The Influence of Nostalgia and Anemoia on Mood and the Moderating Role of Loneliness

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Abstract

Nostalgia's focus on past autobiographical memories can have significant influences on mood - mainly positive in nature. The flipside of nostalgia could be the phenomenon of feeling nostalgic about things that have not in fact happened, newly introducing the concept of "anemoia" into the research field. With nostalgia as guiding principle, we hypothesised anemoia to exert the same positive influence on mood. Further, we investigated the potential moderating influence of high or low loneliness in this process. We measured mood after a nostalgia, anemoia or control condition of an Event Reflection Task in 85 subjects who indicated their level of loneliness beforehand. Although not significant, we found that both nostalgia and anemoia indeed led to subjective mood increases, supporting our first hypothesis. Also, after nostalgia or anemoia induction, participants low in loneliness experienced mood increases as well, whereas people high in loneliness did not experience alterations in mood, contrary to what we initially predicted. These findings were, again, not significant. It would be worth looking into the potential effects of anemoia, as our study hints at the possibility that it can have similar positive effects on people's moods as nostalgia. Especially for people experiencing little loneliness, the effects might be notably better than for people experiencing high loneliness. However, without the implementation of larger studies, results remain ambiguous.

Keywords: Nostalgia, Anemoia, Mood, Loneliness, Event Reflection Task

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Our capability to envision one's past by revisiting experiences in our mind can often leave in its wake nostalgia. The subsequent effects of nostalgic feelings have been found to contain both positive and negative aspects for many people - a finding that clearly emphasises the "bittersweet" connotation often associated with nostalgia (Wildschut et al., 2006). Another line of research highlights the finding that a bad mood can bring about feelings of nostalgia, which in turn can counteract the negative effect by evoking positive memories that tend to lead to future mood enhancements (Faul & De Brigard, 2022). Mainly, therefore, it appears to have largely positive effects on mood, yet the course it takes depends on personal circumstances and/or characteristics (Hepper et al., 2021). One potential influential factor in this debate has been proposed to be loneliness, as it has repeatedly been shown that it can serve as a coping mechanism for nostalgic effects and therefore mood (Wildschut et al., 2006).

However, people not only remember past experiences, but are also capable of making up scenarios that have not actually happened (Killingsworth & Gilbert, 2010). Indeed, a closely related construct that has not yet received attention in scientific research is anemoia - the longing for things we have never experienced before (for illustrative purposes see Ronan, 2019). Due to nostalgia's influence on mood, this unexplored phenomenon might also exhibit underlying influences on one's psychological well-being. The question remains if the effects anemoia could potentially have can be contrasted to those of conventional nostalgia or if they are fundamentally different in nature. Therefore, the current lack of research on this topic has led us to investigate the potential relation between the types of nostalgia (nostalgia vs anemoia) on one's current mood state, as well as a potential moderating role of loneliness in this process.

Mood

Mood is synonymous with affect, representing the subjective feelings or momentary emotional states of an individual in a particular moment, such as anxiety or happiness (Oxford Reference, 2023). Reciprocal feedback from interactions or occurrences in our environment can cause fluctuations to our mood state (Bennett et al., 2022), even in the absence of a discernible cause for the change (Terry et al., 2021). The dynamic concept of mood brings about alterations in cognition, behaviour and evaluation of experiences (Oxford Reference, 2023), rendering it central in various aspects of experience. For example, constructs such as self-evaluation can fluctuate in their expression due to specific mood states, in turn influencing mood as well. This might invoke a cascade of reinforcements (Oetken et al., 2017), potentially contributing to the development of mental illnesses, such as eating disorders (Bian et al., 2021) or smoking behaviour (Pavlović & Zezelj, 2017).

Aside from the two-sided reinforcements of mood and other factors, there are also other elements that tend to influence mood even more directly. In its most basic form, weather (Drápal & Pina-Sánchez, 2019) sleep (Hill et al., 1996) and hormones (Mueller, 2013) are common factors known to affect mood. Also, stress is considered one of the most commonly associated factors inducing a negative mood, with chronic stress in adolescence even predicting stable negative mood patterns in adulthood (Smith, 2013). Emotions are directly linked to mood changes, with sadness triggered by an external event (e.g., movies) often leading to a bad mood and amusing circumstances bringing about a good mood (Kirchsteiger et al., 2006).

The impact mood can have on our general well-being therefore becomes quite apparent and needs to be considered for a multitude of instances. It is therefore interesting to consider the role of nostalgia, which we did in our study.

