

**The Moderating Role of Resilience in the Effect of Anemoia on Mood**

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PSB3E-BT15: Bachelor Thesis

Group number 23

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June 25, 2023

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### **Abstract**

This paper examines the impact of experiencing anemoia, a form of nostalgia for times and places one has never known, on mood and the moderating role of resilience. While the effect of nostalgia on mood has been extensively studied, the effect that anemoia has on mood has not been empirically studied before. We argue in this paper that anemoia will have a positive or negative effect on mood, depending on one's level of resilience. Our study consisted of 85 participants who had to fill out an online survey using Qualtrics, where they were randomly assigned to one out of three conditions: control, nostalgia and anemoia. We used an altered version of the Event Reflection Task to evoke both nostalgia and anemoia. The findings did not indicate the moderating effect of resilience that we thought it would have. We did find a main effect of nostalgia on mood, but this was not significant. The lack of significance throughout the results could be attributed to the low statistical power of the study. It's hard to draw definitive conclusions on the basis of our findings, seeing as though there were no significant effects. However, what we can conclude is the fact that nostalgia and specifically anemoia are complex emotions that warrant further investigation.

*Keywords:* Anemoia, nostalgia, resilience, mood

### **The Moderating Role of Resilience in the Effect of Anemoia on Mood**

Nostalgia, typically characterized as a positive emotion tinged with feelings of loss (Johnson-Laird & Oatley, 1989), has been studied extensively. The research that has been done on nostalgia shows it to be a powerful emotion that can generate positive affect, strengthen social bonds and even combat loneliness (Wildschut et al., 2006). Nostalgia also has been shown to have a positive effect on someone's mood (Leunissen et al., 2021).

While current literature has mainly focused on the bittersweet feeling associated with reminiscing about personal experiences, there is another version of nostalgia that is about times and places one has never known. This variation of nostalgia is known as anemoia (Nieland et al., 2022). Anemoia is a relatively novel concept in psychology and not a lot of research has been conducted on this form of nostalgia and the effect it has on mood. Investigating the impact of anemoia on mood seems highly relevant because on the surface, it seems unclear whether it would produce similarly positive effects as nostalgia. On the one hand, the person could feel positive emotions when indulging in imaginative thoughts about a different setting or situation. On the other hand, they could also feel a sense of sadness because anemoia presents them with an idealized situation that is different from their current reality. Because of this, it is unclear whether anemoia will produce similarly positive effects on mood as nostalgia does. In this paper, we argue that a person's resilience might be an important factor in determining whether anemoia elicits positive or negative emotions. Therefore, the aim of this study is to investigate the effect of experiencing nostalgia and anemoia on mood, and to what degree this is influenced by levels of resilience.

#### **Mood**

Mood is a psychological concept that is defined as a relatively long-lasting period of time in which someone tends to feel certain feelings and have thoughts that mirror these

feelings (Watson & Clark, 1997). Unlike emotions, which are more intense and short-lived, mood tends to persist for longer periods of time. In general, mood is divided into positive and negative affect; a positive mood or affect can lead to feeling happy, productive and more engaged in life. Negative affect can lead to feeling sad, angry or disconnected from life (Watson et al., 1998). Mood can have a significant impact on many aspects of our lives, it influences our decision-making, relationships and health (Sugawara & Sugie, 2021). Therefore, it is crucial to better understand the factors that influence mood.

There are many factors that affect our mood, of which we will mention four: sleep, stress, social interactions and emotions (Pemberton & Tyszkiewicz, 2016). Firstly, the amount and quality of someone's sleep has a large effect on mood. In a study done by Dinges et al (1997), people were limited to only 4,5 hours of sleep per night, they reported feeling angry, stressed and mentally exhausted. When these people returned to their normal amount of sleep, their mood increased again. Secondly, according to the American Psychological Association (2022), people under stress experience symptoms such as anger, irritability and fatigue. Thirdly, research by Umberson and Montez (2010) points out that social interactions can negate the negative effects of stress, foster a sense of purpose and meaning in life and that a lack of social interaction can even lead to death. Fourthly, different emotions also affect our mood, we will mention two: gratitude and pride. Firstly, expressing and experiencing gratitude has been shown to boost happiness and make people feel more optimistic about their lives (Seligman et al., 2005; Emmons & McCullough, 2003). Secondly, pride leads people to experience feelings of self-worth and boosts our self-esteem (Tracy & Robins, 2007), which then leads them to experience more happiness (Orth et al., 2012). In addition to stress, sleep, social connections and emotions, nostalgia has also been shown to have an impact on our mood.

