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*The Significance of the Aging for the Effectiveness of Affective  
Regulation in the Context of Music Perception  
(Research Review)*

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Znaczenie procesu starzenia się dla efektywności regulacji afektywnej w kontekście odbioru muzyki (przegląd badań)

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ABSTRACT

The article focuses on the importance of the age factor for the effectiveness of affective regulation in the context of music perception in relation to the previous research review. Numerous non-musical studies confirm that older adults, experiencing various difficulties associated with the aging process, paradoxically enjoy better affective well-being in their everyday life than young adults, who do not experience the aforementioned difficulties. This phenomenon is also reflected in most of the results of the few studies conducted so far on the importance of the age factor for affective response to music. Taking into account the results of most of these studies, it should be pointed out that older adults are able to regulate their own affective state in the context of music perception more effectively than young adults. The above-mentioned phenomenon can be interpreted in relation to the developmental psychology theories – *Socioemotional Selectivity Theory* (including the *positivity effect*) by Carstensen, as well as to *Selective Optimization with Compensation* by Baltes and Baltes.

**Keywords:** older adults; affective regulation; music perception

The period of late adulthood, beginning after the age of 60–65 and lasting until the end of life, is associated with both negative and positive mental changes from the point of view of human everyday functioning. Many gerontological studies confirm gradually deepening defects in older adults' cognitive functioning,

including decrease in information processing speed, decrease in the level of attention selectivity (susceptibility to distraction), reduction of working memory capacity, and many others (cf. Geerligs, Saliasi, Maurits, Renken, Lorist, 2014; Kerchner et al., 2012; Schneider-Garces, Gordon, Brumback-Peltz, Shin, 2010). Degenerative changes also affect the peripheral and central auditory system structures playing a key role in the perception of music (Liu, Yan, 2007; Rouiller, 1997). In late adulthood, the process of gradual hearing loss, associated with increasing hearing thresholds, is accelerating (cf. Dubno, 2009; Liu, Yan, 2007; Wiley, Chappell, Carmichael, Nondahl, Cruickshanks, 2008). Aging is also associated with decreasing of the auditory sensitivity to temporal and frequency parameters of acoustic stimuli (including its timbral parameters). These changes cause impoverishment of the perceptual representation of music (cf. Arehart, Croghan, Muralimanohar, 2014; Bergeson, Schneider, Hamstra, 2001; Gordon-Salant, 2005; Grose, Mamo, Hall, 2009; Hailstone et al., 2009; Hopkins, Moore, 2011). Mental functioning deterioration caused by the aging process has been an important subject of gerontology research since the beginning of this field of science. In the last 30 years, however, increasing interest has been observed in the developmental benefits of the aging process and the factors favoring successful aging (cf. Baltes, Carstensen, 1996; Urry, Gross, 2010). The postulates of positive psychology also contributed to the perception of the aging process not only in the context of health losses (cf. Seligman, Csikszentmihalyi, 2000). Numerous psychological studies have confirmed that late adulthood is connected with various types of developmental gains, allowing facing life challenges successfully. The increasing level of the effectiveness of the affective regulation processes is one of the most important developmental achievements of late adulthood (the term “affect” is understood as a general category of phenomena related to mood and emotions; cf. Konečni, 2011, p. 697). Affective regulation (including regulating emotional and mood states) plays an important role in everyday life. Positive affect has a positive impact on well-being, health state, social contacts, cognitive processes course, work quality, and many other aspects of human functioning (cf. Cohen, Pressman, 2006; Forgas, 2002; Isen, 2001). Regulatory processes are focused on modifying or maintaining affective states and are aware or unaware (cf. Baltazar, Saarikallio, 2015). Affective states are also regulated in various dimensions, such as pleasure (valence) and arousal (activation) dimensions (cf. Russell, Feldman Barrett, 1990). While the psychological functioning of older adults in the aspect of cognitive processes deteriorates, their psychological functioning in the aspect of regulatory affective processes paradoxically improves (cf. Urry, Gross, 2010). A person’s ability of efficient affective regulation develops gradually over the course of adult life, therefore this ability is better developed in late adulthood than in early and medium adulthood (Gross et al., 1997; Lawton, Kleban, Rajagopal, Dean, 1992). The effectiveness of older adults’ affective