Nostalgia

The concurrent definition of nostalgia has swayed from its original interpretation of some sort of disease (Routledge et al., 2013) to a description that defines it as "a sentimental longing or wistful affection for the past" (The New Oxford Dictionary of English, 1998, p. 1266). Nostalgia has been suggested to occur as frequently as once or twice a week (Leunissen et al., 2021), with some experiencing it approximately three to four times a week (Wildschut et al., 2006). This suggests that nostalgia might be considered a normal aspect of human experience that spans widely across age groups and cultures (Leunissen et al., 2021). Common themes during nostalgic recall are the self as a central figure, significant occasions or circumstances (e.g., birth of one's child), and interactions with people in our immediate social environment (Wildschut et al., 2006). And indeed, most people describe nostalgia to strengthen current or past interpersonal relationships due to this very characteristic (Wildschut et al., 2006).

These self-centred and socially-relevant experiences are emotionally valenced and might serve as a maintaining factor to psychological well-being (Leunissen et al., 2021) as well as a re-establishing agent of well-being (Sedikides & Wildschut, 2018). That is, it can get triggered by positive as well as negative affective states (Stefaniak et al., 2022) and is predominantly regarded as a positive phenomenon, even though some people's nostalgia are not inherently positive (e.g., reminders of loss or distress; Wildschut et al., 2006). Furthermore, Hepper et al. (2021) generally found that nostalgia prone individuals expressed better mental health than their non-nostalgic counterparts. Additionally, some long-term benefits include heightened stress-thresholds and higher perceptions of meaning (Sedikides & Wildschut, 2018). One perspective offered in regards to this largely positive or "bittersweet" outlook on nostalgia concerns "filtering mechanisms". That is, negative feelings in regards to

one's past (e.g., failures, abandonments) might get "filtered" over time to be able to consider one's momentary standpoint as "having turned out for the best" (Stefaniak et al., 2022).

These positive long-term developments often underlie the stabilisation of mood over time. As mood is a momentary affective state, it can generate long term mood patterns and ultimately predict meaning in life (Hicks & King, 2009), suggesting an interplay between mood and nostalgia. Therefore, we suspected that nostalgia would generally lead to mood enhancements, as it seems nostalgia is mainly regarded as a positive phenomenon, with interconnections with well-being and far-reaching implications that must be taken into consideration.

Anemoia

While nostalgia specifically refers to events that we experienced in the past, it is also feasible for us to become nostalgic about things that have not happened - a phenomenon predominantly termed "anemoia" (for illustrative purposes see Ronan, 2019). The scarce and subjective non-scientific accounts that have been made on anemoia include the longing for a time (e.g., the 70s), a place (e.g., foreign country one has never visited) or a person (e.g., protagonist in a movie), despite the fact that there were no apparent autobiographical narratives to any of these yearnings. Yet to our knowledge, anemoia has not been studied empirically, despite the growing interest in nostalgia as a whole. Thus, under which circumstances anemoia arises and how it is emotionally expressed has remained completely unexplored.

It seems plausible that anemoia both overlaps and differs from nostalgia in a few key ways. The definition of anemoia alone appears to stand in stark contrast to nostalgia, which depends on the reminiscence of past memories and therefore on actual encounters with the content of our recollection. One could therefore argue that the absence of specific autobiographical experiences induces longing that is fundamentally different from the

longing experienced through nostalgia, potentially simply representing desires for something to be different.

On the other hand, nostalgia and anemoia could also be inherently related for four reasons. First, one could assume both are in that sense related exactly because they can trigger a nostalgia-specific longing for something which is not here in the present, which might feel the same way in both forms of nostalgia. Second, themes arising during episodes of anemoia might also induce a certain mood, potentially leading to inflations of positive (or possibly negative) affect, as is the case with nostalgia (e.g., Faul & De Brigard, 2022). Third, and specifically related to the point mentioned beforehand, anemoic feelings (referred to in this paper as opposed to nostalgic feelings) might give rise to or could be created by nostalgia itself, possibly transitioning from real experiences to wishful thinking or vice versa. This could well be the case for people who frequently reminisce to escape reality or boredom after having contemplated one's past experiences. Thus, lastly, the same reason that could trigger nostalgia (e.g., negative affect) might also be responsible for feelings of anemoia, even if it is not applicable for the same purpose (e.g., reconnecting with people).

