1 Bittersweet Symphony: Nostalgia and Melancholia in Music Reception

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Abstract

Listening to music can cause experiences of nostalgia and melancholia. Although both concepts are theoretically related, to date they have not been analyzed together. In this study, we identify their theoretical underpinnings and determine how they can be measured empirically. We analyze how listening to music causes nostalgia and melancholia, and whether both experiences are related to different behavioral intentions. To this end, we conducted an online experiment with 359 participants who listened to music they considered either nostalgic, melancholic, or neutral. Afterward, participants answered 122 items related to nostalgia and melancholia. Using Structural Equation Modeling, and more specifically Multiple Indicators and Multiple Causes Modeling, we first developed two new scales, the Formative Nostalgia Scale and the Formative Melancholia Scale. Both scales consist of five items each. Results showed that listening to music indeed increased nostalgia and melancholia. Although considerably different, both concepts are related nonetheless: Listening to nostalgic music increases melancholia, whereas listening to melancholic music does not increase nostalgia. In addition, both experiences are related to different behavioral intentions: Whereas experiencing nostalgia was associated with a stronger intention to share the music and listen to it again, experiencing melancholia revealed the exact opposite relation.

Keywords: nostalgia, melancholia, music, media effects, online experiment, scale development

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Music has the powerful capacity to impact our thoughts and to affect our emotions (Batcho, DaRin, Nave, & Yaworsky, 2008; Irrgang & Egermann, 2016; Lamont, 2012). Music helps us manage our emotional experiences (Zillmann, 1988) and maintain our subjective well-being (Hays, 2005). One of the various emotional mechanisms triggered by music is *nostalgia* (Chung, 2016). Nostalgia is an intricate yet powerful experience: It can heighten our spirits, foster self-esteem, nurture social support, reduce attachment anxiety, and even decrease death-related thoughts (Holak & Havlena, 1998; Sedikides, Wildschut, Arndt, & Routledge, 2008; Wildschut, Sedikides, Arndt, & Routledge, 2006). On the other hand, nostalgia is not only positive; conversely, it also includes several negative affects such as sadness, remorse, or regret (Barrett et al., 2010; Batcho, 2013; Chung, 2016).

Closely related, listening to music can make us pensive, contemplative, ruminating, and “mind-wandering” (Brady & Haapala, 2003). We might have thoughts about the past, the present, or the future; we might think of people that were once close but aren’t anymore, or ponder what the future will bring. In contrast to nostalgia, however, this feeling is more negative, wistful, and depressing (Brady & Haapala, 2003). This experience is known as *melancholia*.

Perhaps the most intriguing aspect of both nostalgia and melancholia is their emotional ambivalence. “The quality of the [melancholic] feeling resembles and overlaps with sadness, but is more refined, involving some degree of pleasure, although not as much as sweet pleasure” (Brady & Haapala, 2003). Indeed, the distinction between nostalgia and melancholia does not seem too pronounced at times. However, although both concepts stem from a clinical tradition that is related to depression (Batcho, 2013; Brady & Haapala, 2003), to date, and to the best of our knowledge, there is no research that analyzes the relationship between both explicitly.

In this study we pursue three goals: First, we want to find out what exactly determines nostalgia and melancholia. To this end, we collect and test several existing

measures and identify items that best predict both experiences. These items result in two novel scales of nostalgia and melancholia. Second, we analyze how listening to different types of music can create both experiences. Third, we investigate whether experiencing nostalgia and melancholia impacts people's behavior. Are experiences of nostalgia and melancholia equally likely to affect intentions of subsequent music reception?

Conceptualizing Nostalgia and Melancholia

The term *nostalgia* derives from two Greek notions, “one of which is *Nostos*, return to the native land; the other, *Algos*, signifies suffering or grief” (Batcho, 2013, p. 166). The original understanding of the concept was often compared to *homesickness* (Batcho, 2013, p. 166; Wildschut et al., 2006, p. 988). Both terms however started to drift apart in the 20th century, as distances became less of an obstacle, and the term nostalgia was no longer used exclusively in reference to a place but rather in reference to time (Batcho, 2013). Since then, nostalgia is defined as “[a] preference (general liking, positive attitude, or favorable affect) toward objects (people, places, or things) that were more common (popular, fashionable, or widely circulated) when one was younger (in early adulthood, in adolescence, in childhood, or even before birth)” (Holbrook & Schindler, 1991, p. 330).

