afraid	1.12
13. Solemn	2.44	28. Ecstatic	1.71	43. Guilty	1.12
14. Tender	2.41	29. Bored	1.56	44. Humiliated	1.09
15. Expectant	2.33	30. Surprised	1.55	45. Ashamed	1.09

from the literature on music listening in everyday life and intended to cover the main psychological functions of music listening (i.e., emotional functions, identity, belonging, and agency; e.g., Ruud, 1997). The results are shown in Table II, and suggest that the participants intentionally used music for a wide range of motives connected to psychological functions. The participants stated that they most often listened to music for aesthetic reasons ('it is beautiful', mean rating = 4.76), followed by hedonic motives ('it gives me pleasure', mean rating = 4.72), and entertainment purposes ('for entertainment', mean rating = 4.44). All items received high rankings by at least some participants, which suggests that all listening strategies were utilized by the participants. Motives relating to agency and personal identity received the lowest frequencies across all participants.

Relating Everyday Uses of Music and Well-being

In this study we assessed the relative frequencies of various listening strategies relating to the psychological functions of

TABLE II
Responses to the question "How often do you listen to music because of the following reasons?" as rated on a 6-point scale (*1 = very seldom, 6 = very often*)

Item number	Mean rating	*SD*	Rank
1. "For entertainment"	4.44	1.25	3
2. "It evokes memories"	3.37	1.46	10
3. "It gives me pleasure"	4.72	1.21	2
4. "To get company/background music"	3.61	1.62	7
5. "Interest in music itself"	4.25	1.42	4
6. "To create atmosphere in social situations"	3.21	1.44	12
7. "It is hard to avoid hearing music"	2.84	1.43	15
8. "Enjoy to listen to lyrics"	3.44	1.45	9
9. "Music induces emotions"	3.91	1.46	6
10. "To forget about the present"	2.69	1.54	17
11. "To enhance positive moods"	3.32	1.48	11
12. "To weaken negative moods"	2.36	1.41	20
13. "To stir up energy"	4.01	1.35	5
14. "To relax and calm down"	3.49	1.56	8
15. "It helps me to concentrate"	2.26	1.43	22
16. "It is beautiful"	4.76	1.19	1
17. "To vent emotions"	2.89	1.59	13
18. "To reflect on my life"	2.58	1.46	19
19. "It strengthens my self image"	2.07	1.34	26
20. "To express my personality"	2.27	1.46	21
21. "To feel akin to others"	2.83	1.44	16
22. "To reduce feelings of loneliness"	2.85	1.64	14
23. "To express my feelings"	2.60	1.57	18
24. "To shield out the world around me"	2.11	1.36	24
25. "To strengthen self esteem"	2.09	1.38	25
26. "It makes me feel competent"	1.93	1.32	27
27. "To gain control of sounds in my surroundings"	1.71	1.12	28
28. "To master new skills"	2.24	1.48	22

music. This enabled us to investigate if some listening strategies were more associated with some well-being variables than others. To achieve this aim, the data on reported frequencies of listening strategies (see Table II) was first reduced to a manageable number of variables using principal-components analysis. The factor solution was used to create composite measures that reflected four main aspects of listening strategies:

'Identity and agency', 'Mood regulation', 'Relaxation and company', and 'Enjoyment' (see Appendix for details on the factor analysis and composite measures).

To investigate the relationships between specific music listening strategies and well-being, the correlations (Pearson *r*) between frequencies of listening strategies (as indexed by the composite measures) and well-being variables were calculated. Also, partial correlations controlling for background variables (i.e., age, gender, education level, health status, activity level, and personality) were calculated. The correlations are

TABLE III
Correlations between music listening strategies and well-being variables in terms of Pearson *r* and partial correlations controlling for background variables (age, gender, education level, health status, activity level, and personality)

Well-being variable	Listening strategy dimension (Pearson *r*/partial *r*)			
	Identity and agency	Mood regulation	Relaxation and company	Enjoyment
Self-acceptance	0.13*	0.01	0.05	0.13*
	0.11	0.04	0.08	0.04
Environmental mastery	−0.07	0.01	−0.11	0.17**
	−0.15*	−0.08	−0.14*	0.00
Positive relations with others	−0.01	0.09	0.07	0.15*
	−0.13	−0.08	−0.04	−0.01
Personal growth	0.11	0.23***	0.04	0.22***
	0.06	0.18**	0.07	0.15*
Autonomy	0.06	0.01	0.05	0.08
	0.02	−0.01	0.05	−0.01
Satisfaction With Life Scale	0.13	0.13	0.01	0.11
	0.07	0.08	0.01	0.01
SDHS	0.00	−0.03	−0.14*	0.05
	−0.05	−0.11	−0.12	−0.09
Positive affect	0.32***	0.31***	0.09	0.26***
	0.27***	0.26***	0.09	0.14*
Negative affect	0.24***	0.18**	0.09	0.05
	0.30***	0.24***	0.08	0.03

