Music Preference as an Indicator of Reproductive Strategy

Emily Ingram

Oklahoma State University

Abstract

Life History Theory (LHT) is an evolutionary framework constructed to explain variation in human behavior and development based on a cost-benefit analysis. As such, individuals exhibit life history (LH) strategies, which reside on a slow to fast continuum. Environment is a key factor in influencing individual LH trajectories, which impact many other features including reproductive timing, amount of offspring, and parental investment (Del Giudice, Gangestad, & Kaplan, 2015 & Mittal, & Griskevicius, 2014). In addition, there are several studies linking music to environment, but few to none who examine this relationship through an evolutionary perspective. This paper investigates the relationship between LHT and music preference. It was predicted that slow strategists would prefer jazz and classical music, fast strategists would prefer rap/ hip-hop, rock, and heavy metal, and individuals who preferred pop and country music would not correlate with a specific LH Strategy. Results indicated that preferences for heavy metal music have a positive relationship with short-term mating and a negative relationship with long-term mating, correlating to characteristics of fast LH strategies. There was also a negative relationship between a preference for religious music and short-term mating and a positive relationship between a preference for classical and alternative music with long-term mating, all of which correlate to characteristic of slow LH strategies. These results propose that there is a link between music preference and LH strategy.

Introduction

Life History Theory (LHT) is an evolutionary-based framework constructed to describe the tradeoffs individuals encounter when investing resources (i.e., energy) into reproduction or maintenance (Del Giudice, Gangestad, & Kaplan, 2015). Within this theory are inherent patterns that reside on a fast-slow continuum. When individuals invest more resources into reproduction rather than maintenance, the result is a fast LH strategy. This strategy often results from a harsh and unpredictable environment (Mittal, & Griskevicius, 2014). Other characteristics of this strategy include early reproductive timing for females, more offspring, and lower parental investment (Del Giudice, Gangestad, & Kaplan, 2015). Additionally, individuals who participate in this strategy also have higher rates of risk-taking and sensation seeking behaviors (Copping, Campbell, & Muncer, 2013). In contrast, individuals who invest more resources into maintenance rather than reproduction reside on the opposite end of the fast-slow continuum. Individuals expressing a slow LH strategy tend to live in safer and more predictable environments than individuals exhibiting a fast LH strategy (Mittal, & Griskevicius, 2014). Later reproductive timing for females, fewer offspring, and higher parental investment are other features of slow LH strategies (Del Giudice, Gangestad, & Kaplan, 2015). These individuals also tend to participate in more future-oriented behaviors as opposed to the riskier behaviors of fast LH strategists (Dillon, Adair, Wang, & Johnson, 2013).

LHT is important in current research because it helps predict, prevent, and understand behaviors. For example, understanding these life strategies can help uncover motivations for risky behaviors and possibly lead to preventative measures promoting individual safety. One method of determining these LH strategies is to is to determine relationships that correspond to

LH strategies. The current study discusses music preference and its relationship with LH strategy.

The probability of an individual having heard at least one song or piece of music during the past week or even the past 24 hours is high. Music can be dated back thousands of years and is still prominent in today's society (d'Errico et al., 2003). The ability of humans to react to and identify music is even genetically and neurologically encoded into the human brain (Lingham & Theorell, 2009). While it is unknown as to why humans are interested in music, several theories have been offered to explain this phenomenon. One theory, concerning resource allocation, states that if individuals can invest time and resources into making music, then they have an overall higher biological fitness (Schäfer & Sedlmeier, 2010). Potential mates would prefer these individuals because they are able to allocate their resources toward non-necessary aspects of life, signaling good genes and vitality. Another theory suggests that music strengthens social bonds. This occurs because music promotes social contact, communication, social cognition, coordination, cooperation, and social cohesion in groups (Koelsch, Offermanns, & Franzke, 2010). Individuals can communicate through signaling or lyrics in the music (contact and communication), work together to create to music (promoting cohesion, coordination, and cooperation), and share ideas (social cognition). Lastly, another possibility is that humans simply learned about the positive qualities of music through use (i.e., making music & listening) (Schäfer & Sedlmeier, 2010). For example, music served as positive reinforcements for early humans, which resulted in increased positive emotions while experiencing music. This enabled the continuation of this behavior and thus, the continuation of music.