Melancholia (or melancholy) is defined as “a feeling of pensive sadness, typically with no obvious cause” (Dictionary, 2020), “an experience which combines the pleasure of feeling sad with sober self-reflection” (Smith, 2014, p. 447), and a “sublimated mellow sorrow, which through reflection has brighter aspects woven into it” (Brady & Haapala, 2003, p. 6). For a long time melancholia was considered a clinical issue (Brady & Haapala, 2003, p. 2). Freud for example understood melancholia as a mental illness, and that it is closely related to depression and narcissism (Brady & Haapala, 2003, p. 2; Smith, 2014, p. 447). The ancient Greeks, nineteenth century English romantics, and earlier English religious poetry, however, praised melancholia for contributing to a more balanced life (Smith, 2014, p. 448). Notably, melancholia lacks a concise theoretical definition that separates it from related notions such as sadness and depression (Brady & Haapala, 2003, p. 2). Brady and

Haapala (2003) hence suggests to “progress beyond these rather narrow meanings of the concept”, because “melancholy is a more refined emotion with qualities of its own” (p. 2). In short, melancholia is more than depression and negativity.

Despite several differences, nostalgia and melancholy have much in common. First, they both involve *cognitions*, mostly in the form of reflections about the past and/or the present. Second, they both entail *affects*, including positive and negative factions. Third, they are *meta-appraisals*, which is to say that first a specific set of cognitions and affects is experienced, which is then in a second process labeled as a nostalgic or a melancholic experience.

Affects. Both nostalgia and melancholia necessitate that we experience specific affects. These affects are often ambivalent. When feeling nostalgic, we experience positive affects such as happiness, pride, joy, warmth, surgency, desire, gratitude, affection, tenderness, elation, pleasure, satisfaction, and euphoria; at the same time, we also experience negative affects such as sadness, disappointment, loss, irritation, fear, mourning, stress, poignancy, and regret (Barrett et al., 2010; Batcho, 2013; Chung, 2016; Holak & Havlena, 1992; Wildschut et al., 2006).

When feeling melancholic, we experience negative affects such as sadness, sorrow, despair, dread, and grief; at the same time, we also experience more positive ones such as longing, pleasure, sublime, hope, excitement, and joy (Brady & Haapala, 2003; Peltola & Eerola, 2016; Zentner, Grandjean, & Scherer, 2008). Although melancholia does involve “some degree of pleasure” (Brady & Haapala, 2003, p. 2), it is more closely related to sadness and therefore predominantly negative.

Cognitions. The affects associated with nostalgia and melancholia do not exist in a vacuum but are necessarily related to specific cognitions. Nostalgia involves recalling autobiographic/episodic memories, which are often triggered by specific stimuli (Barrett et al., 2010; Chung, 2016, p. 33; Lahdelma & Eerola, 2015, p. 246; Sedikides, Wildschut, & Baden, 2004, p. 205). Memories and stimuli frequently associated with nostalgia include

the self, interactions with (close) others, social gatherings, one's home, and specific objects (Holak & Havlena, 1992, 1998; Wildschut et al., 2006). Because these elements always belong to the past, all cognitions involve some sort of loss (Batcho, 2013; Holak & Havlena, 1998; Wildschut et al., 2006).

Melancholia is likewise often (although not always) triggered by and associated with specific memories and people. The predominant cognition is again the subject of loss (Brady & Haapala, 2003; Eerola & Peltola, 2016; Smith, 2014). For example, we feel melancholic when thinking of close others who have passed away or who cannot be present at the current moment (Eerola & Peltola, 2016; Peltola & Eerola, 2016; Smith, 2014).

Mental states and meta-appraisals. To date, there exist several different understandings of what nostalgia and melancholia actually are. For example, nostalgia was termed a basic/prototypical emotion (Chung, 2016), a complex emotion (Sedikides et al., 2004; Wildschut et al., 2006), an emotional blend (Barrett et al., 2010), and a nonbasic/secondary emotion (Sedikides et al., 2004). In this paper, we offer a different and novel understanding. As outlined above, nostalgia and melancholia involve the experience of *several* affects, which are also ambivalent. As a result, nostalgia and melancholia cannot be considered emotional prototypes or basic emotions such as fear, anger, or happiness, which are by definition uni-dimensional. In addition, because both concepts necessitate specific additional cognitions (we cannot feel nostalgic without thinking about the past), they are more complex than normal emotions and involve higher cognitive processes.

Instead, we argue that nostalgia and melancholia represent specific *mental states*. We feel nostalgic or melancholic only when we experience a particular and delicate mix of specific affects and cognitions. For example, the more a person thinks about something from her past, the more she feels sad but also thankful, the more likely she is to experience a state of nostalgia. As a result, nostalgia and melancholia are substantially more complex than basic emotions such as anger. Instead, they can be compared to other more intricate experiences such as jealousy, schadenfreude, homesickness, wanderlust, or hygge.

(Arguably, the easiest and most well-known mental state is love.)

We all know from personal experience that these specific mental states exist. They can be shared intersubjectively and crossculturally. However, although it is easy to *experience* these states, it is often much more difficult to *label* them. That is because being able to label a specific mental state as nostalgic or melancholic requires an elaborate socio-cultural learning process. And interestingly, although everyone can experience these states, we sometimes cannot verbalize them (which is why their labels are often imported from foreign languages).