$N = 233$; $N = 226$ for partial correlations.
*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.
SDHS = Short Depression-Happiness Scale.

reported in Table III, and show that all listening strategies were significantly correlated with well-being variables. After controlling for background variables fewer significant correlations remained – mainly ones concerning positive affect, negative affect, environmental mastery and personal growth. Though the sizes of the correlations were small to moderate, the significant partial correlations suggest that listening strategies may be associated with well-being independent of background variables.[3]

To further study the associations between listening strategies, background variables and well-being, hierarchical multiple regression analyses were conducted. The well-being variables served as dependent variables, and background variables and frequency of listening strategies (indexed by the composite variables) served as independent variables. In the first step, the background variables (year of birth, gender, education level, health status, activity level, extraversion, agreeableness, conscientiousness, emotional stability, and openness) were entered simultaneously, and the listening strategies ('Agency and identity', 'Mood regulation', 'Relaxation and company', and 'Enjoyment'), were added in step 2. The background variables inserted in the multiple regression analysis were not highly correlated (max correlation $r = 0.41$ between emotional stability and agreeableness). Separate regression analyses were conducted for each well-being variable, and the results are shown in Table IV. All regression coefficients (R) were significant ($p < 0.0001$), and the independent variables could explain between 20–50% of the variance in the well-being variables. In general, health status and personality (especially emotional stability) were the most important predictors of well-being. Entering music listening strategies into the analysis did significantly increase the proportion of explained variance (R^2) for personal growth, positive affect, and negative affect, with the most marked effect for negative affect. Among listening strategies, 'Agency and identity' and 'Mood regulation' were the most important predictors of well-being, though all listening strategies received significant beta weights for at least some well-being variables. 'Agency and identity' and 'Mood regulation' were important predictors of

TABLE IV
Well-being variables as a function of music listening strategies: squared multiple correlations (R^2), beta weights (β) and significance levels in two-step hierarchical regression

Well-being variable	SA	EM	PR	PG	AU	SWLS	SDHS	PA	NA
Step 1: Background variables only									
R^2	0.38	0.40	0.32	0.32	0.21	0.29	0.37	0.43	0.20
Year of birth	0.11	0.05	0.04	0.07	0.10	−0.01	−0.02	0.09	0.01
Gender (f = 1, m = 0)	−0.17**	−0.12*	0.09	0.08	−0.02	−0.18*	−0.15*	−0.16**	0.02
Education level	0.09	0.11*	0.00	0.09	−0.09	−0.10	0.09	−0.07	0.06
Health status	0.20***	0.17**	0.14*	0.11	−0.16*	0.30***	0.25***	0.22***	−0.02
Activity level	0.10	0.09	0.06	0.12*	0.02	0.15*	0.09	0.27***	−0.02
Extraversion	0.01	0.07	0.21**	0.14*	0.12	0.11	0.22**	0.24***	0.00
Agreeableness	0.22***	0.04	0.28***	−0.06	−0.08	0.15*	−0.01	0.06	−0.05
Conscientiousness	0.14*	0.23***	0.08	−0.05	0.05	0.07	0.04	0.05	−0.02
Emotional stability	0.21**	0.31***	0.07	0.18**	0.30***	0.16*	0.35***	0.10	−0.40***
Openness	0.06	0.05	0.05	0.31***	0.18**	−0.05	−0.03	0.20***	−0.04
Step 2: Strategies also									
R^2 (R^2 change p level)	0.40 (ns)	0.42 (ns)	0.33 (ns)	0.36 (0.05)	0.21 (ns)	0.31 (ns)	0.38 (ns)	0.50 (0.001)	0.30 (0.001)
Agency and identity	0.12*	−0.11	−0.09	0.05	0.00	0.09	−0.03	0.23***	0.28***
Mood regulation	0.06	−0.07	−0.06	0.25**	−0.03	0.10	−0.07	0.19***	0.24***
Relaxation and company	0.08	−0.12*	−0.04	0.06	0.04	0.02	−0.10	0.07	0.11
Enjoyment	−0.04	0.01	0.00	0.10	0.00	−0.02	−0.08	0.12*	0.05

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$; $p < 0.0001$ for all R's.
SA = self-acceptance, EM = environmental mastery, PR = positive relations with others, PG = personal growth, AU = autonomy, SWLS = Satisfaction With Life Scale, SDHS = Short Depression-Happiness Scale, PA = positive affect, and NA = negative affect.

positive and negative affect. 'Mood regulation' was also an important predictor of personal growth.