regulation is related to, among others, a lower frequency of experiencing negative affective states, experiencing a higher level of positive affect and a lower level of negative affect in everyday life, the ability to maintain positive affective states, better emotional coping with everyday stress, less frequent recalling situations connected with negative emotions and assessing own memories in more positive affective categories than in early adulthood (cf. Labouvie-Vief, Grünh, Studer, 2010; Singer, Rexhaj, Baddeley, 2007; Stawski, Almeida, Sliwinski, Smyth, 2008; Suri, Gross, 2012; Urry, Gross, 2010).

The phenomenon of more efficient affective regulation of older adults than of young adults can be interpreted in the context of the assumptions of *Socioemotional Selectivity Theory* by Carstensen (Carstensen, Isaacowitz, Charles, 1999). According to this theory, the perspective of future life duration plays a paramount role in the selection and implementation of social goals. The long-time perspective of life favors choosing long-term goals related to acquiring knowledge (oriented on the future benefits) while the short-time perspective of life favors choosing short-term goals focused on emotional regulation (oriented on the present benefits). The motivational processes of young adults are primarily focused on acquiring knowledge while the motivational processes of older adults are primarily focused on emotional regulation. Older adults invest more energy resources in affective regulation because affective regulation is their priority goal. Therefore, older adults are able to regulate their affective states more effectively than young adults. According to the discussed theory, the *positivity effect* is the affective regulation mechanism observed in older adults. This mechanism is associated with, among others, more intensive cognitive processing of positively valued information, a stronger focus on positive stimuli, investing more energy resources in processing positive information, recalling more positive than negative information, and stronger emotional response to and preference for positively valued stimuli. This is also connected with the motivation to regulate own affect by focusing attention on positive stimuli and diverting it from negative stimuli (cf. Carstensen et al., 1999; Charles, Mather, Carstensen, 2003; Kisley, Wood, Burrows, 2007; Knight et al., 2007; Reed, Carstensen, 2012; Vieillard, Gilet, 2013). Older adults' tendency to better recognize the expression of the positive emotions (e.g. happiness) than the negative ones (e.g. sadness, anger) is also interpreted in relation to the *positivity effect*. This tendency is observed, e.g., in studies on facial expression recognition (cf. Calder et al., 2003). The *positivity effect* phenomenon is reflected in human neurophysiological functioning. The results of the study by Mather et al. (2004) indicate that older adults' amygdala (which is an area of the brain involved in emotion processing) shows greater activity in response to positively valenced visual stimuli than to negatively valenced visual stimuli, whereas the young adults' amygdala exhibits a comparable level of activity in response to both positively and negatively valenced visual stimuli. In addition,

research by Kisley et al. (2007) confirms that the level of human nervous system reactivity to the negatively valenced visual stimuli decreases linearly with increasing age, while the level of neuronal reactivity to the positively valenced visual stimuli is maintained (despite the passage of time). It should be added that in the light of the research review by Barber and Kim (2022), the *positivity effect* is not only related to the perspective of the duration of the future life but also to cognitive capabilities, individual differences, or cultural context. In addition, some studies show that the *positivity effect* can occur not only in older adults but also in young adults if the experimental manipulation of the life time horizons is used. Such an experimental manipulation may consist in asking the participants to imagine a short-time perspective of life (e.g. a few months). However, it must be emphasized that in a typical situation, a person in their late adulthood perceives their life time horizons as significantly more limited than a person in their early adulthood. Thus, the *positivity effect* is most often associated with late adulthood.