Put more technically, being able to label a specific mental state as nostalgic or melancholic requires a so-called *meta-appraisal* process (also known as second-order appraisal; see, e.g., Bartsch, Vorderer, Mangold, & Viehoff, 2008). In a first appraisal process, we evaluate how we feel and what we currently think. In a second appraisal process, we then evaluate our general mental state of cognitions and affects, searching for an adequate label. (So that would be the moment when we realize we're in love.)

The aforementioned theoretical rationales have several practical implications. Most importantly, from a theoretical perspective, nostalgia and melancholia should not be understood as *reflective* constructs, the default approach in most social sciences, but as *formative* constructs (Kline, 2016). To explain, nostalgia and melancholia do not *reflect* in affects and cognitions; instead, affects and cognitions *form* our mental states of nostalgia and melancholia. In other words, whereas in reflective constructs “the causality flows from the latent variable to the indicators” (Söllner et al., 2010, p. 68), in formative constructs the causality “flows from the indicators to the latent construct” (Söllner et al., 2010, p. 68).

As a result, there are two ways to measure nostalgia and melancholia. First, if we want to understand what nostalgia and melancholia actually *is*, we need to adopt a formative approach and test what affects and what cognitions determine both concepts. Second, to determine if a sensation is *labeled* as nostalgic or melancholic, we can adopt a reflective approach and directly ask whether a person currently feels that way.

To the best of our knowledge, to date this understanding of nostalgia and melancholia has not been employed in research. Most scales focused only on specific aspects of nostalgia and melancholia, while using a reflective logic. In this study, we hence adopt a novel theoretical and empirical approach in order to find out what affects and what cognitions determine nostalgia and melancholia.

Research Question 1: What are the exact components of nostalgia and melancholia?

Causes of Nostalgia and Melancholia

What causes nostalgia? Common triggers include negative mood and emotions, sensory inputs, and media content (Barrett et al., 2010; Botstein, 2000; Chung, 2016; Holak & Havlena, 1992; Wildschut et al., 2006; Wulf, Bonus, & Rieger, 2019). Because media play an important role in a person's development (Loveland, Smeesters, & Mandel, 2010), and because music is able to evoke autobiographic memories (Middeke & Wald, 2011), it is likely that listening to music can increase nostalgia. If these memories are associated with loss, music is likely to evoke also melancholia. In that vein, Brady and Haapala (2003) note that "when discussing the arts, the closest we come to finding melancholy as a mood is in music" (p. 8). Also empirically, several studies have shown that nostalgia and melancholia can be triggered by music, particularly sad one (Eerola & Peltola, 2016; Juslin, Barradas, Ovsianikow, Limmo, & Thompson, 2016; Juslin & Laukka, 2004). Eerola et al. (2016) even noted that melancholia is among the top-ranking emotions involved in experiences with sad music (p. 10). As a result, it is safe to say that both nostalgia and melancholia can be induced by music.

However, two interesting questions are left unanswered. First, when listening to music, what components of nostalgia and melancholia are affected the most? Does music rather change affects of cognitions? Second, do the effects depend on the type of music one is listening to? Specifically, does listening to nostalgic music also cause melancholia, and does listening to melancholic music also increase nostalgia?

Research Question 2: How does listening to different types of music affect nostalgia

and melancholia?

Outcomes of Nostalgia and Melancholia

What are behavioral outcomes of experiencing nostalgia and melancholia? So far, it has been shown that both experiences are indeed powerful and that they can affect subsequent behavior. Specifically, by letting individuals re-live predominantly social memories, nostalgia can stir one's need to belong (Loveland et al., 2010) and nurture the desire to partake in social activities (Sedikides et al., 2004). In addition, media-induced nostalgia increases people's willingness to share that media content with loved ones, to consume it again, and to act altruistically (Chung, 2016). In short, nostalgia seems to have a markedly activating and stimulating effect. Regarding media content, we hence assume that nostalgia makes people more likely to share and to relive the media content that triggered nostalgia.

We are not aware of any research that has explicitly and empirically analyzed the behavioral effects of experiencing melancholia. Because melancholia is conceptually related to nostalgia, it seems possible that experiencing melancholia leads to the same stimulating behavioral effects. On the other hand, because melancholia is more negative and depressing (Brady & Haapala, 2003), it might also be more inhibiting and petrifying. People who experience melancholia after listening to a song might also be less likely to share that song with others or to listen to it again.

Research Question 3: How do nostalgia and melancholia relate to behavioral intentions?

Method

We report how we determined our sample size, all data exclusions, all manipulations, and all measures in the study. Additional information, the data, the analysis scripts, and a completely reproducible version of this manuscript can be found in the online supplementary material (OSM) at https://osf.io/7srfq/?view_only=f9e12a889c254d3fa7015c6803b8c351.

Procedure

Given the lack of instruments to measure melancholia, we first conducted a focus group interview to generate novel items. We conducted a semi-structured interview with four students from the local university, which was recorded on audio, with all participants consenting to the procedure. On the basis of the focus group, we developed several novel items, which capture both affects and cognitions (see section Novel Melancholia Items).