### **Nostalgia**

Nostalgia is characterized as a sentimental and bittersweet longing for the past, commonly centered around meaningful memories that have made an impact on one's life (Wildschut et al., 2006). Usually, nostalgia arises from negative affect, such as feelings of sadness or loneliness, and serves to counteract this loneliness by reminiscing about past experiences (Routledge et al., 2013). On average, people tend to experience nostalgia about once a week (Batcho, 1995; Wildschut et al., 2006). According to these same studies, people usually experience nostalgia as a bittersweet feeling that comes from the good feeling of reminiscing about a positive memory mixed with the negative feeling of knowing that one can never relive that moment. Although for most people, the positives outweigh the negative feelings.

Nostalgia is known to have this positive impact on a variety of variables, of which we will mention two. Firstly, because nostalgic narratives typically feature others that are close to us, nostalgia bolsters a sense of social connectedness by reminding us of important people in our lives (Sedikides & Wildschut, 2018). Secondly, because nostalgia is a primarily positive emotion and the self occupies a central role, nostalgia increases self-esteem and self-regard (Routledge et al., 2013).

Because of the positive impact that nostalgia has on people's self-esteem and sense of social connectedness, we predict that experiencing nostalgia will have an overall positive impact on mood. When people are experiencing negative emotions, recalling positive memories can shift these negative emotions to neutral, and in some cases even to positive ones (Jiang et al., 2021).

### **Anemoia**

While nostalgic narratives are based on autobiographical memories, it also seems possible to experience nostalgia for things we have not experienced ourselves (Ronan, 2019). This nostalgic feeling for things someone has not experienced is called anemoia. Anemoia is a

relatively new concept that refers to a nostalgic feeling regarding times or places that one has never known. For example, someone might experience anemoia for the culture and music of the 1970s, even though they were not alive during that era. To our knowledge, this specific form of nostalgia has not been studied empirically within psychology.

We believe anemoia is similar to nostalgia in two key ways. Firstly, we think anemoia and nostalgia are both forms of escapism, allowing us to escape the struggles of our current reality and think about a different scenario. Secondly, we think that anemoia and nostalgia are emotions that have both positive and negative effects, both provide a way of escaping from the current reality, but both emotions also challenge us with a scenario that we most likely won't be able to experience. However we also think anemoia differs from nostalgia in three crucial ways. Firstly, because of its non-autobiographical nature, we suspect that anemoia may not have the same positive impact on social connectedness and self-regard as it does not involve personal stories or significant others in our lives. Secondly, we think that the contrast between the current reality and the idealized scenario is less painful when experiencing nostalgia, because nostalgia shows us that we were capable of experiencing events like these, and therefore might be capable of experiencing similar events in the future as well. Thirdly, when experiencing nostalgia, people think about times in which they felt positive emotions and these memories usually have a positive impact on their mood (Wildschut et al., 2006). Anemoia is not about positive emotions that people have experienced themselves, it is only about the current positive emotion that people get from thinking about certain scenarios. We assume that this will lead anemoia to have a less positive effect on mood.

As mentioned above, there is very little research on the topic of anemoia, especially about the effect that it could have on one's mood. However, we hypothesize that anemoia can have a positive and negative effect on mood. On one hand, anemoia can be a nice escape from our everyday struggles by thinking about times long gone. On the other hand, it can also

emphasize the challenges we currently face and the fact that we will never be able to experience this idealized past that we daydream about. Crucially, we think the effect of anemoia on mood depends on a third factor: an individual's resilience.

