

Incidental negative news exposure through Instagram: The effect on well-being.

Resilience as a potential moderator.

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Abstract

Background. Incidental negative news exposure shows tendencies to negatively influence a persons' well-being. Instagram is barely explored in that context. Resilience is known to act as a resource when facing challenging events. The aim of this study was to identify the effects of incidental negative news exposure through Instagram on well-being and to assess whether resilience acts as a moderator between incidental negative news exposure and well-being.

Method. Two conditions, experimental and control, have been assessed through a pre-and post-measurement. The experimental condition was exposed to incidental negative news. The MHC-SF form was used to assess participants' level of well-being and the resilience subscale of the Psychological Capital Questionnaire to measure participants' level of resilience. A paired t-test was applied to investigate for a decline in well-being. A moderation analysis was conducted with resilience as the moderator.

Results. A decline in well-being has been found for both conditions, with a slightly larger decrease in the experimental condition. The moderation analysis yielded a non-significant moderation effect of resilience and a non-significant effect of incidental negative news exposure on well-being. Resilience showed to influence well-being.

Discussion and conclusion. Although there was no clear evidence found for incidental negative news exposure negatively influencing well-being, a decline in well-being was still observable, regardless of the type of content. The decline in well-being might have been due to other factors, such as social comparison. The effects of news exposure through Instagram on well-being and resilience as a moderator should be further investigated.

Keywords: negative news, incidental negative news exposure, well-being, resilience, Instagram

Introduction

Studies which investigated the UK and US populations could determine a general increase of mental health problems over the last two years (Daly & Robinson, 2021; Daly et al., 2020). The World Health Organisation provides a concrete definition for mental health: “A state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community” (WHO, 2004, p 12). A person’s well-being can be dependent on specific conditions, such as the emotional state, how a person reacts to stress, or the impulses they feel (Gross et al., 2019). These conditions can control how a person feels and thinks. If a person fails to properly regulate a negative incident, it can influence the well-being negatively, with risks of heightening the danger of developing mental illnesses (Gross et al., 2019).

An example of such a negative incident is that the reported news is becoming increasingly negative (Soroka & McAdams, 2015). In addition, VanderWeele and Brooks (2020) stress that also the spreading of negative news has increased through the years. A distressing topic which is often talked about in the news is climate change, as it is the greatest threat to the human population (Schäfer & Painter, 2021). Soroka and McAdams (2015) affirm that news reported tend to be more negative as they apparently are of more interest for the population. This effect, known as “negativity bias”, describes the tendency of people favouring negative events compared to positive ones. On top of that, being confronted with negative news also triggers psychophysiological reactions. According to Soroka and McAdams (2015), experimental studies demonstrated that people remember negative events more easily than positive events. Furthermore, being confronted with negative news demands a higher amount of cognitive activity, as a person tries to obtain answers to why certain events are happening. This psychophysiological reaction can become even more intense when a

person is already in a negative state (Soroka & McAdams, 2015), showing negative news' true impact on societal and general well-being (VanderWeele & Brooks, 2020).

The way news has been reported also changed. For young adults between the ages of 18-24, social media has replaced traditional mass media as their preferred source of receiving news (De Corniere & Sarvary, 2022). An increase in the spread of news on social media can be observed, which might be the consequence of the increased usage of social media in general (Goyanes & Demeter, 2022; Hendrickx, 2021). According to Goyanes and Demeter (2022), the increased usage of social media also led to an increased incidental exposure to news. Incidental news exposure describes being confronted with news unintentionally, when the person is not actively searching for that content (Kim et al., 2013). In a study conducted by Yadamsuren and Heinström (2011), the researcher assessed the emotional responses of participants to incidental news exposure. Whilst the incidental exposure to contents which are of interest for the participant produced positive feelings like excitement, the incidental exposure of negative content triggered strong emotional responses, such as feelings of helplessness or distress (Yadamsuren & Heinström, 2011).

The incidental exposure to news also takes place as a result of social media algorithms (Fletcher & Nielsen, 2018). Algorithms on social media outlets create the feed content based on the interests of the user (Swart, 2021). This allows presenting the user contents they do not actively search for (Kim et al., 2013). Social media outlets, such as Instagram, increase the likelihood of such incidental news exposure (Kim et al., 2013). With approximately one billion users, Instagram is one of the most prominent social media outlets (Vraga et al., 2020). So far, studies mainly investigated relations between incidental news exposure and Facebook (Goyanes & Demeter, 2022). Therefore, Goyanes and Demeter (2022) suggest that it is necessary to also consider other social media outlets in the context of incidental news exposure.