Previous studies have found that adolescents who prefer heavy metal and hard rock music are more likely to engage in reckless behaviors (Arnett, 1992 & McNamara & Ballard 1999).

Also, a preference for punk, rock, and heavy metal music is associated with higher sensation seeking behaviors (McNamara & Ballard 1999 & Weisskirch, & Murphy, 2004). In contrast, individuals were less likely to participate in sensation seeking behaviors if they preferred slower music (McNamara & Ballard, 1999). While these results seem to provide an explicit relationship between reckless and sensation seeking behaviors with music preference, there are several other confounding factors that may have contributed to these results. These factors include content of the song's lyrics, deviancy within the individual's peer group, and attention given to the lyrics. Although, one study controlled for these factors and found that rap music had a significant relationship with deviant behaviors over and above the controlled variables (Miranda & Claes, 2004). Therefore, it is likely that a link between risky behaviors and music preference exists.

This research attempts to analyze the relationship between an individual's LH strategy and their music preference. If a relationship does exist, then the study aims to determine which LH-related phenotypes correlate with specific genres of music. The researchers hypothesized that individuals with a fast LH strategy will prefer rap/ hip-hop and heavy metal music because of the level of exposure to these genres and its association with environments where risky behaviors such as impulsivity and casual sex are the norm. Fast strategists tend to live in harsh environments with fewer resources, thus they would have less access to more expensive forms of music such as jazz and classical. For example, attending a concert for classical music would require access to transportation to an area that is offering a concert and resources to purchase a ticket as well as appropriate clothing to wear to the event. Therefore, we predict that individuals with a slow LH Strategy will prefer for jazz and classical music because they typically have the resources to enjoy this type of music. Lastly, we hypothesize that individuals who prefer pop and country music will not correlate with either LH strategy.

Method

Participants

A total of 314 women participated in this study. This is a preexisting data set examining pregnancy and offspring related variables, which explains the absence of all fathers and males. Participants were recruited through Amazon's Mechanical Turk (MTurk), an online research service that is able to collect data quickly, inexpensively, and reliably (Buhrmester, Kwang, & Gosling, 2011). Those who were MTurk Masters or had an 80% approval rating or higher were selected to complete the online survey. MTurk provides a sample that is more representative of the population of the United States than samples collected in person (Bernsky, Huber, & Lenz, 2012). Participants were excluded based on four criteria: they had to be heterosexual mothers who have given birth to at least one child, 18 years or older, fluent in English, and a citizen of the United States of America. Ages ranged from 20-64 years (M=35.3). There were 67.8% Caucasian, 12.7% Asian, 7.6% African American, 6.4% Hispanic, and 5.4% Other.

Materials

Life History Strategy. The Mini K Short Form was used to measure LH strategy (Figueredo et al., 2006). This form contains 20 items measured on a seven-point scale ranging from -3 (disagree strongly) to 3 (agree strongly). Cronbach's alpha for the scale was $\alpha = 0.83$. Higher scores on the questionnaire denoted a slower LH strategy and lower scores indicated a faster LH strategy. Sample questions include: "I often find the bright side to a bad situation;" "I don't give up until I solve my problems;" and "I often make plans in advance."

Environmental Harshness. A harsh environment in early childhood can affect individuals later in life in many ways including physical and mental health (Taylor, Lerner, Sage, Lehman, & Seeman, 2004). A measure of family conflict was used to assess environmental harshness.

Participants completed the Risky Families Questionnaire, 13-items measured on a five-point scale ranging from 1 (Not at all) to 5 (Very often/ Very much) (Felitti et al., 1998 & Taylor, Lerner, Sage, Lehman, & Seeman, 2004). Participants reported information from both their early childhood (birth to seven years) and current adulthood to examine environmental harshness over the lifespan. In order to adapt this questionnaire to more accurately measure current adulthood, researchers changed the word "parent" to "spouse," in the original questionnaire. Cronbach's alphas for childhood and adulthood were 0.92 and 0.83, respectively. Higher scores on this questionnaire denoted high levels of family conflict, indicating a harsh environment. In this study, there was no difference found between childhood and adulthood family conflict scores. Childhood and adulthood family conflict scores were also correlated with each other. Therefore, the scores were standardized and combined to form a new measure of harsh environment (α = 0.90). Examples of items from this questionnaire include: "How often does your spouse or other adult in the household express physical affection for you, such as hugging, or other physical gestures of warmth and affection; "Would you say that your household is chaotic and disorganized;" and "How often did a parent or other adult in the household swear at you, insult you, put you down, or act in a way that made you feel threatened?"