Therefore, because of the ubiquitous nature of nostalgia and its varied representations in individuals, we hypothesised a close interplay between nostalgia and anemoia. Due to the mainly positive outcomes of nostalgic recollections (e.g., Leunissen et al., 2021), we therefore expected anemoia to exert the same influence. Our cumulative speculations about the presumably shared influence led to the first hypothesis that nostalgia and anemoia can positively affect mood. As there is a vast variety of possible influences of nostalgia on mood, pinpointing its effects remains complicated because nostalgia occurs on an individual trait-level, capturing personal tendencies to interpret nostalgia as either good, bad, or indifferent (Hepper et al., 2021). It is interesting to investigate whether this applies to anemoia as well.

In that regard, one of those influencing factors has been proposed to be one's current state of loneliness (e.g., Routledge et al., 2013).

Loneliness

Humans are by nature inclined to form interpersonal relationships, ultimately constructing multidimensional emotional attachments (Djalovski et al., 2021). If one perceives not only the absence of intimacy and social bonds but also the presence of unsatisfactory companionship, feelings of loneliness can arise. This construct comprises feelings of inadequacy and deprives people of the feeling of belongingness (Pourriyahi et al., 2021). Major life events are one of the responsible factors in the development and maintenance of feelings of loneliness by introducing drastic alterations in one's life (e.g., bereavement; Reiland et al., 2021). Once established, loneliness can dictate the course and severity of various types of occurrences. For example, individual perceptions of loneliness might strengthen the bond between good sleep and general well-being (Philbrook & Macdonald-Gagnon, 2021).

Therefore, loneliness as an emotional construct is highly interrelated with mood, mutually influencing the occurrence of the other (e.g., reciprocal relationship between loneliness and depressed mood; Vanhalst et al., 2012). One study found that perception of loneliness and restricted social networks independently impacted mood and well-being (Narendran et al., 2023). More generally, loneliness has been shown to elicit a plethora of different mood states mainly negative in nature, including overall dissatisfaction (Rubenstein et al., 1979) and unhappiness (Coşan, 2014).

However, not only was loneliness found to be one of the most commonly mentioned states that would elicit nostalgia (Wildschut et al., 2006), its interplay mostly has quite the contrary effect, often eliciting rather adaptive responses. Nevertheless, the degree to which it could actually benefit well-being highly depends on personal characteristics (Garrido, 2018).

That is, people high in state-depression or those who exhibit flawed coping mechanisms (both being potentially influenced by loneliness; Nitin et al., 2014) might not benefit from nostalgia as much as their healthy counterparts (Garrido, 2018). However, as has already been mentioned, nostalgic reminiscing often includes recall of either past or current interpersonal relationships, providing access to potentially strong memories of belongingness and social interactions (Abeyta & Juhl, 2022). Once established, it might function as a negative mood repair by explicitly incorporating past moments of belongingness that could mentally reconnect people in times of solitude, counteracting negative feelings (Wildschut et al., 2006). That is, people high in loneliness might benefit from nostalgic dwellings, as it could remind them of times of connectedness, thereby easing negative connotations of loneliness itself. Anemoia could exert a similar influence by temporarily offering people another (perhaps better) version of reality that distracts them from their hopeless state that is often accompanied by loneliness (Pehlivan et al., 2012). Thus, the desire to reconnect in one's definite memories or constructed fantasies might be dominant over fantasising of what could be different or perfect. On the other hand, people low in loneliness might not be in need of this re-connecting property, as they are presumably already connected in real life (given the definition of loneliness). Instead, they might be focusing on the nuance that nostalgic memories are in the past and gone - a feeling often described to be negative (Iyer & Jetten, 2011). As they do not have to compensate for hopelessness associated with loneliness, their attention might be drawn to the general nuance of anemoia that reality could be different (or better), which might in turn elicit negative emotions in regards to how one perceives the life one currently has.

This interplay led us to question the direct impact of loneliness as a moderating variable. Thus, we predicted that for people scoring high in loneliness, both nostalgia and

anemoia would increase mood. Contrarily, for people low in loneliness, we predicted nostalgia and anemoia to decrease mood.

The Present Research

Summing up, for our research study we predicted that both nostalgia and anemoia will lead to increased mood, but that the magnitude of influence will depend on the degree of loneliness participants experience. More specifically, we expected that for people high in loneliness, mood would increase, whereas it would decrease for people low in loneliness.