Despite the fact that the *Socioemotional Selectivity Theory* refers social psychology, it is also applied to other fields of psychology (cf. Carstensen et al., 1999), e.g. psychology of music. As Urry and Gross (2010) assumed, older adults' ability for efficient affective regulation can also be interpreted in the context of the model of *Selective Optimization with Compensation* by Baltes and Baltes (1990). According to this model, successful aging is associated with successful adaptation to life conditions changing with increasing age. Successful development involves: setting realistic goals, taking into account limited options (*selection*), investing time and effort in achieving such goals (*optimization*), and searching for solutions to compensate age-related deficits (*compensation*). The interaction of these three processes promotes successful aging because it enables the achievement of the intended goals despite growing limitations in biological, mental, and social resources. In the light of this interpretation, achieving goals related to affective regulation by older adults is an adaptive process allowing them to cope with the challenges of late adulthood. Effective affective regulation also allows them to gain mental resources in the form of well-being and to compensate for some of the aging deficits in functioning (cf. Urry, Gross, 2010).

The following discussion focuses on the problem of the importance of the aging factor for the effectiveness of affective regulation in the context of music perception. The following considerations are an attempt to answer the question: *Does aging promote better affective regulation in the context of music perception?* – based on the previous research review. We hypothesize that aging is a factor which promotes better affective regulation in the context of music perception. The phenomenon of a higher level of effectiveness of older adults' affective regulation than younger adults' affective regulation is reflected in the results of the studies on the importance of the age factor in affective regulation in the context of music perception and in the results of studies on the affective reactions to music and

the affective perceiving and valuating of music. Although the aforementioned problems do not seem to have been sufficiently researched yet (to date, few studies on these topics have been conducted), the results of the existing research are still worth discussing because the majority of them show an interesting link to the *Socioemotional Selectivity Theory* by Carstensen, including the *positivity effect* mechanism (Carstensen et al., 1999). These research results can also be interpreted in the context of late adulthood developmental gains in relation to the model of *Selective Optimization with Compensation* by Baltes and Baltes (1990).

Empirical studies using the *Musical Mood Induction Procedure* are crucial sources of information on the importance of the age factor in affective regulation in the context of music perception. The aforementioned procedure is an experimental method of inducing (exciting) desirable affective states, used in psychological studies since the 1980s (cf. Västfjäll, 2002). The method involves presenting listeners with a musical stimuli (appropriately selected in terms of expression features) in order to evoke in them specific – positive, negative, or neutral – affective states. The Larcom and Isaacowitz (2009) experiment on the importance of the age factor in mood regulation after the musical negative mood induction procedure showed that the likelihood of rapid mood regulation after listening to music representing negative emotional expression is higher in older adults than in young adults. The same study also showed that in the group of respondents who tend to regulate their mood quickly after music listening, older adults are able to maintain positive mood longer than young adults. The experiment made use of the *Continuous Music Technique* based on a repeated presentation of the same music piece (see Eich, Metcalfe, 1989). The subjects rated their own mood during and after music listening. They rated their own affective states on the self-reporting scales of 0 to 100 points (*very negative* / *very positive*) after 3 and 24 minutes of music listening. The results of qualitative research by Saarikallio (2010) also indicate that age is an important factor influencing the effectiveness of mood self-regulation through music. The study shows that the level of knowledge about the effectiveness of music in mood self-regulation and awareness of the type of music needed by people depending on a situation increase with age, which is associated with life experience increasing with age. Interestingly, in the light of this study, a person's level of awareness of their own musical preferences and their level of acceptance of music representing various styles also increase with age. Generally, the importance of music in human life increases with age – music is used as a tool for dealing with such life challenges as, among others, aging, loneliness, and mourning at a later stage of human life. An interview with 21 people aged 21 to 70 was used in the discussed study. A similar tendency is observed in empirical studies by Phillips, Smith, and Gilhooly (2002) and Kliegel, Jäger, and Phillips (2007), using a combined mood induction procedure through music and movie clips. The first of the studies (Phillips et al., 2002)