A characteristic that could potentially counteract negative effects on well-being is resilience. Resilience is a psychological capital (PsyCap) a person can make use of to increase their wellbeing or to cope appropriately with challenging situations (Riolfi et al., 2012). Luthans (2002b) defines resilience as “one’s ability to ‘bounce back’ from adversity, uncertainty, conflict, failure or even positive change, progress and increased responsibility” (p. 702). In studies, it became evident that people who possess more resilience also tend to be happier (Avey et al., 2010). Keyes (2007) found that a high level of resilience was associated with complete mental stability in adults. Thus, resilience proves to be an important psychological capital that influences well-being (Avey et al., 2010). Since there is evidence existing that incidental negative news exposure could negatively influence well-being and resilience has found to influence well-being positively, resilience could potentially act as a moderator in minimising the effects of the challenging event.

Current study

There is no concrete research available which investigates the effect of incidental negative news exposure through Instagram on well-being. Therefore, this research aims to investigate the aforementioned. A first research question can be determined: *To what extent does incidental negative news exposure through Instagram affect well-being?* Further, resilience as a potential moderator has not been examined previously in this context. As there might be a potential negative effect of incidental negative news exposure on well-being, resilience as a moderator could be beneficial to counteract the stressor. Thus, it will be assessed whether resilience acts as a moderator for well-being from the effects of incidental negative news exposure. From this, a second research question can be formulated: *To what extent does resilience moderate the effect of incidental negative news exposure through Instagram on well-being?*

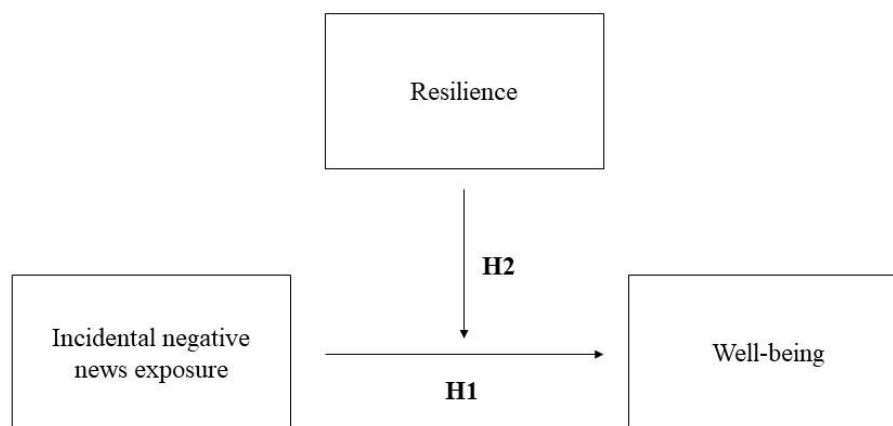
Hypotheses

H1: Incidental negative news exposure leads to a lower well-being compared to those not exposed to incidental negative news.

H2: Resilience moderates the relationship between incidental negative news exposure and well-being.

Figure 1

Theoretical model of the current study



Method

Design

This randomized control trial employed a pre-and-post and between-subjects design. In total, there were two conditions, one experimental, which was incidentally exposed to negative news, and one control group, which was subjected to neutral stimuli. The independent variable was incidental media exposure and well-being was the dependent variable. Resilience was hypothesized to be the moderating variable. This study has been ethically approved by the BMS faculty of the University of Twente with the request number 220301.

Participants

To obtain an adequate number of participants, the convenience sampling strategy was used. As the research group consisted of four young adults, it was expected that mostly young adults were recruited through convenience sampling. Additionally, participants were partly recruited through the SONA-system of the University of Twente. The SONA system is an online environment in which students can sign up to participate in scientific research of other students in return for mandatory subject hour points, which are required for the completion of their study. Additionally, acquaintances and friends were contacted in real life or via WhatsApp and asked to participate. Acquaintances also have been asked to share the study with others. Lastly, the researchers posted a link to the survey on the social media platforms Instagram and Reddit. Instagram was selected, as this outlet was focused on in this study. Further, it enabled to recruit participants who regularly use this platform. Reddit has been selected as well, since it is known for communities who voluntarily fill out scientific surveys. A prerequisite for participation in the study was the minimum age of 18 years, to ensure that the participants themselves can give their consent. As this study was conducted entirely in

English, participants were required to have a proficiency in understanding the language. This was necessary to avoid potential misunderstandings of the presented information. Participants had to self-indicate whether they possess sufficient English competencies.