### **Resilience**

Resilience is the concept that we think will define whether or not we experience anemoia as a positive or negative feeling. Resilience refers to the ability to overcome setbacks and cope with challenges while maintaining a positive outlook (Horn & Feder, 2018).

Research shows that individuals with high resilience are more likely to feel positive emotions and are less likely to have or develop anxiety or depression (Yi et al., 2020).

Resilience has been shown to increase positive affect, positive thinking and emotion regulation (Meredith et al., 2011). Because of this, we assume that resilience will also have a direct positive effect on mood. Also, nostalgia has been shown to increase resilience (Oba et al., 2016). However, to our knowledge, there is no empirical evidence about the effect that resilience has on nostalgia or anemoia.

When experiencing anemoia, we are confronted with a discrepancy between our idealized imaginary situation, and our current reality. When our current situation is not ideal and we realize that we will not be able to seek comfort in the imagined situation forever, we have to confront this challenge and find ways to move forward despite the gap between the idealized and current situation. We theorize that challenges like the one anemoia presents us with will be easier to overcome when an individual has high resilience, because resilience empowers people by equipping them with the ability to accept and adapt to a situation and move forward (Fletcher & Sarkar, 2013; Reid, 2016). We do not think that resilience will have the same effect on the relationship between nostalgia and mood, because nostalgia does not necessarily confront us with the discrepancy between the past we have not experienced and the current situation. As mentioned earlier, we think that the contrast that nostalgia

confronts us with is inherently less painful, because we are nostalgic about things we actually experienced and we can therefore assume that we will be able to experience similar events in the future. This is not the case for anemoia.

Therefore, our predictions are the following: For people who score high on resilience, anemoia will have a positive effect on mood. For people who score low on resilience, anemoia will have a less positive or even negative effect on mood. We do not think that resilience will moderate the relation between nostalgia and mood.

### **The present research**

To summarize our predictions: we think nostalgia will have a positive effect on mood, this has been shown by earlier research (Wildschut et al., 2006). We also think experiencing anemoia will lead to a positive experience in people who score high on resilience, whereas people with low resilience may experience anemoia as a less positive experience. We do suspect that experiencing anemoia will have a small positive effect on mood.

This study is relevant in three key ways. Firstly, it examines the relationship between anemoia and mood, with resilience as a moderating variable. A lot of research has been conducted on the effects of nostalgia on mood, but not on anemoia. Secondly, it studies resilience in a different context regarding nostalgia and anemoia; in this context, resilience is usually studied as the product of experiencing nostalgia, not as a moderator. Lastly, nostalgia and anemoia are experiences that a lot of people will encounter in their life (Batcho, 1995; Wildschut et al., 2006). Gaining an understanding of these emotions and how they influence our behavior and mood can give us insight into how people process and cope with past experiences and how these experiences shape their current and future behavior.

## **Method**

### **Participants**

To test our hypotheses, we conducted an online survey using Qualtrics and obtained a dataset of 164 cases. Of these 164 cases, we removed participants for three reasons: Firstly, we excluded 63 cases due to incomplete responses; we decided that any participant that did not get to the seriousness check at the end of the survey would be excluded. Almost all of these 63 cases were fully incomplete, not including answers to any of our questions. Only six of these participations got as far as our manipulation. Secondly, one participant was excluded for indicating that they did not participate seriously on our seriousness check. Thirdly, fifteen participants were removed because they spent less than 30 seconds on the screen of the manipulation. We selected the criterion of 30 seconds because we thought that this is the minimum amount of time that someone would need to read and process the given instructions.

Our final sample consisted of 85 participants (51 female, 31 male, 2 other, 1 preferred not to say). The participants' age ranged between 18 to 60 years old ( $M = 28.09$ ,  $SD = 11.37$ ). The sample was a convenience sample of people in our surroundings.