We believe the present research adds to the literature in two important ways. First, while mood and loneliness are also independently targeted in interventions and treatments (e.g., Lim et al., 2020), nostalgia might function as a potential protective factor for a selective number of people. Pinpointing the exact outcomes of nostalgic rumination, however, has been comparatively hard, as it has been shown to highly depend on personal characteristics that are variable across people (Hepper et al., 2021). It therefore largely remains unknown which characteristics could help identify people that would benefit most from nostalgia. With this research, we specifically target one of the potential characteristics that might lead to fluctuations in its expression, namely loneliness. Second, it introduces the phenomenon of anemoia into the research field, potentially putting forward a concept that might be highly influential in ways that have previously been left unattended. In close regard to the aforementioned point, anemoia as an unknown construct might exert additional emotional interferences previously overlooked, potentially capturing an immensely influential factor in the initiation and maintenance of mood states. To establish a starting point for future research, we conducted this study to seek out possible effects of anemoia in close interplay with loneliness in a cohort of non-clinical participants. We hope that with the establishment of anemoic influences, future social as well as clinical research could further demonstrate the role anemoia and nostalgia play in the development and/or maintenance of (mal)adaptive

mood, coping mechanisms, depressive symptoms, etc. The most prominent relevance, thus, concerns the clinical applicability as well as the social implications of such (potentially) ubiquitous concepts.

Method

Participants & Design

Participants

Our initial data set consisted of 164 cases. Due to incompletion of the questionnaires, we removed 63 participants. To approximately ensure validity of the answers, we considered a data set to be "incomplete" when participants did not reach the seriousness check at the end of the study. Out of these, only 6 participants reached the manipulation and 1 filled out some of the questionnaire items of the DV. The rest (N = 56) either did not get past the moderator questionnaires or left without having answered anything. Of the remaining 101 participants, 1 indicated that they did not take part seriously on the seriousness check, leading to exclusion as well. Finally, 15 people were removed because they spent less than 30 seconds on the explanation of the manipulation and the screen of the manipulation itself (9 in the control condition, 4 in the nostalgia condition, 2 in the anemoia condition). We chose 30 seconds as a cut-off because we assumed this would be the time needed to read through the instructions, think about a scenario, and write it down. Ultimately, we were left with 85 cases within our dataset (51 women, 31 men, 2 who chose the option "other", and 1 who chose not to share this information). The remaining eligible participants had an age range between 18 and 60 with a mean of M = 28.09 (SD = 11.37).

With this convenience sample, we made use of snowball sampling. Participants were further requested to share the study with people they know. There were no particular exclusion criteria that restricted participation in the study. This study received approval from the Ethics Committee of Psychology of the University of Groningen.

Design

For our study, we implemented a between-subjects design that incorporated one independent variable (IV) with three levels, namely a (1) nostalgia condition, (2) an anemoia

condition and (3) a control condition. The moderating variable in this study design was loneliness (M) and the dependent variable was mood (DV). Participants were randomly assigned to either of the three conditions of the IV. It has to be noted that this study was part of a bigger project that comprised other variables (Appendix, Table 1), which will not be discussed in detail here.

Materials & Procedure

The researchers of this project made use of the survey tool of the Qualtrics software (Qualtrics, Provo, UT, 2023). Before starting the official survey, participants had to fill out informed consent that also contained our cover story meant to conceal the true aim of our study. Namely, we informed participants our aim was to investigate how people think about their past and present, and which psychological variables might influence this.

Measurement of Loneliness

After having completed the initial steps, participants were asked to fill out a subset of questions derived from the UCLA Loneliness Scale (Russel et al., 1978) ($\alpha = .86$). The original 20-item UCLA scale is intended to measure one's perceived loneliness and social isolation. Because the questionnaire should be short and the study needed to be launched, 8 questions were individually picked to adequately capture the construct of loneliness as intended for the study's purpose. Participants had to rate each item on a 4-point scale, including answer options ranging from "I never feel this way" to "I always feel this way". Included in this selection were questions such as: "People are around me but not with me". An overview of all of the questions used can be found in the Appendix (Table 2).

Manipulation

In order to induce subjective feelings of either nostalgia or anemoia, we made use of the Event Reflection Task (ERT) (e.g., Sedikides & Wildschut, 2016). This task is intended to have people deliberately reflect on a nostalgic memory, while participants in the control

condition are required to reflect on an ordinary event. With our study, we added the novel aspect of inducing anemoia with this task. The individual memory one reflected about had then to be written down in a few sentences. However, to ensure that the participants' information remained confidential, we informed participants not to mention personal or sensitive information. Due to the fundamentally different manifestations of the conditions, the instructions given in each differed to adapt the specific demands of the phenomenon.