Materials

Qualtrics.com was used as a platform for administering the questionnaire. Firstly, the participants agreed to an informed consent before taking part in the survey (See Appendix A). The main part of the survey included demographic questions regarding the participants' age, gender, and nationality (See Appendix B). Following that, the items of the Mental Health Continuum Short Form and the Psychological Capital Questionnaire (PCQ) were displayed to the participant (See Appendix C). Thereafter, an Instagram feed was embedded into Qualtrics, followed by the Mental Health Continuum Short Form again (See Appendix D, Appendix E, Appendix F).

The questionnaire contained two control questions: the first one was displayed before the debriefing, asking the participant to summarize the content of the Instagram feed they had just seen (See Appendix F). The second control question was displayed at the end of the survey after the debriefing. It was asked whether the participants had guessed the true nature of the study before seeing the debriefing form (See Appendix G). At the end of the survey, the participants received a debriefing form (See Appendix G). Appendix A to G can be combined to represent the exact layout of the Qualtrics survey used in this experiment. Appendix D displays the Instagram feed the control condition was exposed to and Appendix E presents the one that was shown to the experimental condition.

Instagram Feed

Since the platform SONA was used, which is mostly used by young undergraduate adults, the sample was expected to be made up of many young adults. The social circle of the

researchers also included young adults as well as middle-aged adults. Due to its popularity among young people and its growing number of middle-aged users, the social media platform Instagram was chosen as basis for the survey (We Are Social et al., 2022). In total, four fake Instagram profiles were created by the research group. For this purpose, copyright free images from the website “Unsplash” were used (Unsplash, 2022). The accounts represented two female and two male young fictional characters. The posts concerned topics such as travelling, fashion, fitness, lifestyle and photography. The choice of content was based on the most popular hashtags of Instagram in 2019, e.g. fashion, fitness, travel and photography (InfluencerDB, 2019). Two posts of each profile were combined in order to create a realistic Instagram feed that included posts from several users about different kind of contents (See Appendix D, Appendix E). For creating an even more realistic Instagram feed, the posts have been published at different times, which was supposed to prevent participants from questioning the authenticity of the profiles.

Regarding the control condition, ten screenshots of neutral Instagram posts uploaded by the fake accounts were chosen. In order to create an experimental condition in which the participants experience incidental exposure to negative news, two posts from the British news company “The Guardian” about catastrophic natural events due to the climate crisis were added to the fictional Instagram feed (The Guardian, 2021a; The Guardian, 2021b). The first post shows a picture of wildfires and refers to the emergency to take action to prevent the climate crisis. The second one displays people suffering from floods (See Appendix E). These posts were chosen due to The Guardian’s status as a quality newspaper, as well as the graphic nature of the pictures which show burning forests and people submerged in brown water after a flood. The first screenshot was placed as the 4th image to immerse the participant into a neutral feed before incidental exposure takes place and prevent a too obvious confrontation with the news posts. The second screenshot was placed at the end of the feed to make use of a potential recency effect. The recency effect describes a cognitive

bias that information which was received last can be remembered better than information one was exposed to before (Logie, 2003). A further aspect to ensure that the participants become conscious of the negative news posts and remember them during the following parts of the study was to include two posts of negative news in the Instagram feed. This is in accordance with a study by Palumbo et al. (2021) who showed that repeated exposure is associated with better memory and processing of the stimulus.

Mental Health Continuum Short Form (MHC-SF)

The well-being of the participants was measured using the Mental Health Continuum-Short Form (MHC-SF). It consists of 14 items and measures emotional, psychological, and social well-being, which represent the three dimensions of mental health (Lamers et al., 2011). The participants rated the prevalence of their feelings in the last month on a six-point Likert scale ranging from 0= 'Never' to 5= 'Every Day'. An example question is: "In the past month, how often do you feel interested in life?". The total internal reliability is high ($\alpha = .89$), and the test-retest reliability is moderate. The constructs measured by the MHC-SF have been validated in representative samples of multiple countries (Lamers et al., 2011). Cronbach's alpha was calculated for this sample as well, showing an excellent internal reliability for both pre-measurement ($\alpha = .9$) and post-measurement ($\alpha = .91$).