For the main study, we used a convenience sampling approach. We recruited participants from different sources, such as the local university, online communities, small panel-agencies, and local networks. As incentive, participants had the chance to win two 15€ Amazon coupons. Data collection took place in December 2017.

To answer our research questions we ran an online experiment. We followed the approaches by Holbrook and Schindler (1991), Michels-Ratliff and Ennis (2016), and Wildschut et al. (2006). We first instructed participants to listen to a specific song of their own liking on their preferred platform (e.g., Spotify or YouTube). Participants were randomly assigned to three experimental groups. In the group *Nostalgia*, participants were instructed to listen to a song they considered nostalgic; in the group *Melancholia*, participants were instructed to listen to a song they considered melancholic; in the *Control Group*, participants were instructed to listen to a song of their own choice. Because nostalgia or melancholia are complex constructs, participants were shown a brief lexical definition of the two concepts. They were recommended to use headphones and to remain undisturbed during the study. As a manipulation check, before proceeding to the first page of the questionnaire, we asked participants whether they had actually listened to a song that matched the instructions. Only those who answered *yes* were directed further.

As a sanity check, we looked at the artists participants typically listened to. In the nostalgia group, participants listened to Queen, Blind Guardian, Freundeskreis, Linkin Park, and Rise Against. In the melancholia group, participants listened to Adele, Coldplay, Enya, Herbert Grönemeyer and Johnny Cash. In the control group, Ed Sheeran and

Imagine Dragons were the most popular artists. Fifteen percent of all participants listened to the music in combination with a video. Participation took between 10 and 15 minutes.

Participants. The data of 15 participants were deleted because they answered the questions in less than one minute after opening the survey, which indicates that they had not really listened to music. Missing values were treated with case-wise deletion. Overall, $N = 344$ participants took part in the study ($n_{\text{Nos}} = 117$, $n_{\text{Mel}} = 111$, $n_{\text{Con}} = 116$). The mean age was $M = 30$ years ($SD = 11$ years). Sixty percent of the participants were female. The participants were highly educated: One percent reported having no degree, 12 % middle/junior high school, 38 % high school, and 49 % college. The experimental groups did not differ concerning their sociodemographic characteristics (see OSM).

Measures

In what follows, we list all variables that were collected to measure nostalgia and melancholia. All items were measured on a scale with seven response options, ranging from 1 (*not at all*) to 7 (*extremely*). For a list of all items, additional confirmatory factor analyses, psychometric statistics, and item distributions, see OSM.

Self-reported nostalgia. Two items measured experiences of nostalgia in a direct and explicit way. The first item was “I feel nostalgic at the moment” (Wildschut et al., 2006, p. 983) and the second item was “The piece of music evoked nostalgic feelings” (Chung, 2016, p. 29). The two items were used as a reflective measure of nostalgia.

Nostalgia Inventory. We collected the Nostalgia Inventory (Batcho, 1995), which assesses the degree to which individuals currently miss specific aspects from their past. The scale consists of 20 items, including “Places” and “The way people were”.

Nostalgia Scale. We used the Nostalgia Scale developed by Holbrook and Schindler (1994). The scale includes items such as “Things used to be better in the good old days” or “We are experiencing a decline in the quality of life”.

Recalling Related Others. We adopted four items from the nostalgia dimension Recalling Related Others developed by Chung (2016). The scale consists of items such as

“It makes me think about someone in the past” and “It makes me recall someone who was related to it”.

Nostalgic memories. Next, we used the seven-item scale developed by Chung (2016), which measures how consuming media content affects nostalgia. The scale focuses on cognitions. For example, two of those items are “It made me think about when I was younger” and “It evoked fond memories”.

Self-reported melancholia. Similarly to self-reported nostalgia, we used the two items “I feel melancholic at the moment” and “The piece of music evoked nostalgic feelings”, which was used as a reflective measure of self-reported melancholia.

Novel melancholia items. On the basis of the focus group interview and literature review, eleven novel items were designed to capture melancholia. The scale addresses both emotional and cognitive aspects in the context of music reception. Items include, for example, “I was absorbed in thought” and “I wanted to have some peace and quiet”.

Topics of thought. As another measure of cognitions, we employed eight items that captured the topics participants thought about. For example, we assessed the degree to which participants had thought about “Places” or “Objects”. The scale was adopted from existing work, literature review, and the focus group interview.

Positive and negative affect. Given that most prior measures focused mainly on cognitive components of nostalgia and melancholia, the Positive and Negative Affect Schedule (PANAS) (Watson, Clark, & Tellegen, 1988) was collected to measure emotions more generally. The PANAS consists of two dimensions with 10 items each. The first dimension, positive affect, includes items such as “Excited” and “Attentive”. The second dimension, negative affect, includes items such as “Afraid” and “Jittery”.