Nostalgia Condition. In order to induce nostalgia in the participants using the ERT, we instructed them to think about a memory they were highly nostalgic about and offered them childhood memories and family vacations as possible starting points or inspirations for their story. As they were generally instructed to engage with the task as much as they would like, we consequently asked participants to briefly describe the memory they brought up.

Anemoia Condition. Because anemoia has not previously been used for the ERT, we aimed to write a description that would adequately capture anemoia for the participants that were most likely unaware of the specifics of this phenomenon. Due to the ambiguous nature of anemoia, we deliberately asked participants to think about something that makes them nostalgic even though they have not in reality experienced it. To clear possible misconceptions, we described the possible longing for the 70s even when one was born long after this time period, or longing for a specific country without having set foot into it. Here again, participants were requested to briefly describe what they have thought about.

Control Condition. For the control condition, a neutral task description was used in line with the common approach of the ERT. That is, we asked participants to briefly describe an ordinary event that they encounter rather frequently, such as their morning routine or their way to work.

Manipulation Check

To get an indication whether or not the task affected the participants in the desired way, we implemented a manipulation check. To cover potential indicators for the aim of the study, we told participants we wanted to inquire if certain mood states applied to them, given that they are presumably frequently triggered during the ERT. The three items consisted of (1) “Right now, I’m feeling quite relaxed”, (2) “Right now, I’m feeling quite nostalgic”, and (3) “I felt bored and had trouble focusing” and had to be answered on a 5-point scale, ranging from “strongly disagree” to “strongly agree”. Item 2 was used as our manipulation check, as we could then monitor if the ERT manipulation of the nostalgia/anemoia conditions worked on the participants. Optimally, people in the nostalgia conditions would indicate that they feel nostalgic to some degree, whereas people in the control condition would not present an extreme mood following the basic writing task beforehand. Because we also used the word “nostalgia” in the instructions of the anemoia conditions, we also expected participants in this condition to score higher on the check.

Measurement of Mood

To test which mood participants were in following the manipulation, we implemented the Scale of Positive and Negative Experiences (SPANE) ($\alpha = .73$). This 12-item scale was used to pinpoint how an individual felt in that specific moment, implementing a 5-point scale, again ranging from “strongly disagree” to “strongly agree”. The SPANE contains items for positive (SPANE-P) as well as negative feelings (SPANE-N). We used the negative items as reverse coded items and took the average of the combined 12 scores. This yielded the overall affect balance (SPANE-B) score of each participant. The questionnaire contains items such as “contented” in the positive mood set and “unpleasant” in the negative mood set (Diener et al., 2010). A complete overview of all the items can be found in the Appendix (Table 3).

Seriousness Check and Debriefing

At the very end of the study, participants had to indicate their age and gender. Furthermore, we inquired if they took the study seriously and answered to the best of their capabilities. Finally, we offered the participants a debrief about the true aim of the study.

Results

Assumptions

The data were analysed using SPSS Statistics software (Version 28) and PROCESS (Hayes, 2013). When testing for normality of the sample, we found some slight abnormalities. The skewness of nostalgia was found to be -.84, indicating that the distribution was slightly left-skewed. The same implication was found for anemoia (-.40). Slight deviations in kurtosis were also found for both nostalgia (1.83) and anemoia (-.74). For the progression of the study, we considered scores between -2/+2 not to necessitate intervention and continued with the analysis in line with recommendations by George & Mallery (2010). All other assumptions were met and the analysis progressed as planned.

Manipulation Check

In order to ensure our manipulation would elicit the types of nostalgia we intended, we included a manipulation check. We ran a univariate ANOVA that included the manipulation as the independent variable and the manipulation check item as the dependent variable, in which we specifically asked participants to state how nostalgic they were feeling. In line with our expectations, participants in the nostalgia (M = 3.10, SD = 1.21) as well as the anemoia (M = 3.03, SD = 1.26) condition scored higher on our manipulation check than people in the control condition (M = 2.71, SD = 1.16). The final analysis revealed, however, that the effect was not significant, $F(2,82) = .77$, $p = .46$. This suggests that our manipulation was not fully effective and our findings below should be interpreted with some caution.