used positive, neutral, and negative mood induction. The subjects were presented with 7-minute movie clips of specific type of expression first and then with 5-minute recordings of music representing the same type of expression. The self-reported mood results after receiving the experimental stimuli were generally more positive in the group of older adults than in the group of young adults. The study also showed that the older subjects return to the positive affective state after negative mood induction faster than the younger subjects. The mood state was measured using the *Positive and Negative Affect Schedule*. The second of the above-mentioned studies (Kliegel et al., 2007) also showed that mood repair after receiving negative film and musical stimuli is more effective in older adults than in young adults. Although the effect of the negative mood induction was stronger in the older adults' group than in the young adults' group, the older adults were able to regulate their mood after receiving the negative stimulus more effectively than the young adults. The mood induction procedure consisted in presenting a 6-minute movie clip of a specific type of expression first and then music of the same type of expression (the music was presented until the end of the session). The self-reporting method of mood assessment was used in the study. It is worth mentioning that the results of the empirical research by Ryczkowska (2022) are consistent with the results of Phillips et al. research (2002). The experiment by Ryczkowska (2022) using positive mood induction through music showed that mood results after listening to music are more positive in older adults than in young adults. This indicates a higher level of efficiency of inducing a positive mood in older adults than in young adults. Moreover, the research also demonstrates that older adults evaluate music in emotional terms more positively than young adults – as significantly more happy / less sad and more pleasant / less unpleasant. It should be added that a piece of music with a positive emotional expression was used in this study. The piece had features useful in inducing a positive mood: both simple and danceable form, major mode, and fast tempo. The self-reporting research tools were used for measuring the average mood states of the participant groups after listening to music (*The UWIST Mood Adjective Check List* by Matthews, Jones, and Chamberlain [1990] in the Polish adaptation by Goryńska [2005] – *Przymiotnikowa Skala Nastroju UMACL*) and for measuring the emotional evaluation of music by listeners (7-degree Likert-type scales of the emotional character of music developed by the author of the research). The results of the all-mentioned musical studies correspond to the assumptions of *Socioemotional Selectivity Theory* (Carstensen et al., 1999) and the model of *Selective Optimization with Compensation* (Baltes, Baltes, 1990). They are also consistent with non-musical research showing higher effectiveness of affective regulation in older adults than in young adults (indicated in the beginning part of the article) (cf. Gross et al., 1997; Labouvie-Vief et al., 2010; Lawton et al., 1992; Singer et al., 2007; Stawski et al., 2008; Suri, Gross, 2012; Urry, Gross, 2010).

The processes of perception of the emotional expression of music (e.g. happy/sad music) and the emotional valuating of music (e.g. pleasant/unpleasant music) play an important role in the affective regulation related to music perception. Affective reactions to music are associated with complex interactive emotional and cognitive mental processes (cf. Krumhansl, 2002). Music can induce the listener's affective state consistent with the emotional expression the music represents (affective state consistent with the affect perceived by the listener as the affect expressed by music), e.g. music representing the expression of happiness can induce the listener's emotion of happiness (cf. emotional contagion – Juslin, Västfjäll, 2008; external and internal locus of emotion – Gabriellsson, 2001; Schubert, 2013; cf. Västfjäll, 2002). As previous studies show, the listener's age factor plays a significant role for the affective reactions to music and the affective valuations of music. Although the above-mentioned issues have not been sufficiently researched yet, the majority of the existing studies (using short musical fragments of different expressions) show a link to the *positivity effect* mechanism. For example, the experiments by Vieillard and Gilet (2013), Vieillard and Bigand (2014), and Pearce and Halpern (2015) show the tendency for the affective reactions to music representing the expression of negative emotions to be less negative and less intense in older adults than in young adults. The results of the research by Vieillard and Gilet (2013) indicate that older adults experience a lower level of sadness while listening to sad music and a lower level of fear when listening to scary music than young adults. The study participants evaluated the type and the level of intensity of the emotions felt while listening to the piano music fragments on the semantic differential scales. The mimic activity of the subjects was also measured. In addition, research by Pearce and Halpern (2015) confirms that older adults experience lower levels of arousal under the influence of scary music fragments and slightly less negative feelings under the influence of sad or scary music fragments than young adults. The emotional reactions to the fragments of film music were assessed by the subjects on the *Geneva Emotional Music Scale* (see Zentner, Grandjean, Scherer, 2008). Similarly, the experiment of Vieillard and Bigand (2014) showed that older adults experience a lower level of emotional activation under the influence of scary music than young adults. In this study, short musical fragments were assessed by subjects on the self-reporting 10-degree affective scales of emotional activation, hedonic feeling, and liking. The aforementioned research results correspond with the results of the research by Vieillard, Harm, and Bigand (2015) which proves that older adults experience less intense emotional reactions to the musical fragments representing the expression of negative affect than young adults. The fragments of Western classical and film music were used in the study. Affective, behavioral and physiological responses to music were measured. As the above-mentioned results of studies show older adults are less susceptible to the negative affective effects of musical fragments