### **Design**

For this study, we used a between-subjects design with one independent variable, one moderator and a dependent variable. Our independent variable was the type of nostalgia, which consisted of three levels: control, nostalgia and anemoia. Participants were randomly assigned to one of these three conditions. The dependent variable was mood and the moderator variable was resilience. It should be noted that his study was part of a larger project that included additional variables which are not addressed in this paper.

### **Materials and procedure**

We made a survey using Qualtrics which participants could fill out online. The participant was first met with a short introduction of our study, an information sheet and an informed consent form. In the information sheet, we stated that we want to investigate

psychological variables that may influence how we perceive our past and present. We chose to give as little information as possible about our actual goal and subject to reduce demand characteristics.

### ***Resilience***

When the participants consented to participate in the study, they were met with a screen measuring our moderator, resilience ( $\alpha = .79$ ). To measure resilience, we made use of The Brief Resilience Scale (BRS) (Smith et al., 2008). Participants were asked to indicate how strongly they agree or disagree with six statements, using a 5-point Likert scale. Some example statements from the BRS are: 'I tend to bounce back quickly after hard times.' and 'It does not take me long to recover from a stressful event.'

### ***Manipulation***

After resilience was measured, the participants went on to our manipulation. Drawing inspiration from the Event Reflection Task (ERT) employed in several other studies (Wildschut et al., 2006; Iyer & Jetten, 2011; Newman et al., 2020), we developed our own set of instructions and also designed new instructions to manipulate anemoia, as this had not been done before. We introduced our manipulation by stating that we will ask the participants to recall and write about an experience they might have had and that they are free to share their thoughts but that they shouldn't write down identifying or detailed information. Here, they could be assigned to one of three different levels: control, nostalgia and anemoia. Firstly, people in the control condition were asked to think about an ordinary event they encounter frequently and to describe this event, following the normal procedure of the ERT. We asked them to think about something that they encounter frequently to minimize the chance that they think about something nostalgic. We gave two examples: a morning routine or their walking route to the supermarket. Secondly, people in the nostalgia condition were asked to think about a memory they feel highly nostalgic about, such as childhood memories or family

vacations. The manipulation for nostalgia also followed the standard procedure of the ERT. Thirdly, people in the anemoia condition were asked to think about something that makes them feel nostalgic without having experienced it, in this condition we gave the following two examples: a longing for the 70s even though they were not born at that time and a longing for a specific country without ever having been there. We tried to use the same wording and the same amount of examples in every condition to minimize the effects that different wording and more or less examples could have on the outcomes.

### ***Manipulation check***

After the manipulation, the participants were asked to what extent they feel relaxed, nostalgic and bored. Again, we made use of a 5-point Likert scale to measure this. In this section, the nostalgia question served as our manipulation check and the questions about relaxedness and boredom served as distractors. We added these distractors to give the participant as little information as possible on the actual goal of our study.

### ***Mood***

The last variable we measured was our dependent variable, mood ( $\alpha = 0.89$ ). To measure mood, we used the Scale of Positive and Negative Experience (SPANE) (Diener et al., 2010). Using a 5-point Likert scale, participants were asked to rate how often they experienced various states. The SPANE consists of six states measuring positive affect and six states measuring negative affect. Two examples of states that were measured are: angry and pleasant. To create our mood scale, we treated the measures of negative affect as reverse-coded items and calculated the average of participants' scores on all the items.

After measuring our dependent variable, we asked for the participants' gender and age, and asked them if they had taken part in the study seriously. Lastly, we debriefed participants by having them think of something that makes them feel joyous or hopeful, the

function of this debriefing was to negate any negative effects that our survey might have had on them.

## Results

To analyze our data, we made use of the program SPSS and the PROCESS macro (Hayes, 2013). In our dataset, all assumptions were met.