Resilience

Resilience was measured with a subscale of the Psychological Capital Questionnaire (PCQ) created by Luthans et al. (2007). Since the other subscales have been used in parallel research, the whole PCQ scale was used. The PCQ consists of 24 questionnaires and is measured on a 6-point Likert scale that ranges from '1= Strongly disagree' to '6= Strongly agree' (Liran & Miller, 2019). The six item numbers 3, 4, 8, 13, 18, 22 measure resilience. The original scale including all items displays an excellent Cronbach's alpha of $\alpha = .93$ (Liran

& Miller, 2019). Regarding reliability, the resilience subscale displays an acceptable Cronbach's alpha of $\alpha = .72$ (Liran & Miller, 2019). A conducted confirmatory factor analysis and the establishment of discriminant and criterion validity indicate an overall validity of the PCQ scale (Luthans et al., 2007). The items of the original PCQ scale are work-related. Therefore, to fit this study, it was necessary to adapt these items to estimate a person's level of resilience in general life situations. Examples of modified items include 'I feel I can handle many things at a time in life.' or 'I'm optimistic about what will happen to me in the future.' (Appendix H).

A Cronbach's alpha for the entire adjusted scale and the resilience subscale were calculated. For the entire adjusted PCQ scale, an excellent internal consistency could be investigated ($\alpha = .91$). The internal reliability of the adjusted items, which measure resilience, was moderate ($\alpha = .66$).

Procedure

A group of four researchers conducted this study, each focusing on a different PsyCap variable. The research was conducted through the online platform Qualtrics, and it took approximately 15 minutes to fill in the survey. First, the participants were provided with an informed consent they needed to agree on in order to participate in the study (See Appendix A). In the consent form, it was clarified that all data would be processed anonymously, that participation was entirely voluntary and that participants could quit the study at any time. To keep the news exposure incidental, the informed consent form omitted the fact that negative news would be presented. This has been approved by the ethical committee of the University of Twente since it was a necessary aspect to measure incidental news exposure. Instead, it was explained to the participants that the research would be about social media and mental health. Since one of the questionnaires in the study concerned psychological capital, within

the informed consent, the term was shortly explained to the reader.

The study started by asking the participants to fill in their demographic characteristics, in particular gender, age, and nationality. Subsequently, participants filled in the MHC-SF to measure their psychological well-being. Next, the PCQ questionnaire followed to determine the participants' degree of psychological capital. A randomizer function in Qualtrics assigned the participants evenly to either the control or the experimental condition. Screenshots of the artificial posts were taken, and their originally very low number of likes were edited to be higher. This was done to create the illusion that the artificial accounts were existing people situated in a digital social environment. Furthermore, a very low number of likes could have been seen as unrealistic and the participants might have doubted the realism of the posts. To create a realistic experience of using Instagram for the participants, the images were embedded in Qualtrics underneath each other so it creates the illusion of a continuous, scrollable feed.

The control condition was exposed to an Instagram feed, only including neutral posts. In the experimental condition, participants were exposed to an Instagram feed that included news posts from 'The Guardian' about natural disasters due to the climate crisis. After the stimuli were presented, the well-being of the participants was assessed a second time by using the MHC-SF. Next, the participants were shortly asked to summarise the type of posts of the Instagram feed. This was done to establish whether participants paid sufficient attention to the posts presented to them.

The participants were debriefed on the true purpose of the study and have been provided with contact information of the researchers, which gave the participants the opportunity to contact the researcher in case they had questions. Due to the prior incomplete information, participants were asked to confirm their consent one more time. If they did not agree on the final consent form, their data was excluded from the analysis. After the

debriefing, participants have been asked whether they had guessed the real purpose of the study beforehand. Lastly, the respondents were thanked for their participation.

Data Analysis

Data preparation

Before conducting the data analysis, the sample was inspected and prepared. Underaged respondents who had not given consent or had not filled out all questions were removed from the sample. Test responses that were collected before the official start of the survey were also excluded from the sample. In total, 261 participants took part in this study from which 54 respondents had to be removed. After deleting participants that did not give their consent or did not fill in the survey completely, 211 participants were left and could be included in the analysis. To compute participants' well-being scores, all 14 items of the MHC-SF were summated, and the mean was calculated. Lastly, a sum score for the resilience subscale was computed.

Analysis

IBM SPSS Statistics 28 was used as a statistical tool to analyse the data. A paired t-test was used to inspect the first hypothesis: *Incidental negative news exposure leads to a lower well-being compared to those not exposed to incidental negative news*. To assess the second hypothesis: *Resilience moderates the relationship between incidental negative news exposure and well-being.*, the PROCESS macro add-on by Andrew F. Hayes was used for the moderation analysis. For making judgements about statistical significance, a p-value of $p < .05$ was used as a cut-off point.