Mating Strategy. The Multidimensional Sociosexual Orientation Inventory (MDSOI) measures the tendency toward long-term versus short-term mating (Jackson & Kirkpatrick, 2007). This inventory consists of 21 items measured on a seven-point scale ranging from 1 (Strongly disagree) to 7 (Strongly agree). Within the MDSOI are two subscales, the short-term mating orientation (α = 0.94) and long-term mating orientation (α = 0.92). A higher score on each subscale corresponds with a higher preference toward the mating strategy of the subscale. For example, a high score on the short-term mating subscale denotes a higher preference for

short-term mating. The MDSOI is based on the Sociosexual Orientation Inventory (SOI), but with the addition of romantic attachment and partner choice and mate value, thus making the measure multidimensional (Jackson & Kirkpatrick, 2007). Examples of items on the MDSOI include: "I believe in taking sexual opportunities when I find them;" "I would never consider having a brief sexual relationship with someone;" and "Finding a long-term romantic partner is not important to me."

Music Preference. Participants completed the Short Test of Music Preferences (STOMP) to assess their preference for different genres of music. This inventory contains 14 items that are measured on a seven-point scale ranging from 1 (Strongly dislike) to 7 (Strongly like) (Rentfrow & Gosling, 2003). There are four subscales which group the genres by similarity: reflective and complex, intense and rebellious, upbeat and conventional, and energetic and rhythmic. In this study, the items were evaluated individually rather than classifying them into the four subsets. Examples of items evaluated in the STOMP questionnaire are "Classical," "Jazz," "Pop," and "Rock."

Procedure

Participants were recruited through Amazon's Mechanical Turk (MTurk) and only MTurk Masters and individuals with an 80% approval rating or higher were selected to complete the survey. An informed consent containing the purpose of the study and an explanation of any potentially sensitive items was administered at the beginning of the study. If the participant agreed to the terms outlined in the informed consent, they continued on to the survey. If the participant did not agree to the terms, they were immediately directed to the end survey. There were several precautions set in place to promote honest and reliable data. These precautions included that the questionnaire could only be taken once from a given IP address, participants

were guaranteed compensation as long as they answered honestly (even if they did not meet the inclusion criteria), and only MTurk Masters and those with an 80% approval rating or higher were allowed to participate. The items were randomized and programmed into Qualtrics. Participants were compensated with $1.50 after they completed the survey.

Results

A total of four linear regressions were performed to assess the relationship between music preference and life history-related traits. The correlation between reported early childhood family conflict and current family conflict was, $r = 0.36$, $p < 0.001$. To resolve any issues related to multicollinearity, scores for early and current family conflict were standardized and summed together to obtain an overall composite of family conflict ($\alpha = 0.90$). Descriptives for all of the variables are listed in Table 1.

Age was controlled for when assessing short-term mating and long-term mating. This is due to the higher availability of sexual opportunities and sexual partners throughout the course of the lifespan. Assumptions for normality were met within the sample. The first regression tested the relationship between preferences for religious and heavy metal music on short-term mating orientation. The two predictors exhibited a significant effect such that preferences for religious and heavy metal explained 11% of the overall variance**,** $F(15, 278) = 3.43$, $p < 0.001$, after controlling for age and for all other music preferences. Preferences for religious music significantly predicted short-term mating ($\beta = -0.28$, $p < 0.001$), as did preferences for heavy metal ($\beta = 0.15$, $p < 0.001$).

The second regression tested the relationship between preferences for classical, alternative, and heavy metal music on long-term mating orientation. The three predictors demonstrated a significant effect such that preferences for classical, alternative, and heavy metal

explained 5.4% of the overall variance, $F(15, 278) = 2.11$, $p < 0.05$, after controlling for age and for all other music preferences. Preferences for classical, alternative, and heavy metal significantly predicted long-term mating, ($\beta = 0.20$, $p < 0.05$; $\beta = 0.17$, $p < 0.05$; -0.23, $p < 0.01$) respectively.