Hypothesis Tests

In our research model, we hypothesised that (1) nostalgia and anemoia positively affect mood and that (2) people scoring high on loneliness will experience increased mood after induction of nostalgic or anemoic feelings, while for people low in loneliness, nostalgia and anemoia would decrease mood. To test our hypotheses, we ran a regression analysis with

our manipulation as the independent variable, mood as the dependent variable, and loneliness as the moderator, using the PROCESS macro for the analysis (Hayes, 2013).

In line with our expectations for our first hypothesis, we found that people in the nostalgia (M = 3.90, SD = .60) and the anemoia condition (M = 3.89, SD = .64) reported a higher mood than those sorted into the control condition (M = 3.61, SD = .80). Nonetheless, the effect was not significant for nostalgia ($t(84) = 1.15$, $p = .25$) or anemoia ($t(84) = 1.65$, $p = .10$), thus not supporting our first hypothesis.

The main effect of the moderator loneliness was negatively associated with mood ($t(84) = -1.79$, $p = .08$), thus indicating that people reporting more loneliness also reported a less positive mood. We then tested for the interaction effect between nostalgia and loneliness ($t(84) = -.75$, $p = .46$) and anemoia and loneliness ($t(84) = -.43$, $p = .67$), both of which were not significant. This already indicated that loneliness does not moderate the relationship between nostalgia/anemoia and mood.

For our second hypothesis regarding people high in loneliness, mood did not increase after induction of both nostalgia ($t(84) = .26$), $p = .80$) or anemoia ($t(84) = .89$, $p = .38$), thereby not supporting our hypothesis. Thus, it appears that for people scoring high on loneliness, nostalgia and anemoia do not necessarily alter mood in any given direction. No fundamental conclusion can be drawn based on these findings, however, as the data were not significant. Contrary to what we initially predicted for people scoring low on loneliness, data indicated that nostalgia ($t(84) = 1.34$, $p = .18$) as well as anemoia ($t(84) = 1.39$, $p = .17$) increased mood. While not significant, there appears to be a pattern that could suggest that both nostalgia and anemoia might increase mood for those low in loneliness.

Discussion

In the present research, we focused on nostalgia, as well as the unique concept of anemoia (feelings of nostalgia for something one has not experienced), predicting that both would lead to increases in mood. Additionally, we looked at the moderating effect of loneliness and presumed that people low in loneliness would experience decreases in mood when experiencing nostalgia/anemoia, whereas people high in loneliness would experience mood increases. In line with our first prediction, both nostalgia and anemoia led to subjective increases in mood, however, the effect was not significant for either. Additionally, we did not find evidence that people scoring high in loneliness would benefit from feelings of nostalgia/anemoia, with only slightly positive and insignificant mood fluctuations that were close to zero. Contrary to our initial prediction, people scoring low in loneliness experienced non-significant increases in their mood. Thus, our moderator hypothesis yielded merely insignificant results and did not support our initial predictions.

Unsurprisingly, feelings of nostalgia led to increases in mood, which is in line with former research showing that people with inclinations to nostalgic feelings ultimately expressed a better mental health than less nostalgic people (e.g., Hepper et al., 2021). The fact that we also found anemoia to exert the same effect might then underline our initial assumption that both types share common characteristics that would lead to a similar outcome. More surprising have been the results in regard to our moderator. Contrary to the mood-repairing properties presumed to work for people high in loneliness by re-connecting them through nostalgic reminiscing (Wildschut et al., 2006), this mechanism might not be as influential as initially thought. Further, the findings point to increases in mood for people low in loneliness, which might connect well with research that hints at the mainly positive connotation of nostalgia in general (e.g., Leunissen et al., 2021), irrespective of feelings of loneliness.

Explanation for the Findings

There are several possible explanations for our findings, five of which will be highlighted here. First, our manipulation check indicated that people in the nostalgia and anemoia condition did experience more nostalgia than people in the control condition. However, this effect was not significant and therefore our manipulation did not work as intended. One reason for this might have been the informal inclusion criteria of needing sufficient language capabilities, as the study was completely in English. Within the study, however, no measure was implemented that would assess individual language proficiency and was assumed to be considered by participants beforehand. Yet when people are not as proficient in a specific language, the way they respond to material can be fundamentally different. That is, most people indicated not to feel as engaged or emotional in different languages (Dewaele & Nakano, 2013). This could have distorted the results as some participants might have not been as comfortable expressing themselves in English as in their native language, making it difficult to properly indulge in the manipulation. It has to be mentioned, however, that we provided the participants with examples in each condition that might have aided their understanding at least to some degree. Still, it is therefore possible that the results we found only partly reflect the real effects, however, we were unable to measure them more concretely.