Results

Sample characteristics

The final sample consisted of 105 participants in the control condition and 106 in the experimental condition. The age of the participants ranged from 18-66 ($M= 22.34$, $SD= 5.24$). Out of 211 participants, 148 (70.1 %) were female, 61 (28.9%) were male, and 2 (0.9 %) participants indicated to be non-binary. 117 (55.5%) of the participants were German, 45 (21%) participants were Dutch, and 49 (23.2%) participants indicated a different nationality. A summary of the demographics can be found in Table 1.

Table 1*Demographic characteristics of the participants.*

Characteristic	<i>n</i>	%
Gender		
Male	61	28.9
Female	148	70.1
Non-binary/ third gender	2	.9
Age (years)		
18-30	203	96.2
31-50	5	2.4
≥50	3	1.5
Nationality		
Dutch	45	21.3
German	117	55.5
Other	49	23.2

Note: N = 211

Control questions

For the first control question, both conditions provided correct answers to what they have seen on the Instagram feed. Table 2 visualises the answers from both conditions for the second control questions.

Table 2

Answers given for the second control question: Did you guess the true purpose of this study before reading the debriefing form?

Condition	Yes	No
Control	40	65
Experimental	66	40

Hypotheses testing

To test the first hypothesis of being exposed to incidental negative news leads to a lower well-being, a paired t-test was conducted for both conditions. Results of the paired sample t-test displayed a significant decline in the wellbeing of the experimental condition from the pre- ($M= 3.00$, $SD= .86$), to the post-measurement ($M= 2.88$, $SD= .90$), $t(105) = 4.53$, one-sided $p < .001$, two-sided $p < .001$. A significant decline was also observable in the control condition from pre- ($M= 3.08$, $SD= .84$), to post-measurement ($M= 3.02$, $SD= .92$), $t(104) = 2.42$, one-sided $p = .009$, two sided $p = .017$. A summary of the findings can be found in Table 3.

Table 3

Results of the paired samples t-test.

	Condition							
	Control (n=105)				Experimental (n=106)			
	<i>M</i>	<i>SD</i>	<i>p</i>		<i>M</i>	<i>SD</i>	<i>p</i>	
		One-sided	Two-sided			One-sided	Two-sided	
PreMH	3.08	.84			3.00	.86		
PostMH	3.02	.92	.009	.017	2.88	.90	<.001	<.001

To test the second hypothesis of resilience moderating the relationship between incidental negative news exposure and well-being, a moderation analysis was run with the PROCESS macro add-on by Andrew F. Hayes. Model 1 has been selected for the moderation. The experimental and control conditions were the independent variables. The post-wellbeing score was the dependent variable. Resilience was added as the moderating variable.

The general model of the moderation analysis showed significant statistics, adjusted $R^2 = .23$, $p < .001$. For the incidental negative news exposure, test results displayed a non-significant effect $B = -.54$, 95% $CI [-2.03, .96]$, $t(209) = -.71$, $p = .48$. The test results also displayed a non-significant moderation effect $B = .02$, 95% $CI [-.04, .07]$, $t(209) = .54$, $p = .59$. Lastly, results showed a significant relation between the PsyCap variable resilience and wellbeing $B = .11$, 95% C.I. (.07, .14), $t(209) = 5.57$, $p < .001$. Table 4 summarises all the estimates. Figure 2 provides a visualisation of the non-significant moderation effect.

Table 4

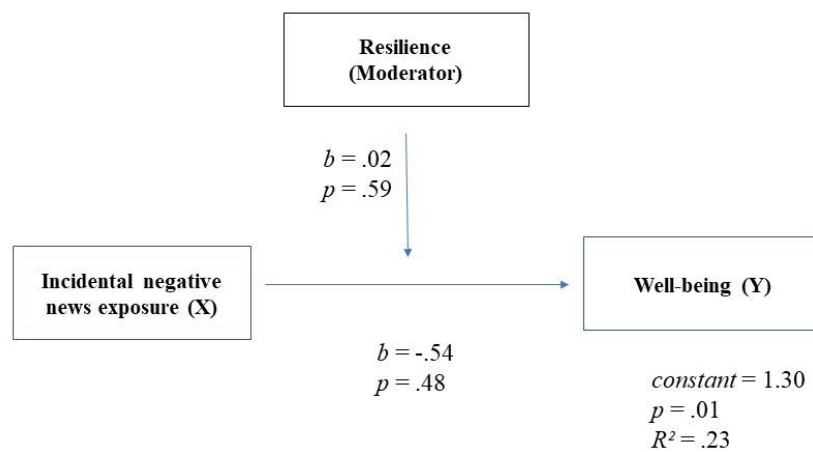
Parameter estimates of the insignificant interaction effect (moderation).