The third regression tested the relationship between preferences for religious music and LH strategy. Analyses demonstrated an insignificant effect for the overall model explaining only 0.4% of the overall variance, $F(15, 278) = 1.07$, $p = 0.39$. A final regression was performed to test the relationship between preferences for classical music on family conflict. Analyses showed that the overall model was also insignificant, $F(15, 278) = 0.87$, $p = 0.60$.

Table 1
Means and Standard Deviations for All Predictors and Outcomes

Measure	M	SD
Classical	4.59	1.62
Blues	4.05	1.66
Country	3.90	1.99
Dance/ Electronica	4.16	1.77
Folk	3.88	1.81
Rap/ hip-hop	3.91	1.79
Soul/ funk	3.94	1.62
Religious	3.25	2.07
Alternative	4.95	1.62
Jazz	4.08	1.70
Rock	5.50	1.48
Pop	5.35	1.43
Heavy Metal	3.64	1.88
Soundtracks/ theme songs	4.63	1.57
Short- term mating orientation	28.06	15.21
Long-term mating orientation	43.12	7.82
Mini K	-35.44	9.07
Early Family Conflict	29.84	9.89
Current Family Conflict	20.81	6.75

Discussion

There was a positive relationship between a preference for heavy metal music with short-term mating, which suggests that individuals with these music preferences align with fast LH strategies. Short-term mating is a feature of a fast LH strategy because individuals typically have low parental investment and will engage in riskier behaviors in order to maximize their reproductive success and increase their fitness (Del Giudice, Gangestad, & Kaplan, 2015 & Copping, Campbell, & Muncer, 2013). There was a negative relationship between a preference for heavy metal music with long-term mating, which validates the idea that preferences for heavy metal correlate with having a fast LH strategy. Previous research has documented that individuals who prefer heavy metal music also are more likely to utilize illegal drugs, express sensation-seeking behaviors, and participate in unsafe sexual behaviors and reckless activities (Arnett, 1992 & McNamara & Ballard, 1999). These qualities all correlate with a fast LH strategy because they promote an investment in the present rather than the future and are characterized as more impulsive. Results indicate that individuals with a fast LH strategy tend to prefer heavy metal music as expected.

There was a negative relationship between a preference for religious music and short-term mating when controlling for age, suggesting that individuals who prefer religious music have characteristics of slow LH strategists. Religious music tends to be slower and less stimulating and arousing than rap/ hip-hop, heavy metal, or punk. Individuals are also less likely to participate in sensation seeking behaviors if they preferred slower music (McNamara & Ballard, 1999). In addition, the lyrics of religious music tend to reflect the views of the religion with which they are associated. One study found that across almost every world religion, there was an inverse relationship between short term mating and religiosity (Schmitt & Fuller, 2015).

While the study's hypothesis was supported, it is beyond the scope of this study to differentiate the association between a preference for religious music and religious views.

There was a positive relationship between a preference for classical and alternative music with long-term mating, suggesting that individuals who prefer this type of music align with a slow LH strategy. Long-term mating is a feature of slow LH strategy because these individuals typically have more resources to allocate toward single pair bonds. By investing time and energy into these relationships, the individuals will improve their fitness because more care is given to both the partner and offspring. This partially supports our hypothesis of slow LH individuals expressing a preference for classical music. The results did not support the hypothesis for the corresponding preference: jazz music. Therefore, individuals with a slow LH strategy tend to prefer classical and alternative music.

There was no relationship between music preference with the Mini K or the risky families questionnaire. There are multiple factors predicting LH strategies, so a concentration on music preference may not be the most effective or cohesive way to determine these relationships. Although, this is the first study, to my knowledge, that showed a significant relationship between music preference and reproductive strategy through an evolutionary perspective. While this study was unique, it could be improved in later research. For example, the data collected in this study was provided primarily by mothers. This is because the original data set examined pregnancy variables, thus excluding males and childless females. Further research should expand this population to include all individuals in order to provide a more comprehensive view of the relationship between music preference and LH Strategy. Only fourteen music genres were investigated; the results may be different if this list was expanded to include a wider variety of genres. Lastly, a later study should determine the nature of the relationship between short-term

mating and a preference for religious music to determine if the effect arose from religious views or music preference. With these modifications, future research could more successfully uncover the relationship between LH strategy and music preference.