Behavioral intentions. Aligned with Chung (2016), we collected eight items that measured the behavioral intentions (a) to share the piece of music with others and (b) to listen to it again. Two of those items are “It makes me realize I would enjoy sharing this with family” and “It makes me want to know about it more”.

Data Analysis

With Research Question 1, we set out to determine which items would best predict nostalgia and melancholia. We hence collected a large number of items (overall, 122 items; see above). All items were selected on the basis of the aforementioned *theoretical considerations*. From this collection, we selected items on the basis their *empirical criterion validity*. In other words, we aimed to select the items that best predicted the self-reported measures of nostalgia and melancholia. To this end, we ran two multiple regressions models in which all items were included as predictor variables; one with self-reported nostalgia as the criterion and one with self-reported melancholia. To circumvent multicollinearity, we removed 14 items because they exhibited strong inter-correlations (i.e. above $r = .70$), while adding little incremental predictive validity. We selected all items with a p-value below $p = .10$.¹

In a next step, we ran several iterative Structural Equation Models (SEM) to determine the exact loading of the respective items on the latent factors of nostalgia and melancholia. To adopt a formative approach, we specified so-called Multiple Indicators and Multiple Causes Models (MIMIC; Ríos-Bedoya, Pomerleau, Neuman, & Pomerleau, 2009). On the basis of the loadings of the final model, we then computed two new weighted scales: the *Formative Nostalgia Scale* and the *Formative Melancholia Scale*. These two weighted scales were then used for all subsequent analyses.

Please note that understanding nostalgia and melancholia as formative constructs has other implications as well. For example, the items of a formative construct are not required to correlate or to form a unidimensional factor structure (Kline, 2016). As a result, it is not necessary to run further factor analyses.

Research Question 2 was tested using SEM. The experimental groups were compared individually using contrasts. The Formative Nostalgia Scale and the Formative Melancholia

¹ We intentionally set a more liberal significance level than usual in order not to discard potentially meaningful information too easily.

Scale were used as dependent variables. In order to better understand which aspects of nostalgia and melancholia were influenced specifically, we also analyzed how listening to music affected the individual indicators/components of both concepts. To better visualize the results, we display the means for all groups alongside their 95% confidence intervals, which were computed using bootstraps with 1000 draws (see Figure 2).

Research Question 3 was tested also using SEM. We analyzed how strongly the Formative Nostalgia Scale and the Formative Melancholia Scale predicted behavioral intentions.

All SEMs were estimated using Maximum Likelihood estimation. Effects larger than $\beta = .10$ were considered small, $\beta = .30$ medium-sized, and $\beta = .50$ large (Cohen, 1992). We set an alpha level of 5 percent. In terms of power, we aimed for collecting the largest sample possible. Specifically, it was our aim to be able to find small to medium-sized effects (i.e., $\beta = .20$) with a probability of at least 80%, which led to a minimum sample size of $N = 193$. Sensitivity analyses revealed we were able to identify effects of $\beta = .19$ with a probability of 95%.

For the analyses, coding, and typesetting, we used R (Version 3.6.1; R Core Team, 2018) and the R-packages *ggplot2* (Version 3.2.1; Wickham, 2016), *lavaan* (Version 0.6.5; Rosseel, 2012), *lm.beta* (Version 1.5.1; Behrendt, 2014), *magrittr* (Version 1.5; Bache & Wickham, 2014), *papaja* (Version 0.1.0.9942; Aust & Barth, 2018), *psych* (Version 1.9.12.31; Revelle, 2018), *semTools* (Version 0.5.2; Jorgensen et al., 2018), and *tidyverse* (Version 1.3.0; Wickham, 2017).

Results

Measuring Nostalgia and Melancholia

With Research Question 1, we identified the items that best measured nostalgia and melancholia. The MIMIC model that we configured fit the data well $\chi^2(31) = 73.24$, $p < .001$, $cfi = .97$, $rmsea = .06$, 90% CI [.04, .08], $srmr = .02$. Following the procedure described above, we found that experiences of nostalgia and melancholia were best

Table 1
Items measuring nostalgia and melancholia. When using the items in future studies, compute scales using weighted means.

Item	Weight
Formative nostalgia scale	
It reminded me of the past	0.40
It evoked fond memories	0.19
I thought about someone in the past	0.16
I felt enthusiastic	0.15
I felt lonely	0.11
Formative melancholia scale	
I was pensive	0.32
I was wistful	0.35
I felt distressed	0.15
I wanted some peace and quiet	0.10
I was especially susceptible to the transience of time	0.08

353 predicted by five items each. For a list of all items including their respective weights, see
354 Table 1. For a visualization of the MIMIC model, see Figure 1.