Effect	B	SE	p	95% CI	
				LL	UL
Constant	1.30	.49	.01	.32	2.27
Condition	-.54	.75	.48	-2.03	.96
Resilience	.11	.02	<.001	.07	.14
Resilience (Moderation)	.02	.03	.59	-.04	.07

Note: $R^2 = .23$

Figure 2

Results of the moderation analysis.



Note. $N = 211$

Discussion

The aim of this study was to assess the effects of incidental negative news exposure on well-being. In addition, this study aimed to investigate resilience as a potential moderator in the relationship between incidental negative news exposure and well-being. The first research question formulated was: *To what extent does incidental negative news exposure through Instagram affect well-being?*. In connection to this research question, the following was hypothesised: Incidental negative news exposure leads to a lower well-being compared to those not exposed to incidental negative news. The results demonstrated a larger decline in well-being for the participants in the experimental condition. As a result, the first hypothesis can be accepted. The second research question was: *To what extent does resilience moderate the effect of incidental negative news exposure through Instagram on well-being?*. In regard to this question, a second hypothesis has been formulated: Resilience moderates the relationship between incidental negative news exposure and well-being. The findings in the results section displayed a non-significant moderation effect for resilience. Thus, the second hypothesis is rejected. Resilience does not influence the relationship between incidental negative news exposure and well-being.

Negative news leads to more negative reactions than positive ones, since people think about negative contents more and try to understand them (Soroka & McAdams, 2015). These confrontations seem to have negative impacts on wellbeing (VanderWeele & Brooks, 2020). Simultaneously, incidental news exposure through social media outlets also occurs more frequently (Goyanes & Demeter), and incidental exposure to negative content triggers negative emotions (Yadamsuren & Heinström, 2011). The findings of this study support findings of previous research, as the well-being of participants in the experimental condition decreased. However, the moderation analysis of the conditions on well-being yields a non-significant effect for incidental negative news on well-being.

The decline in well-being could have been due to other factors. As results indicate, control and experimental condition both had a decline in well-being. Social media outlets, like Instagram, are known to negatively influence a person's well-being (Faelens et al., 2021). The feed that has been created for this experiment contained copyright-free images from 'Unsplash', depicting diverse contents, such as traveling, fashion, lifestyle, photography, etc. Both conditions were presented to these apparently 'neutral' posts, among other things. Whilst only the experimental condition was exposed to the negative news, a decline in well-being was also observable in the control condition. A behaviour that can be observed through social media usage is social comparison. The pictures displayed might have not been perceived as neutral and being presented to these types of pictures in the created feed might have led participants to compare the supposedly perfectly depicted lives of these profiles with their own (Fox & Vendemia, 2016). Consequently, the decline in well-being might not be due to the incidental negative news exposure but a consequence of social comparison (Fox & Vendemia, 2016).

As the results show, the mean age of the participants is 22 years. The topic of climate change is familiar to this age group, as they grew up with it (Radunsky & Cadman, 2020). According to Schäfer et al. (2013), the reporting of climate change content has increased, indicating that participants were likely often confronted with negative news concerning climate change. The continuous exposure to that kind of news can, however, also lead to other reactions than negatively influencing one's well-being. A study by Gurr and Metag (2021) illustrates that being excessively exposed to the same issue makes the media consumers become annoyed by that topic and try to avoid it. Consequently, people do not truly internalise that content. A possibility could be that this happened in this study. The participants might have not actively internalised the content of climate change, as they possibly felt annoyed and actively avoided that content due to the regular exposure. Hence,

incidental exposure seemed to not influence participants' well-being as was hypothesised, since people might have not internalised the content enough to have an actual effect on well-being.

Next, resilience did not show to moderate the relationship between incidental negative news exposure and well-being, contradicting the idea of it serving as buffering effect in critical situations (Riolfi et al., 2012). Even though resilience did not act as a moderator, it positively influenced well-being, nonetheless. It therefore still proves to play a part in the context of well-being as found by Avey et al. (2010). Nevertheless, this study could not demonstrate whether it also plays a role for well-being in the context of incidental negative news exposure. In this study, no clear indication could be found for incidental negative news exposure influencing well-being. In literature it was outlined that resilience can act as resource in supporting well-being in challenging situations (Riolfi et al., 2012). There might have been no moderation effect because the challenging situation of being exposed to news about climate change, was not challenging enough. Consequently, resilience would not be needed to counteract the effects of incidental negative news exposure of climate change.