References

Arnett, J. (1992). The soundtrack of recklessness: Musical preferences and reckless behavior among adolescents. *Journal of Adolescent Research*, *7*(3), 313-331.

Berinsky, A. J., Huber, G. A., & Lenz, G. S. (2012). Evaluating online labor markets for experimental research: Amazon.com's Mechanical Turk. Political Analysis, 20(3), 351-368.

Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's Mechanical Turk a new source of inexpensive, yet high-quality, data? Perspectives on Psychological Science, 6(1), 3-5.

Copping, L. T., Campbell, A., & Muncer, S. (2013). Impulsivity, sensation seeking and reproductive behaviour: A life history perspective. *Personality and Individual Differences*, *54*(8), 908-912.

Del Giudice, M., Gangestad, S. W., & Kaplan, H. S. (2015). Life history theory and evolutionary psychology. In D. M. Buss (Ed.), *The handbook of evolutionary psychology – Vol 1: Foundations* (2nd ed.) (pp. 88-114). New York: Wiley.

D'Errico, F., Henshilwood, C., Lawson, G., Vanhaeren, M., Tillier, A.-M., Soressi, M., Bresson, F., Maureille, B., Nowell, A., Lakarra, J., Backwell, L., & Julien, M. (2003). Archaeological evidence for the emergence of language, symbolism, and music—An alternative multidisciplinary perspective. *Journal of World Prehistory*, *17,* 1–70.

Dillon, H. M., Adair, L. E., Wang, Z., & Johnson, Z. (2013). Slow and steady wins the race: Life history, mate value, and mate settling. *Personality and Individual Differences*, *55*(5), 612-618.

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., ... & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. American Journal of Preventive Medicine, 14(4), 245-258.

Figueredo, A. J., Vásquez, G., Brumbach, B. H., Schneider, S. M., Sefcek, J. A., Tal, I. R., Hill, D. Wenner, C. J., & Jacobs, W. J. (2006). Consilience and life history theory: From genes to brain to reproductive strategy. Developmental Review, 26(2), 243-275.

Jackson, J. J., & Kirkpatrick, L. A. (2007). The structure and measurement of human mating strategies: Toward a multidimensional model of sociosexuality. Evolution and Human Behavior, 28(6), 382-391.

Koelsch, S., Offermanns, K., & Franzke, P. (2010). Music in the treatment of affective disorders: An exploratory investigation of a new method for music-therapeutic research. *Music Perception, 27*(4), 307-316.

Lingham, J., & Theorell, T. (2009). Self-selected "favourite" stimulative and sedative music listening—how does familiar and preferred music listening affect the body? *Nordic Journal of Music Therapy, 18*(2), 150-166.

McNamara, L., & Ballard, M. E. (1999). Resting arousal, sensation seeking, and music preference. *Genetic, Social, and General Psychology Monographs, 125*(3), 229-250.

Miranda, D., & Claes, M. (2004). Rap music genres and deviant behaviors in french-canadian adolescents. *Journal of Youth and Adolescence, 33*(2), 113-122.

Mittal, C., & Griskevicius, V. (2014). Sense of control under uncertainty depends on people's childhood environment: A life history theory approach. *Journal of Personality and Social Psychology, 107*(4), 621-637.

Rentfrow, P. J., & Gosling, S. D. (2003). The do re mi's of everyday life: the structure and personality correlates of music preferences. Journal of personality and social psychology, 84(6), 1236.

Schäfer, T., & Sedlmeier, P. (2010). What makes us like music? determinants of music preference. *Psychology of Aesthetics, Creativity, and the Arts, 4*(4), 223-234.

Schmitt, D. P., & Fuller, R. C. (2015). On the varieties of sexual experience: Cross-cultural links between religiosity and human mating strategies. *Psychology of Religion and Spirituality, 7*(4), 314-326.

Taylor, S. E., Lerner, J. S., Sage, R. M., Lehman, B. J., & Seeman, T. E. (2004). Early environment, emotions, responses to stress, and health. Journal of Personality, 72(6), 1365-1394.

Weisskirch, R. S., & Murphy, L. C. (2004). Friends, porn, and punk: Sensation seeking in personal relationships, internet activities and music preference among college students. *Adolescence, 39*(154), 189-201.