### Manipulation check

To test whether our manipulation worked the way we intended, an ANOVA was conducted with the manipulation serving as the independent variable and the manipulation check (where we asked people to what extent they were feeling nostalgia right now) as the dependent variable. The participants in the anemoia ( $M = 3.03, SD = 1.26$ ) and nostalgia ( $M = 3.10, SD = 1.21$ ) condition scored slightly higher than the participants in the control condition ( $M = 2.71, SD = 1.16$ ). However, this effect was not significant,  $F(2,82) = .77, p = .46$ . We expected a more pronounced and statistically significant difference between the conditions. As a result, our findings below should be interpreted with some caution.

### Main analysis

An analysis was conducted to evaluate our hypotheses that: a) nostalgia will have a positive effect on mood, and b) for individuals with high resilience, experiencing anemoia will have a positive effect on mood and for individuals with low resilience, anemoia will have a less positive or even negative effect on mood. We ran an analysis with our manipulation as the independent variable, mood as the dependent variable and resilience as the moderator. In line with our first hypothesis (a), we found that the participants in the nostalgia condition ( $M = 3.90, SD = .60$ ) reported a higher mood than those in the control condition ( $M = 3.61, SD = .80$ ). However, this effect was not significant,  $t(84) = 1.51, p = .13$ . Contrary to our second hypothesis (b), resilience did not moderate the relationship between anemoia and mood ( $t(84) = -.13, p = .89$ ). We did not have specific predictions about the following three results, they

have been added for the sake of completion. Firstly, Participants in the anemoia condition ( $M = 3.89$ ,  $SD = .64$ ) also displayed slightly higher levels of mood compared to the control condition, but this effect was not statistically significant either,  $t(84) = 1.71$ ,  $p = .09$ .

Secondly, resilience did not play a role in moderating the relationship between nostalgia and mood,  $t(84) = -.74$ ,  $p = .46$ . Lastly, we did not find a significant main effect of resilience on mood,  $t(84) = 1.23$ ,  $p = .22$ .

### **Discussion**

In this study, we formulated two hypotheses: a) nostalgia will have a positive effect on mood, and b) for individuals with high resilience, experiencing anemoia will have a positive effect on mood and for individuals with low resilience, anemoia will have a less positive or even negative effect on mood. Our results only partially supported hypothesis a, as the pattern of means was in the expected direction, but the effect was not significant. Additionally, we did not find evidence to support our second hypothesis; resilience did not moderate the relationship between anemoia and mood. The pattern that we found for the effect of nostalgia on mood is consistent with previous work about this relationship (Wildschut et al., 2006; Leunissen et al., 2021). However, it is surprising that the found pattern was not significant. Equally surprising was the lack of moderation of resilience on the relationship between anemoia and mood, as this contradicted our initial hypothesis.

There are a number of plausible explanations for our findings, we will mention three here. Firstly, because of our low sample size we might not have been able to garner sufficient statistical power to detect the hypothesized effect. This could explain the lack of significance for the effect of nostalgia on mood, and it could also explain why we did not manage to find a significant difference between the three conditions.

Secondly, the lack of significant effect between the different conditions could also be explained by the fact that our manipulation did not effectively induce nostalgia and anemoia

in the participants. If we were unable to evoke nostalgia or anemoia in the participants in a sufficient way, people in the control condition did not necessarily experience less nostalgia or anemoia than the people in their respective conditions. When we are not able to effectively evoke anemoia, it becomes a challenge to investigate the potential moderating role that resilience plays in the relationship between anemoia and mood.

Thirdly, it is also possible that the effects that we predicted genuinely do not exist. The lack of moderation effect might suggest that the relationship between resilience and anemoia is not as clear-cut as we initially thought. It could for example be the case that anemoia is inherently a positive emotion and individuals do not need resilience to cope with it, as it does not necessarily pose people with the challenge that we thought it would. It could also be that anemoia, as hypothesized, does confront individuals with the disparity between the idealized situation and current situation, but that resilience does not play a role in resolving this conflict.

On the basis of our findings, it is difficult to draw definitive conclusions about the effect of anemoia on mood and the moderating role resilience might play. However, we can conclude that nostalgia, and particularly anemoia, remain intricate and warrant further investigation.