DISCUSSION

This study is the first to thoroughly investigate older adults' everyday uses of music, and it is also the first study that explicitly investigates the associations between well-being and listening strategies. The results show that listening to music was a common and highly valued leisure activity for older adults, and that music was encountered in many situations and thus accompanied many aspects of older adults' lives. The results also give clues about possible ways in which music listening may be associated with psychological well-being. First, the participants reported that positive emotions were among the most frequently felt in response to music; something that is not always the case with regard to other aspects of everyday life (e.g., Oatley and Duncan, 1994; Scherer et al., 2004). Second, the participants reported that they frequently used a variety of listening strategies related to basic psychological needs, like emotional functions (e.g., pleasure, mood regulation, and relaxation) and issues of identity, belonging, and agency. The frequency of experienced positive emotions (e.g., Diener et al., 2003) and the satisfaction of psychological needs (e.g., Deci and Ryan, 2000) are important factors for well-being. Consequently, using music to facilitate these aims may have an effect on well-being.

The associations between frequencies of specific listening strategies and well-being were directly explored through correlation and multiple regression analyses. An interpretation of the associations between listening strategies and *affective* well-being is that listeners may use music to increase the frequency of positive affect. Also, listeners who score high on negative affect may use listening strategies in a compensatory fashion to decrease negative affect. The associations between listening strategies and *eudaimonic* well-being, on the other hand, indicate that listening strategies may lead to increased personal growth. Of course, causality cannot be addressed with the cross-sectional design of this study, so the alternative interpretations that positive affect,

or a high score on personal growth, may instead lead to an increase in the frequency of listening strategies can not be ruled out. That listening strategies would lead to an increase in the frequency of negative affect is however less likely given the fact that music induces mainly positive emotional states (see Table I). Listening strategies were most strongly associated with indices of affective well-being, but also with some aspects of eudaimonic well-being (e.g., personal growth). Life satisfaction, on the other hand, was not associated with musical activities. These results are in accordance with suggestions that the primary reason people value music is because of the emotional functions of music (e.g., Juslin and Laukka, 2004; Sloboda et al., 2001). However, the results also point to the possibility that music may be important for broader aspects of positive functioning.

The results further indicate that some listening strategies may be more associated with well-being than others, and especially 'Mood regulation' and 'Identity and agency' were consistently positively associated with well-being. 'Enjoyment' was also positively associated with well-being, though the associations were weaker (especially after controlling for background variables). 'Relaxation and company' on the other hand, showed negative associations with certain aspects of well-being (i.e., environmental mastery). This may indicate that people who report a low ability to manage activities in one's surrounding world often use music for the purpose of relaxation and company. However, the associations between 'Enjoyment' and 'Relaxation and company' and well-being were fairly weak and thus difficult to interpret.

In accord with previous research, personality and health status were the most important predictors of well-being (e.g., DeNeve and Cooper, 1998; Okun et al., 1984). In comparison, the contribution of listening strategies to well-being was much smaller. It has been proposed that a person's happiness level is determined by three major factors: a genetically determined set-point for happiness, happiness-relevant circumstantial factors, and happiness-relevant activities and practices (Lyubomirsky et al., 2005). Though genetic and circumstantial factors (including

personality and health status) explain the majority of variance in well-being, the practical implications of happiness-relevant activities are great, because they are often the only factors that can be changed. Seen from this perspective, any associations between listening strategies and well-being are important, since such associations may indicate an opportunity to actually improve well-being. Thus we believe that the results are important even though most associations between listening strategies and well-being were small to moderate.

Research has recently begun to pay attention to activities that are engaged in for the purpose of increasing well-being, but such studies have rarely included musical activities (e.g., Tkach and Lyubomirsky, 2006). As shown by this study, music listening is one of the most frequent leisure activities that people (including older adults) engage in and music is engaged in for a variety of motives related to the satisfaction of psychological aims. Thus it is suggested that future studies should include musical activities, and also pay more attention to the motives for engaging in various leisure activities. One of the main contributions of the present study is that it provides several examples of psychological aims that are potentially related to well-being. It may turn out that music facilitates a particularly wide range of psychological aims not shared by other leisure activities, or future research may show that leisure activities in general are engaged in for similar reasons. In any case, this study shows that the motives for why people engage in activities are of paramount importance for consequences on well-being. Indeed, future research might even show that the reasons for engaging in activities are more important than the activities themselves.