355 The results showed that both affects and cognitions were crucial. As expected, most
356 items that most strongly predicted nostalgia were positively valenced, as evidenced by
357 participants experiencing fond memories and enthusiasm. However, experiencing nostalgia
358 was also related to feeling slightly more lonely. Melancholia, on the other hand, was
359 decidedly more negative, as evidenced by feelings of distress and wistfulness. It was
360 characterized by an particularly strong self-orientation and inwardness, as participants felt
361 pensive and wanted some peace and quiet.

362 Overall, the five items measuring nostalgia explained 56 % of the variance in the

latent formative factor of nostalgia. The five items measuring melancholia explained 76 % of the variance in the latent formative factor of melancholia.

Figure 1. Research Question 1: Visualisation of MIMIC model, which was used to determine the loadings of the items on the latent measures of nostalgia and melancholia. The latent factors were identified by measuring participants current experiences of nostalgia/melancholia, as well as their perceptions of how the music made them feel nostalgic/melancholic. Standardized coefficients are reported.

Effects on Nostalgia and Melancholia

With Research Question 2, we investigated whether listening to nostalgic, melancholic, or generic music affected the experiences of nostalgia and melancholia.

As expected, compared to the control group, listening to nostalgic music made

Table 2

Effects of different types of music on nostalgia and melancholia.

	Nos vs. Con		Mel vs. Con		Nos vs. Mel	
	beta	p	beta	p	beta	p
Nostalgia						
Formative nostalgia scale	.44	< .001	.09	.156	.36	< .001
Thoughts about past person	.35	< .001	.30	< .001	.05	.416
Loneliness	.20	.002	.33	< .001	-.16	.013
Enthusiasm	-.05	.445	-.49	< .001	.42	< .001
Fond memories	.14	.031	-.22	< .001	.36	< .001
Thoughts about past general	.46	< .001	.18	.006	.30	< .001
Melancholia						
Formative melancholia scale	.32	< .001	.54	< .001	-.29	< .001
Pensiveness	.28	< .001	.45	< .001	-.23	< .001
Wistfulness	.26	< .001	.44	< .001	-.22	< .001
Transience	.35	< .001	.38	< .001	-.05	.470
Want of peace	.05	.473	.30	< .001	-.25	< .001
Distress	.24	< .001	.54	< .001	-.32	< .001

Note. Nos = experimental group listening to nostalgic music; Mel = group listening to melancholic music; Con = Control group listening to random music.

Figure 2. The effects of listening to different types of music on nostalgia and melancholia.

participants much more nostalgic, $\beta = .44$, $b = 1.05$, 95% CI [0.77, 1.32], $z = 7.47$, $p < .001$. As a result, the experimental manipulation was successful. Specifically, when compared to the control group, almost all individual items measuring nostalgia showed significantly higher levels. For example, participants were more likely to think about the past in general, to think about a specific person from the past, to feel lonely, and to have fond memories of the past. Only the level of enthusiasm was equally high in both groups. Interestingly, listening to nostalgic music also increased levels of melancholia, $\beta = .32$, $b =$

0.91, 95% CI [0.56, 1.25], $z = 5.17$, $p < .001$. Compared to the control condition, listening to nostalgic music made participants somewhat more distressed, pensive, wistful, and aware of the transience of time.

Next, listening to melancholic music made participants significantly more melancholic compared to the control group, $\beta = .54$, $b = 1.67$, 95% CI [1.34, 2.01], $z = 9.79$, $p < .001$. As a result, also this experimental manipulation was successful. Specifically, when compared to the control group, all items measuring melancholia showed significantly higher levels. Participants were much more distressed, pensive, wistful, aware of the transience of time, and wanted more peace and quiet. Listening to melancholic music did not increase levels of nostalgia, $\beta = .09$, $b = 0.23$, 95% CI [-0.09, 0.56], $z = 1.42$, $p = .156$.

When comparing the nostalgia and melancholia groups with each another, both parallels and differences can be found. Participants in both groups were equally likely to think of a person from the past. Likewise, both groups felt equally susceptibility to the transience of time. But there were also differences. Participants listening to nostalgic music were much more enthusiastic, were more likely to think about the past in general, had more fond memories, and felt less lonely. Participants listening to melancholic music, in turn, were even more distressed, pensive, wistful, and wanted more peace and quiet.

For an overview of all result see Table 2, and for a visualization see Figure 2.

Effects of Nostalgia and Melancholia

With Research Question 3, we analyzed whether experiencing nostalgia was related to changes in behavioral intentions. Participants who were more nostalgic were more intent on sharing the music with others, $\beta = .26$, $b = 0.33$, 95% CI [0.18, 0.47], $z = 4.41$, $p < .001$. The effect was small to medium-sized. Participants who were more nostalgic were also more intent on listening to the music again, $\beta = .15$, $b = 0.15$, 95% CI [0.02, 0.29], $z = 2.31$, $p = .021$. The effect was small.

Participants who experienced more melancholia than others were moderately less likely to share that music with others, $\beta = -.18$, $b = -0.18$, 95% CI [-0.30, -0.07], $z = -3.03$,

Table 3

Relations between the formative scales of nostalgia and melancholia and intentions to again listen to the music and to share it with others.