representing the negative emotional expressions than young adults. However, it should be noted that the results of the study by Kliegel et al. (2007) do not quite correspond to this tendency because they show the effect of the negative mood induction (through film and music) is stronger for older adults than for young adults. Despite this, it should be recalled that the research also shows that mood repair after receiving negative stimuli is more effective in older adults than in young adults, which confirms the higher competences of older adults for mood regulation. It should also be added that the study by Pearce and Halpern (2015) shows less extreme and less differentiated affective responses to fragments of music of different emotional expressions of older adults than of young adults (older adults' more positively valenced reactions to sad and fearful fragments of music and slightly less positively valenced reactions to happy fragments of music). Slightly less positive affective responses to the positive musical stimuli of older adults than of young adults are not consistent with the *positivity effect*, although older adults' less extreme and differentiated affective responses to the musical fragments of different expressions indicate generally greater stability of older adult affective states in the context of music perception, which seems to be favorable to affect regulation.

The results of some empirical studies indicate that older adults favor/prefer musical stimuli whose expression is associated with positive affect. In the light of the studies by Vieillard and Gilet (2013), the emotional responses of older adults to happy music are more intense than to sad or scary music (such a relationship was not found for young adults). This study also showed that the level of intensity of emotional response to happy music is higher for older adults than for young adults. The already mentioned experiment of Vieillard and Bigand (2014) also showed a tendency related to a higher level of preference for happy musical fragments among older adults than among young adults, whereas there were no statistically significant intergroup differences regarding preferences for sad or scary musical fragments (or for peaceful musical fragments, which was not quite in agreement with the *positivity effect*). In addition, the higher level of preference for happy music than for sad music was only found in the older group. It should be added that during a separate research session, Vieillard and Bigand (2014) verified the speed of detection of noisy acoustic signals disturbing the perception of music both in older and young adults. As the results showed, older adults needed more time to identify noisy signals when listening to music representing negative expression (scary or sad) than when listening to music representing positive expression (happy or calm). This phenomenon did not occur in young adults. The authors of the experiment interpreted this result, among others, in relation to the *positivity effect*. They suggested that the reason for this could be the older adults' lower level of concentration of attention on negative stimuli than on positive stimuli. The results of the studies discussed in this paragraph correspond



to the results of the studies using visual stimuli by Mather et al. (2004) and Kisley et al. (2007), discussed in the beginning part of the article.

Interestingly, the results of the study by Schubert (2007) indicate generally a more positive emotional valuation of music, regardless of its expression, by older adults than by young adults. As the findings show, older adults are generally more positive about music than young adults. The participants of the study evaluated the expression of music and their own emotional responses to music (fragments of Western tonal musical pieces) on 7-degree scales of affective dimensions: arousal, valence, and emotional intensity. The results of this research are in agreement with the results of the previously mentioned experiment by Viellard and Bigand (2014), according to which older adults report generally more positive hedonic feelings associated with music perception than young adults. The above-mentioned studies indicate more positive affective responses to music and affective assessments of music by older adults than by young adults. These results correspond to some extent with the findings of Kliegel et al. (2007), Larcom and Isaacowitz (2009), Phillips et al. (2002), and Ryczkowska (2022) indicating generally better affective regulation in the context of music perception among older adults than among young adults.