Second, the Event Reflection Task (ERT) is generally validated for inducing nostalgia and has not yet been established to induce anemoia - mainly for the reason that this concept has formerly been empirically unexplored. By implementing a non-validated manipulation for anemoia, we cannot be entirely sure if it is as beneficial to straightforwardly ask participants to indulge in anemoic thinking as it is for nostalgia. However, as we still found the same results for the nostalgia and anemoia condition, we could assume that the manipulation could at least be partly useful for inductions of anemoia (if not entirely). Still,

the ERT or an entirely new measure for anemoia should be established or refined to draw more meaningful conclusions on the influence of anemoia.

Third, the fact that both nostalgia and anemoia seemed to lead to increases in mood could generally reflect similar effects during their occurrence. Anemoia might also incorporate interpersonal aspects or (altered) autobiographical memories into anemoic thinking, aspects that have generally been linked to exert positive influences during nostalgic reminiscing (e.g., Wildschut et al., 2006). Additionally, anemoia might also reflect some form of "escape from reality", in which the individual can deliberately project themselves into situations that have not happened but that might be entertaining or offer distraction from daily hassles. Thus, although the findings were not significant, the enhanced mood of participants might potentially reflect some sort of coping mechanism for both types of nostalgia.

Fourth, the mood-repairing factor of nostalgia might not have been as beneficial for people high in loneliness as initially predicted and formerly hinted at in other studies (e.g., Wildschut et al., 2006). When people experience high amounts of loneliness, feelings of inadequacy or the perception of unsatisfactory friendships might be present (Pourriyahi et al., 2021). Consequently, these kinds of factors might still interfere with nostalgias' potential for "mental re-connection", as it might not be sufficiently capable to counteract the negative feelings associated with loneliness. Possibly, they are preoccupied with their negative feelings of loneliness itself or the potential consequences associated with it (e.g., depressed mood; Vanhalst et al., 2012), ultimately not benefiting from nostalgic/anemoic reminiscing.

Lastly, we even found the reverse effect of people low in loneliness benefiting the most from inductions of both anemoia and nostalgia. That is, as the relative absence of loneliness is often a sign someone experiences intimacy and belongingness through their social bonds (Pourriyahi et al., 2021), the positive influence of nostalgia and anemoia on

mood might therefore not depend on the social aspect entirely (i.e., belonging). That is, people low in loneliness might still benefit from the "imaginative" social re-connection despite being connected "in real life" anyways (as opposed to feelings of connection in their reminiscing or wishful thinking) or benefit from other factors arising due to nostalgic or anemoic feelings altogether. Compared to their high-loneliness counterparts, they might focus on fundamentally different aspects that lead to subjective mood increases (e.g., their pet, a positive self-centred memory). Generally, the trends found for people low in loneliness could reflect that positive influences of nostalgia might not be uncommon, potentially even including anemoic feelings as a mood-enhancing entity. However, the findings remain mixed, as other studies generally found that nostalgia could even inflate the negative connotations of loneliness, ultimately worsening well-being (e.g., Newman & Sachs, 2020). The potential underlying factors to the corresponding reaction to nostalgia and anemoia might then indeed be personal characteristics or circumstances (e.g., Hepper et al., 2021).

However, these assumptions need to be regarded with caution. As the findings in this paper have been insignificant, we cannot draw proper conclusions about potential effects that might or might not have been revealed in this study. Still, we can assume that both forms of nostalgia can influence mood, presumably positively. Also, it appears that they could be beneficial for people experiencing differing degrees of loneliness, with people low in loneliness exhibiting the most elevations in mood. What needs to be highlighted is that anemoia tends to exert its influence in the same direction as nostalgia, which might reflect common manifestations and/or the same feelings that are elicited during nostalgic reminiscing.

Limitations

Naturally, there are a number of limitations in our study, three of which will be addressed here. First, as the study was dependent on participants sought by the researchers,

we made use of a convenience sample. Additionally, as the achieved sample size was insufficiently small ($N = 85$), the results were unrepresentative and could not be generalised. This limitation could easily be overcome by making use of an enlarged participant pool and probability sampling.