Effect	b	ll	ul	beta	p
Nostalgia					
Share the music with others	0.33	0.18	0.47	.26	< .001
Listen again	0.15	0.02	0.29	.15	.021
Melancholia					
Share the music with others	-0.18	-0.30	-0.07	-.18	.002
Listen again	-0.16	-0.27	-0.05	-.18	.004

$p = .002$. Finally, participants who experienced more nostalgia were moderately less likely to listen to the music again, $\beta = -.18$, $b = -0.16$, 95% CI $[-0.27, -0.05]$, $z = -2.85$, $p = .004$.

For an overview of the results, see Table 3.

Discussion

In this study, we analyzed the conceptual nature of nostalgia and melancholia. We analyzed how both experiences are affected by listening to different types of music, and whether feeling nostalgic and melancholic is related to changes in behavioral intentions. On the basis of theoretical considerations and empirical research, we argued that nostalgia and melancholia describe *mental states*. During these mental states, we experience specific affects and cognitions. As a result, this is the first study to analyze nostalgia and melancholia as formative constructs.

Using a criterion validity approach, we compared overall 122 items and selected the ten items that best predicted nostalgia and melancholia. Specifically, results showed that we label a state nostalgic when we are thinking about the past or a specific person we once

knew, and when we are reliving fond memories. Next to these cognitions, we also experience two typical affects. When nostalgic, we are also feeling a bit enthusiastic as well as lonely. Our results confirm that nostalgia is an ambivalent experience, which consists of both cognitions and affects (Barrett et al., 2010; Chung, 2016). Our results are hence aligned with previous research, which found that positive memories and thinking of other people are typical aspects of nostalgia (Holak & Havlena, 1992; Wildschut et al., 2006).

Melancholia likewise consists of several affects and cognitions. Regarding cognitions, we label a state melancholic if we are pensive, that is thinking about various different topics. Interestingly, melancholia was also predicted significantly by the (somewhat exotic) item that people were more aware of the “transience of time”, which expresses a certain grief, *weltschmerz*, but also mindfulness. Hence, melancholia is less about specific memories and more about general feelings of loss, which is well aligned with the existing literature (Brady & Haapala, 2003; Eerola & Peltola, 2016; Smith, 2014). Melancholia seems to be an overarching, abstract state of thinking, whereas nostalgia is more specific and directed toward an object or person. Regarding its emotional components, when melancholic we feel heavily distressed but also wistful. Together, this again confirms that melancholia is ambivalent, that it is mainly negative, but also that there must be something positive that is currently lacking, got missing, or is out of reach, but that is worth attaining. In addition, experiencing melancholia also means wanting some peace and quiet, wanting to be left alone. Melancholia is therefore not so much about feeling lonely but about wanting to be alone, about experiencing solitude (Russell, Cutrona, McRae, & Gomez, 2012). Hence, melancholia has an introverted, private nature (Smith, 2014). This finding emerged already during the focus group interview, during which participants expressed that melancholia is about self-caring, grounding, and being egocentric.

Can music trigger nostalgia and melancholia, and if so, what aspects? Using an experimental design with three groups (nostalgic music, melancholic music, and regular music), we found that listening to music considered nostalgic indeed increased nostalgia. In

444 general, the overall levels of nostalgia were much higher. In particular, when compared to
445 regular music, listening to nostalgic music changes especially the cognitive components.
446 The strongest difference was that participants reflected much more strongly about specific
447 events and people from the past. Emotionally, both types of music seem to make their
448 listeners comparably enthusiastic. This is not surprising, because listening to music
449 generally evokes positive emotions (Zentner et al., 2008, p. 513), and when given a choice
450 people normally choose uplifting music. That said, listening to nostalgic music increases
451 perceptions of loneliness.

452 Listening to melancholic music has strong effects on its listeners. However, in
453 contrast to nostalgic music melancholic music has a stronger impact on affects as compared
454 to cognitions. When listening to melancholic music levels of distress virtually skyrocketed,
455 whereas levels of enthusiasm plummeted. Melancholic music made participants much more
456 wistful. Interestingly, although loneliness is an indicator of nostalgia, listening to
457 melancholic music leads to even higher levels of loneliness. This shows that listening to
458 music considered melancholic certainly affects feelings of loneliness, but that those feelings
459 do not contribute much to the assessment of melancholia. Cognitively, listening to
460 melancholic music made participants much more pensive. The focus was on the past:
461 Above all, respondents thought about people they once knew, but also about the past in
462 general. However, people were less likely to have *fond* memories.