The majority of the results of the research on the perception of music's emotional expression by listeners of different age groups can also be interpreted in relation to the *positivity effect* mechanism. According to them the tendency can be observed for older adults to be able to recognize musical expression of positive affect as accurately as young adults, but musical expression of negative affect – less accurately than young adults. According to the results of experiments of Lima and Castro (2011) and Castro and Lima (2014), the progressive age of the listener negatively correlates with the accuracy of recognition of musical expression of negative emotions of sadness and fear/threat, but it does not play a significant role in the accuracy of recognition of musical expression of positive emotions of happiness and peacefulness. In addition, as Lima and Castro's (2011) research demonstrates, the perceived magnitude of negative musical emotions of sadness or fear/threat decreases linearly with the progressive age of the listener, while the perceived magnitude of positive musical emotions of happiness or peacefulness remains relatively constant throughout early, middle and late adulthood. Lima and Castro (2011) and Castro and Lima (2014) studies used fragments of Western tonal music, differentiated in terms of expression. Both studies involved participants from three age groups: early, middle and late adulthood. The subjects rated music on 10-point self-reporting affective scales. Similarly, the research by Laukka and Juslin (2007) proves that both young and older adults correctly identify the happy or neutral expression of music, but older adults recognize musical expression of sadness or fear less accurately than young adults. Twenty-seven versions of the musical performance of a short melodic

theme from the *Piano Sonata* in A major, KV331, by Mozart, were used in this study. Those versions were associated with different emotional expressions (happiness, sadness, fear, anger, and neutral) and were varied in terms of such features of musical performance as: tempo, loudness, rhythm, articulation, attack, vibrato, phrasing, and others. However, it should be added that the research by Laukka and Juslin (2007) also showed that the expression of negative emotion of anger represented by musical performance is accurately recognized by both young and older adults, which is not consistent with the *positivity effect*. The study by Hailstone et al. (2009), however, proves that older adults recognize the musical expression of the negative emotion of anger less accurately than young adults. The reason for the difference these two study results might have been the fact that the first one concerned the expression of music related to the musical performance features and the second one focused on the expression of music related to the features of its structure less related to the performance. It is worth mentioning that Hailstone et al. (2009) research also shows that older adults identify musical expression in terms of simple emotions generally less accurately than young adults' group. Forty short single-line melodies from the Western tonal system, differentiated in terms of timbre, were used in this study. The subjects assessed musical expression on a self-reporting tool. The research discussed above corresponds to the study by Vieillard, Didierjean and Maquestiaux (2012) which showed that threatening musical fragments are assessed as more arousing than peaceful musical fragments in the group of young adults, while in the group of older adults there is no significant difference between assessments of threatening and peaceful musical fragments on the arousal dimension scale. What is more, older adults rate musical fragments expressing peace (positively valued affect) on the arousal scale higher than young adults. The subjects assessed the expression of fragments of film music on 10-degree affective scales (of valence, arousal, and preference). The test of spontaneous categorization of musical fragments according to the similarity of their expression was also carried out as part of the research. As most of the above-mentioned studies prove, the accuracy of recognition of musical expression of positive emotion of happiness does not decrease with age. Only the results of Hailstone et al. (2009) are not exactly in line with this tendency (this study indicates that musical expression of happiness is recognized by older adults a little less accurately than by young adults). On the contrary, according to the study by Vieillard et al. (2012), the level of accuracy of the categorization of musical expression of happiness is even higher in the group of older adults than in the group of young adults, which is extremely consistent with the *positivity effect*. In the light of most discussed studies, the accuracy level of the ability to recognize the musical expression of negative emotions (especially sadness or fear/threat) decreases with age. In the context of the *Socioemotional Selectivity Theory*, this phenomenon can be interpreted as the

affective regulation mechanism associated with a lower intensity of cognitive processing of negatively marked stimuli than of positively marked stimuli (the *positivity effect*).