Strengths and Limitations

A few strengths of this study can be established. The experimental design of this study made it possible to investigate for potential causality. Next to that, this study added to research through exploring Instagram in the context of incidental negative news exposure as well as resilience as potential moderating variable. The first control question: *Can you shortly mention in your own words what kind of Instagram posts you just saw, regarding the type of content?* provided a useful illustration of whether participants paid enough attention to the post, which makes the results more valid and reliable, as they accurately show that people consciously focused on the presented content. The methodological tools used in this experiment were all adequately established. All the questionnaires used displayed a moderate

to excellent Cronbach's alpha, which ensures certainty regarding the reliability of these tools. Control and experimental condition illustrated sample sizes of $n=105$ and $n=106$. This ensured an adequate number of participants per condition and enabled to draw possible conclusions about the general population (Perneger et al., 2015).

Apart from the strengths, this study also contains some limitations. The second control question: *Did you guess the true purpose of this study before reading the debriefing form?* was created to get an overview of the number of participants who guessed the real purpose of the study correctly. People in the control group should have not been able to guess it correctly since they only received the neutral stimuli. However, in the results it showed that participants apparently guessed the actual purpose of the study. This might be due to the additional information about the error message, which has been created to warn participants about the following page. It might have led to confusion, as it did not refer to the actual question and people thought they were asked about the error message. This could have potentially affected the responses of participants in the control condition. Another limitation of this study could be the design of the created feeds. It looked similar but not exactly like a typical Instagram feed. This might have been because participants were not able to actively interact with the feed, which would have been possible with an actual Instagram feed. It is unclear to estimate whether participants perceived the created feed as authentic and had the feeling of scrolling through an actual Instagram feed. It, therefore, does not become evident whether the created feed acts as an actual simulation of Instagram. Furthermore, Instagram rather focuses on pictures than on news texts. It did not become exactly clear whether participants focused on the negative text that was presented or rather on the climate related pictures. It is questionable whether this study was able to assess the true impact of incidental negative news exposure through Instagram. Reason for that could be that participants might have focused more on the pictures than on the news text, and possibly only skipped through the news texts. Next, to gain

enough participants, the convenience sampling strategy was applied, which makes it more difficult to generalise the results compared to a random sampling strategy. Lastly, participants had to self-indicate their proficiency in English, which means that there is no concrete evidence that participants understood all the information correctly. Consequently, there might be the possibility of participants misinterpreting information and, therefore, giving false responses.

Implications for future research

This study was not able to show that the decline in well-being was due to incidental negative news exposure. Future studies should consider implementing an eye-tracking application to establish whether attention is more paid to either the news text of negative incidents or to their belonging pictures. This could enable a clearer estimation of whether incidental negative news exposure is measured. As the topic of climate change might have led to participants not being affected by the incidental negative news exposure, future studies should consider selecting a different news topic that is not excessively distributed through media outlets. Since a decline is observable for both conditions, social media in general might play a part in this context, as argued in this discussion. Future studies should further investigate the exact causes for the decline in well-being. Since there is a strong indication that scrolling through Instagram decreases well-being, regardless of the type of content, interventions could perhaps be created to prevent users from possible negative effects. This could be education about social comparison through Instagram as well as the deceptive reality it demonstrates. Findings indicated a non-significant moderation effect for resilience. However, resilience has been found to influence well-being. For future studies, it might be valuable to investigate the reasons for a missing moderation and the exact part resilience plays in the contexts of well-being. New studies should also consider using the actual Instagram platform to create an authentic experiment and to enable an accurate assessment of the effects

of Instagram. As a last implication, it might be beneficial to create a text field for the second control question, asking about the actual purpose of the study. The control question in this study only gave the options to say yes or no. Only indicating yes, however, is not a clear indication for whether a participant guessed the purpose of the study, as they also could have pretended to have guessed it, even if they did not. Indicating yes could have also been interpreted as guessing that there is more to this study than only measuring social media's impact on well-being, without them guessing the actual purpose. A text field in which participants shortly explain what the purpose of the study was in their opinion could provide a clearer insight in whether they have indeed guessed the true purpose of this study.