463 Interestingly, whereas listening to nostalgic music also increased general levels of
464 melancholia, listening to melancholic music did *not* increase general levels of nostalgia.
465 This finding can be explained by the fact that melancholic music does not trigger euphoria,
466 which is a necessary condition for nostalgia. Listening to nostalgic music, on the other
467 hand, can stir some melancholia, is hence not mutually exclusive. For example, pensiveness
468 and wistfulness are certainly involved in nostalgia, too, as thinking of and missing the past
469 is a defining aspect of nostalgia. The only exception is that listening to nostalgic music
470 does not lead to participants wanting more peace and quiet, which nicely fits nostalgia's

471 more social nature (see below).

472 Does experiencing nostalgia and melancholia relate to different behavioral intentions?
473 The short answer is, yes it does. Participants who experienced higher levels of nostalgia
474 expressed a stronger wish to share the piece of music they had just listened to with others.
475 Similarly, they were also more likely to listen to that piece of music again. Experiencing
476 melancholia, on the other hand, is related to a *decreased* intention to share the music with
477 others and to further engage with it. This non-social quality and restricted desirability
478 clearly differentiates melancholia from nostalgia. Whereas nostalgia is more social and
479 uplifting, melancholia is more private and mentally taxing. Nostalgic experiences we want
480 to share with others and relive; melancholic experiences we want to keep away from others
481 and avoid.

482 Looking at all results combined, we find several similarities between nostalgia and
483 melancholia. For example, both concepts are mental states that include both affects and
484 cognition. Cognitively, both include a focus on the past from a perspective of loss.
485 Emotionally, both are highly ambivalent, and include positive and negative factions. At the
486 same time there exist several differences. Most prominently, nostalgia feels much more
487 positive. When feeling nostalgic, the negativity does not lead to resignation and
488 introversion. Instead, it still allows for (and even encourages) sharing and reliving the
489 experience (Chung, 2016).

490 Although melancholia is taxing from a hedonistic perspective, it might offer crucial
491 benefits from an eudaimonic perspective. Because even though emotionally unpleasant,
492 thinking about one's losses might also foster appreciation for what is still there. It might
493 lead to subsequent course corrections. Nostalgia has already been investigated in the light
494 this two-factor model of entertainment (Wulf et al., 2019); the same situation likely also
495 applies to melancholia.

Limitations and future research

Our sample size was comparatively small, which allowed for finding only small to medium-sized effects with a high probability. However, it seems likely that direct exposure to melancholic and nostalgic music indeed causes moderate to even substantial effects. As a result, the results reported here seem sufficiently robust.

From a methodological perspective, we only measured the *relations* between experiencing nostalgia and melancholia and behavioral intentions. As a result, our research design does not allow for causal inferences regarding the behavioral effects of nostalgia and melancholia. However, theoretically it seems more plausible that both experiences affect behavioral intentions than vice versa. Nonetheless, we encourage future research to address this question using study designs that explicitly address causality – preferably by collecting behavioral data. Also, we focused on only two possible outcomes of experiencing nostalgia and melancholia, when there are evidently many more. For example, it would be interesting to see whether experiencing melancholia leads to course corrections or reassessments, which could for example result in the contacting of a former friend or ex partner.

The final selection of items was bottom-up and based on the items' criterion validity. Although this is a common approach – a famous example is the Minnesota Multiphasic Personality Inventory (MMPI; McKinley & Hathaway, 1944) – one might argue that this approach is too data-driven and lacks a theoretical foundation. However, all items that we included were derived from existing research. To make sure that all relevant aspects of both constructs were included, we also conducted a focus group interview and designed several additional items.

In this study we induced nostalgia and melancholia via listening to music. It would be interesting to see whether our conceptualization remains valid when nostalgia and melancholia are evoked via other media (Sedikides et al., 2015). Due to the scales' general nature, we however assume that they can be used also in other contexts with different stimuli. Likewise, the scales might also be helpful for non-media related research questions.

Especially the Formative Melancholia Scale represents, to the best of our knowledge, the first and only measure that does not consider melancholia simply as a weaker version of depression. If used in future research, we recommend to not simply calculate the means of the five items. Instead, in order to implement their formative nature we recommend calculating weighted means using the values presented in Table 1. Employing the two scales in different contexts, especially with different stimuli, should further advance our understanding of these intricate, fleeting, and fascinating concepts.

Conclusion

Nostalgia and melancholia are closely related. However, they are also markedly distinct. Specifically, nostalgia is a predominantly positive experience that stems from appreciating good times and the people associated with it. At the same time, there is the uncomfortable confrontation with the fact that those good times are over. As a result, people want to share triggers of nostalgia with others and are looking forward to reliving nostalgic experiences.

Melancholia, on the other hand, has a more somber tone. It is a solitary, introverted experience, and involves ruminating about things that have happened in one's life. These ruminations are general, without a specific focus. While feeling melancholic, people prefer to be left alone. They want to indulge in the experience, which although distressing possibly provides a cathartic function. That said, people seem afraid to share or to further engage in melancholia and its triggers.

As so often, many artists have known all this long before. Because although the dog days are over, some things will never change. But there's a crack in everything, and that's how the light gets in.

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