In the final part of these considerations, we have to answer the main question of this article: *Does aging promote better affective regulation in the context of music perception?* The majority of the results of the research conducted so far reveal a higher level of efficiency of affective regulation in the context of music perception of older adults than of young adults, which seems to indicate that the aging process promotes better affective regulation in the context of music perception. This is supported by the results of the studies showing that:

- the likelihood of rapid mood regulation after the negative mood induction procedure is higher for older adults than for young adults and older adults are able to maintain positive mood longer than young adults (Larcom, Isaacowitz, 2009; Phillips et al., 2002),
- the process of mood repair after a negative mood induction procedure is more effective for older adults than for young adults (Kliegel et al., 2007),
- the mood state results after music listening are generally more positive for older adults than for young adults (Phillips et al., 2002; Ryczkowska, 2022),
- older adults show less intensive and less negative emotional responses to music representing the expression of negative affect than young adults (Pearce, Halpern, 2015; Vieillard, Gilet, 2013; Vieillard, Bigand, 2014; Vieillard et al., 2015),
- older adults derive from a greater life experience in affective self-regulation through music than young adults (Saarikallio, 2010).

Based on the majority of the results of the research to date, it can be observed that older adults have affective tendencies promoting successful affective regulation, which are consistent with the *positivity effect* mechanism. These include generally more positive affective responses to music and affective assessments of music (Schubert, 2007; Vieillard, Bigand, 2014), favoring/preferring musical stimuli representing positive expression, less intensive affective responding to musical stimuli representing negative expression than to musical stimuli representing positive expression (Vieillard, Gilet, 2013; Vieillard, Bigand, 2014), and better recognition of the musical expression of positive affect than a musical expression of negative affect (Lima, Castro, 2011; Castro, Lima, 2014; Vieillard et al., 2012). All the aforementioned tendencies are consistent with the *Socioemotional Selectivity Theory* (Carstensen et al., 1999), including the *positivity effect* and they could be interpreted as developmental gains of late adulthood in the context of the model of *Selective Optimization with Compensation* (Baltes, Baltes, 1990).

However, it should be noted that, although most of the research results are in line with the above-mentioned tendencies and development theories, there are

also a few research results, discussed in this publication, which are not quite in agreement with them (see Hailstone et al., 2009; Kliegel et al., 2007; Laukka, Juslin, 2007; Pearce, Halpern, 2015; Vieillard, Bigand, 2014). The problem of the aging factor in affective regulation in the context of music perception has not been sufficiently researched yet. Therefore, no definite conclusions can be drawn yet. There is a necessity for further studies aimed at verifying the genuineness of developmental phenomenon of the increasing level of effectiveness of affective regulation in the context of music perception with progressing age. Studying the quantitative linear correlation between progressive age and the effectiveness of mood regulation in the context of music perception in the future would be crucial. Hopefully, this review can be a source of inspiration for other researchers to further study the discussed problem.

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## ABSTRAKT

W niniejszym artykule skoncentrowano się na znaczeniu czynnika wieku dla efektywności regulacji afektywnej w kontekście odbioru muzyki w świetle przeglądu dotychczasowych badań. Liczne studia o tematyce pozamuzycznej potwierdzają, że osoby w okresie późnej dorosłości, doświadczające różnych trudności związanych z procesem starzenia, paradoksalnie cieszą się lepszym samopoczuciem na płaszczyźnie afektywnej niż osoby w okresie wczesnej dorosłości, które tych trudności nie doświadczają. Zjawisko to znajduje odzwierciedlenie także w większości wyników nielicznych przeprowadzonych dotychczas badań nad znaczeniem czynnika wieku dla reakcji afektywnych na muzykę. Biorąc pod uwagę wyniki większości tych badań, należy wskazać,

że osoby w okresie późnej dorosłości są w stanie regulować własny stan afektywny w kontekście odbioru muzyki bardziej efektywnie niż osoby w okresie wczesnej dorosłości. Wspomniany fenomen może być interpretowany w odniesieniu do teorii z zakresu psychologii rozwojowej – *Spoleczno-emocjonalnej selektywności* Carstensen (w tym do efektu pozytywności), a także w odniesieniu do *Selektywnej optymalizacji z kompensacją* Baltesa i Baltes.

**Słowa kluczowe:** późni dorośli; regulacja afektywna; odbiór muzyki