### **Limitations**

The current study has several limitations, of which we will mention three. Firstly, a limitation of the study is the use of a convenience sample, this could introduce biases and limit the representativeness of our findings. For instance, the mean age of our sample was approximately 28 years old. According to research done by Turner and Stanley (2021), the older people get, the more they experience nostalgia. Therefore, our study could have captured less overall nostalgia compared to a study with a more representative sample. It remains unknown whether or not people also experience more anemoia as they grow older,

this might be an interesting question for future research. To avoid introducing biases, future studies should aim to obtain a sample which is more diverse and representative.

A second limitation is the fact that we made use of a manipulation for anemoia that was not validated by previous research. Although we based the manipulation on the ERT, which has been validated by other research (Wildschut et al., 2006; Iyer & Jetten, 2011; Newman et al., 2020), it has not been specifically validated for anemoia. Given the small sample size, we cannot be sure whether or not our manipulation for anemoia worked as intended. It would be beneficial for future studies to develop and test an event reflection task specifically for anemoia. This would make sure that a lack of effect is not due to a wrong manipulation. It is important to note here that we did use the ERT to manipulate nostalgia, and similarly, this did not lead to significant results. This might suggest that, as we mentioned above, these results might be due to the low statistical power.

Lastly, in our manipulation check, we asked the participant how nostalgic they were feeling at that moment. It might have been valuable to also include an assessment of anemoia, as we hypothesize that nostalgia and anemoia are distinct emotions. Introducing and explaining the concept of anemoia to participants would have posed a challenge for us, as anemoia is a relatively unknown concept. Of course, we did explain anemoia to the people that were assigned to the anemoia condition, but if we added an assessment of anemoia in our manipulation check, we would have had to explain the term to all participants. However, as awareness of anemoia grows, this challenge may become less difficult and future studies can incorporate measures of anemoia to better capture whether or not the anemoia manipulation works.

### **Future research**

The current study provides insight in the relationship between nostalgia, resilience and mood, it also introduces the concept of anemoia to the scientific psychological community.

There are however a few topics and areas for future research to expand on, we will mention two here. Firstly, we think it would help to enhance ecological validity by having participants fill out surveys once a day, spanning a few weeks or even longer. This would lead to a more accurate representation of these emotions and would make the findings more relevant. In such a scenario, anemoia would not need to be induced, but individuals would naturally report their existing experiences of anemoia.

Secondly, it is important to consider the possibility that the relationship between nostalgia, anemoia and mood is not as straightforward as we theorized in this paper. There may be individual differences or other factors which influence the relationship. Exploring other variables that might influence the relationship or investigating anemoia itself could prove valuable for future research. For example, future research could focus on how anemoia makes people feel, does it actually feel nice with a tinge of sadness like nostalgia? Or is it solely a positive emotion? When we know more about the way anemoia functions and what effect it has on mood, we can then delve deeper into potential variables that moderate this relationship.

### **Theoretical and practical implications**

We think it will be valuable to more extensively study anemoia, especially what effects it has on mood and what variables contribute to this effect. The current research builds a foundation for future research by comparing nostalgia and anemoia, raising important questions about anemoia particularly and developing and testing a way to evoke anemoia using the ERT.

As far as practical implications are concerned, we think that anemoia, like nostalgia, is a powerful emotion that can have a big impact on someone's mood. When used right, anemoia could even be used in psychological interventions. However, it is worth noting that we think using anemoia in psychological interventions requires extensive further research; we

believe that substantial progress needs to be made before interventions based on anemoia could become viable.

### **Conclusion**

In conclusion, this study examined the effect of nostalgia and anemoia on mood, with the moderating role of resilience. While our results only partially supported the hypotheses, this study contributes to the knowledge base and underscores the importance of continued research in this area. The key takeaway from this study is that anemoia is a complex and multifaceted emotion and that understanding the dynamics of anemoia could be beneficial and have important implications for bettering mood and eventually might even help develop psychological interventions.

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