Further studies are also needed to investigate whether the results will generalize to other age-groups. Regarding everyday listening habits, a comparison with earlier studies reveals many similarities between young and old listeners. Both groups listen to music frequently, perceive music to be important, and often encounter music in situations where music listening is not the main activity (e.g., Sloboda et al., 2001). However, younger persons seem to listen to music in a wider variety of situations than the elderly, who instead spend a larger percentage of their

listening time on attentive listening (North et al., 2004). This difference may have to do with the fact that younger persons frequently listen to music through portable devices which enables them to listen in more situations – a habit that may have not been picked up by the older adults in the present sample. Also, older adults reported feeling nostalgia as a response to music more frequently than younger persons (e.g., Juslin and Laukka, 2004), which indicates that music is an important reminder of valued past events for elderly persons. These differences may have implications for the associations between listening strategies and well-being, because it has been reported that attentive listening to music is more frequently associated with positive emotions than other uses of music (e.g., Juslin and Laukka, 2004). It has also been proposed that the particular functions served by listening to music should be related to the developmental tasks of the listeners' particular age-group (Laiho, 2004). The target group of this study is older adults and the results agree well with concerns that are important for this particular age-group. For example, it has been suggested that emotion regulation skills may improve with age (e.g., Carstensen and Löckenhoff, 2003), and that older adults show a preference for emotion-focused coping strategies when faced with everyday problems (e.g., Blanchard-Fields et al., 2004). Also, listening strategies related to identity and agency may aid elderly persons in the confirmation and adaptation of a well-established adult identity, as well as in maintaining a sense of continuity and control, in face of the changing living conditions of old adulthood. However, other psychological aims and other listening strategies may be more prominent in other age-groups.

Aging is often characterized as a period of multiple losses, declining physical functioning, and restricted cognitive abilities (e.g., Baltes and Baltes, 1990). Though recent research shows that well-being in old age remains relatively intact (e.g., Diener and Suh, 1997; Horley and Lavery, 1995), the cumulative challenges and losses may easily tap the limits of the adaptive self-regulation processes responsible for maintaining the level of well-being. Therefore, every effort that may support well-being

in late adulthood should be taken into consideration. The present results suggest that a large proportion of older adults use music for purposes related to well-being on an almost daily basis. Thus, providing geriatric residents with facilities for active music listening could be a cost-effective device for increasing well-being in geriatric care and housing, at least for persons who are interested in music. Previous intervention studies that have investigated the effects of providing music for geriatric patients have presented mixed results regarding effects on well-being (e.g., Burack et al., 2002). These studies have not, however, investigated the effects of specific listening strategies. Instead of merely providing music to patients, future intervention studies should clearly specify what listening strategies they wish to encourage. Also, future intervention studies could investigate the effects of actually teaching patients how to use music to facilitate psychological aims for the purpose of increasing well-being (e.g., Batt-Rawden and DeNora, 2005).

This study also has several limitations that should be considered in future research. When interpreting the results it should be remembered that this study is mainly exploratory. Though correlations were found between the use of listening strategies and psychological well-being, any conclusions about causal patterns should be interpreted with caution because of the cross-sectional design. Further studies, using experimental or longitudinal designs, are needed to confirm any beneficial effects of music listening to well-being. The results are further based on self-reports that may be subject to demand characteristics. Also, the results are based on a relatively small sample of subjects, which limits the generalizability of the results and may be subject to influence from selection biases. Finally, many of the psychometric instruments used to measure personality and well-being were short versions of more comprehensive batteries. The psychometric properties of short instruments are generally inferior to standard multi-item instruments. However, when conducting survey research one is often faced with the choice of using short instruments or no instruments at all, in order not to burden the participants excessively (e.g., Gosling et al., 2003). Furthermore, all instruments used in this study have

reported acceptable content validity. Nevertheless, future studies should try to use more comprehensive instruments with higher reliability.

To conclude, this investigation is timely considering that the level of participation in leisure activities (including musical activities) among elderly has increased in Sweden during the last decades (Agahi and Parker, 2005), and because participation in such activities has recently been found to facilitate both well-being and survival (e.g., Bygren et al., 1996; Menec, 2003). The maintenance of well-being together with health issues are key areas of current aging research (e.g., Wahl et al., 2006) and the present results suggest that everyday uses of music could be potentially important to both of these issues. Both the experience of positive emotions, as well as the psychological well-being of the individual, have been associated with positive health (e.g., Ryff et al., 2004; Tugade et al., 2004), also for elderly subjects (Ostir et al., 2004). Because the present results show that music is a frequent source of positive emotions, and that listening strategies are associated with well-being, consequently everyday uses of music may also have implications for health issues (e.g., Pelletier, 2004). The present results strongly suggest that music listening is not merely a passive way to while away the time for many older adults – on the contrary music is often used as a resource to satisfy important psychological needs and thus may facilitate successful aging.