Second, another kind of manipulation previously considered as a nostalgia enhancing factor was music. Several lines of research have shown that nostalgia's effects on well-being can be positively directed by music (Gibbs & Egermann, 2021). After long consideration, this would have complicated the process of the study considerably for three reasons. (1) Not everyone might be affected by music the same way. (2) It might have distorted the differences between the individual effects of both kinds of nostalgia. (3) To uphold the same structure in every condition, we would have needed to offer it to participants in the control condition as well, possibly interfering with their expected "neutral" mood. Therefore, we chose not to include music and merely focused on the ERT, as it has repeatedly been shown to successfully induce nostalgia. However, in a more elaborate study, this component could most definitely be implemented in addition to the ERT, as it could possibly enhance the effect nostalgia and anemoia could have.

Third, for our manipulation check, we only asked participants to rate their momentary degree of nostalgia without offering the same option for anemoia. Therefore, we cannot be sure if the manipulation check accurately reflected the effect the anemoia condition had or if they might not have labelled their feeling as "regular" nostalgia. However, as we described anemoia as another form of nostalgia when introducing the concept in the manipulation, one could still assume that the check did work for people in the anemoia condition. Still, by implementing a manipulation check item that properly reflects the construct of anemoia, one could be more confident about the effects of the manipulation.

Future Research

Future research could focus on multiple aspects in regard to both types of nostalgia and anemoia more specifically, four of which will be discussed here. First, it would be informative to know how prevalent anemoia is compared to the frequent experience of nostalgia itself. This would generally demonstrate if this was another intervening and/or mood-enhancing factor for people with various characteristics (e.g., depression). Second, the central question remains how anemoia arises and by which circumstances it is specifically triggered by, as well as the feelings people experiencing anemoia ascribe to this phenomenon (e.g., similarly to the common description of nostalgia as "bittersweet"). Third, it would be interesting to see which individual characteristics would most closely predict the occurrence and its individual outcome of nostalgia and anemoia (e.g., daydreaming). Fourth, it still needs to be considered how nostalgia and anemoia differ from each other and how it specifically relates to nostalgia itself. A starting point could be to investigate if similar effects found in this study can be replicated in future studies.

Additionally, our study findings also have a practical implication. In more general terms, it further needs to be addressed how both anemoia and nostalgia can affect people in the long term and not in a momentary instance. If it turns out to be beneficial, it might be helpful in intervention programs. Generally, it was established that "nostalgizing" might be highly beneficial for long-term outcomes on mental health. That is, by incorporating nostalgia or anemoia exercises into positive psychology intervention programs, one could aid patients in developing personal resources with which they could counteract negative affect (Layous & Kurtz, 2023). When deliberately practising nostalgic and/or anemoic thinking over time, people might be able to fall back on it when coping with a stressful situation. If the effects for anemoia are established to exert influence in the same direction as nostalgia, as is hinted at

with this study, intervention programs could incorporate both of these constructs to aid people enrich their mental resources.

Conclusion

In sum, with this study we explored the unique phenomenon of anemoia and measured both their influence on mood and their relative strength to alter mood depending on someone's degree of loneliness. Results indicated a positive relationship of both types of nostalgia with mood. Furthermore, people low in feelings of loneliness experienced mood increases from inductions of both nostalgia and anemoia, with no changes in mood for people high in loneliness. Although the findings were generally not significant, this current research proposes anemoia as a unique new phenomenon that seemingly tends to enhance mood as much as its nostalgic counterpart, possibly reconnecting individuals through mechanisms yet unknown. The mood-enhancing properties might be highly advantageous for a plethora of negative mood states or psychological disorders, the specifics of which yet have to be discovered. High levels of loneliness and its proposed connection to nostalgia has not been adequately found to be a beneficial prerequisite for elevated mood. Thus, much can be learned about the interplay of these concepts and mood, possibly exerting positive underlying influences that might be able to shift mood patterns over time. Without elaborate and large-scale studies, the findings remain ambiguous.

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Appendix

Table 1

Overview of variables within the whole project.

Loneliness (present paper) (M)
Creativity (M)
Optimism (M)
Resilience (M)
Spirituality (M)
Mood (present paper) (DV)
Meaning in life (DV)

Table 2

Overview of items used from the UCLA Loneliness Scale.

5. I feel as if nobody really understands me
6. I find myself waiting for people to call or write
7. There is no one I can turn to
11. I feel completely alone
12. I am unable to reach out and communicate with those around me
15. No one really knows me well
18. It is difficult for me to make friends
20. People are around me but not with me

Table 3

Overview of items used from the SPANE.

Positive feelings	Positive
	Good
	Pleasant
	Joy
	Happy
	Contented
Negative feelings	Negative
	Bad
	Unpleasant
	Sad
	Afraid
	Angry