NOTES

[1] It should be noted that considerable effort has also been directed toward evaluating the effectiveness of music interventions in hospital settings (e.g., Evans, 2002). Also, music therapeutic practices are based on the condition that music can influence well-being (e.g., Wigram et al., 2002).

[2] It is not appropriate to use Cronbach's alpha in conjunction with 2-item scales, because the purpose of alpha is to compare each item to the remaining items in the scale as a group. Therefore, alphas are misleading when calculated on scales with small numbers of items (e.g., Kline, 2000). A more appropriate measure of reliability would be to calculate the test–retest reliability. Unfortunately, we were not able to calculate this measure in the present study, so we report the alpha values for the sake of completeness. In the present study the TIPI scales received the following, quite low, Cronbach

alphas: extraversion (0.50), emotional stability (0.48), openness to experience (0.29), agreeableness (0.25), and conscientiousness (0.25). However, these values are difficult to interpret.

[3] When correcting for the use of multiple tests (i.e., type one error) using the Bonferroni-Holm method, only correlations with $\alpha = 0.001$ remained significant. Thus only the correlations between affective well-being and listening strategies would be considered significant using these criteria. However, in exploratory research where many correlations are potentially of interest, it is more appropriate to use the uncorrected α-level ($\alpha = 0.05$) in order to allow for future research to corroborate the findings.

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APPENDIX

For the purpose of data reduction, the frequencies of listening strategies, as reported in Table II, were subjected to principal-components analysis. Guided by conceptual and practical considerations (e.g., the theoretical interest of the item, and the correlation with other items), seven items (items 6, 7, 8, 12, 15, 23, and 28) were excluded from the analysis. The remaining set of variables was deemed appropriate for factor analysis (Kaiser–Meyer–Olkin measure of sampling adequacy = 0.922). A principal components analysis with orthogonal (varimax) rotation yielded a solution with four factors. Multiple criteria were used to decide on the appropriate number of factors to retain: scree test, the latent root criterion (e.g., eigenvalues of 1 or greater), and the interpretability of solutions (see Hair et al., 1998; Zwick and Velicer, 1986). The solution accounted for 68% of the total variance and the factor structure was clear and interpretable with few cross-loading items. The first factor was labeled 'Identity and agency' and contained items like 'to strengthen my self esteem', 'express my personality', and 'it makes me feel competent' (included items = 19, 20, 24, 25, 26, 27; mean factor loading = .74; see Table II for a description of the items). The second factor was labeled 'Mood regulation' and included items that were concerned with the regulation of various affective states and the evoking of (presumably emotional) memories; e.g., 'music induces emotions', 'to enhance positive moods', 'it evokes memories' (included items = 2, 9, 11, 17, 18, 21;

mean factor loading = 0.61). The third factor was labeled 'Relaxation and company' and included items like 'to reduce feelings of loneliness', 'to forget about the present', and 'to relax and calm down' (included items = 4, 10, 13, 14, 22; mean factor loading = 0.67). Finally, the fourth factor was labeled 'Enjoyment' and included items like 'it gives me pleasure' and 'for entertainment' (included items = 1, 3, 5, 16; mean factor loading = 0.75).

The average scores of the variables belonging to each factor were used to create composite measures of each factor for subsequent use in the correlation and regression analyses: 'Agency and identity' (mean rating = 1.92, SD = 1.16, Cronbach alpha = 0.90), 'Mood regulation' (M = 2.93, SD = 1.36, alpha = 0.88), 'Relaxation and company' (M = 3.17, SD = 1.38, alpha = 0.84), and 'Enjoyment' (M = 4.32, SD = 1.40, alpha = 0.82). As can be seen from the above alpha values, the internal consistencies of the measures were good. 'Enjoyment' was found to be positively skewed (since most people reported enjoying music), and was therefore reflected and transformed to near-normality using the square-root transformation before inclusion in the analyses. After the transformation, 'Enjoyment' was reflected back, so that a positive correlation would again indicate higher enjoyment. The intercorrelations between the measures were low to moderate (max correlation r = 0.51 between 'Identity and agency' and 'Mood regulation') – thus the variables were deemed suitable for inclusion in the multiple regressions analyses. Though not reported, the regression analyses were also conducted using factor scores instead of composite measures. These analyses yielded nearly identical results, which increases the robustness of the findings.

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