Conclusion

Through this study, it did not become completely apparent whether well-being declined because of incidental negative news exposure. Although no concrete evidence for the aforementioned has been found, a decline in well-being was observable for both conditions. The decline in well-being might be the consequence of other factors, such as social comparison, for example. Resilience has been found to not act as a moderator in the relationship between incidental negative news exposure and well-being. Nevertheless, it still proved to influence well-being. Future research should consider exploring the exact influence of incidental negative news exposure through Instagram in the context of resilience further. Conclusively, posts distributed via Instagram, regardless of the content, provide indications to negatively affect well-being.

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Appendices

Appendix A

Consent form as embedded into Qualtrics

Q1

Dear participants, The goal of this study is to identify the relation between social media and wellbeing.

The researchers are Bachelor Psychology students at the University of Twente in Enschede, Netherlands. This research aims as a graduation assignment.

The study will take approximately 15 minutes to complete. It includes questions concerning wellbeing as well as aspects of psychological capital. Psychological capital is a resource a person can make use of to cope with adverse situations.

Participating in this study is completely voluntarily. You can withdraw from it at any time, which will have no negative consequences for you. Your data will be treated anonymously and confidentially and is used for study purposes only. The data we use for our report cannot be tracked back to you. All data collected will be deleted once the study process is finished.

If you have questions concerning this study or are interested in gaining insights into the results, please feel free to contact us via E-Mail. Thank you for your participation!

Kind regards,

Julia Bauer [j.bauer@student.utwente.nl]

Katharina Hof [k.l.hof@student.utwente.nl]

Tijana Mihajlović [t.mihajlovic@student.utwente.nl]

Elisa Ufferfilge [e.ufferfilge@student.utwente.nl]

I consent to my participation in this study

- Yes, I consent (1)
- No, I do not consent (2)

Appendix B

Demographic Questions as embedded into Qualtrics

Q4 What is your nationality?

- Dutch (1)
 - German (2)
 - Other, namely... (3)
-

Q5 With what gender do you identify as?

- Male (1)
- Female (2)
- Non-binary / third gender (3)
- Prefer not to say (4)

Q6

What is your age?

think of many ways to get out of it. (7)

At the present time, I am energetically pursuing my life goals.

(8)

There are lots of ways around any problem.

(9)

Right now, I see myself as being pretty successful in life. (10)

I can think of many ways to reach my current life goals. (11)

At this time, I am meeting the life goals that I have set for myself.

(12)

When I have a setback in my life, I have trouble recovering from it, moving on.

(13)

I usually manage difficulties one way or another.

(14)

I can be "on my own", so to speak, if I

• • • • • •

• • • • • •

• • • • • •

• • • • • •

• • • • • •

• • • • • •

• • • • • •

• • • • • •

have to. (15) I usually take stressful things in life in stride.	•	•	•	•	•	•
(16) I can get through difficult times because I've experienced difficulty before.	•	•	•	•	•	•
(17) I feel I can handle many things at a time in life. (18)	•	•	•	•	•	•
When things are uncertain for me, I usually expect the best. (19)	•	•	•	•	•	•
If something can go wrong for me in life, it will. (20)	•	•	•	•	•	•
I always look on the bright side of things regarding life. (21)	•	•	•	•	•	•
I'm optimistic about what will happen to me in the future. (22)	•	•	•	•	•	•
Things never work out the way I want them to. (23)	•	•	•	•	•	•
I approach life as if "every cloud	•	•	•	•	•	•

That people
are basically
good (7)

• • • • • •

That the
way our
society
works
makes
sense to
you (8)

• • • • • •

That you
liked most
parts of your
personality
(9)

• • • • • •

Good at
managing
the
responsibiliti
es of your
daily life
(10)

• • • • • •

That you
had warm
and trusting
relationships
with
others (11)

• • • • • •

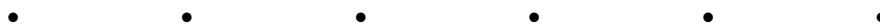
That you
had
experiences
that
challenged
you to grow
and become
a better
person
(12)

• • • • • •

Confident to
think or
express
your own
ideas and
opinions
(13)

• • • • • •

That your
life has a
sense of
direction or
meaning to
it (14)



Q9 You will now see an Instagram feed. Spend some time to look at each of the posts, their captions and comments.

Appendix D

Instagram Feed (Control Condition)

carlo_travel

...



juliaa_baauer en 39 anderen vinden dit leuk

carlo_travel 🤔

1 dag geleden

kelly_langmore

...



17 vind-ik-leuks

kelly_langmore Kylie and Kendall watching me procrastinate...

Guilty as charged 🤔🤔

2 dagen geleden · Vertaling weergeven

lisi_sunni
Den Haag City



👤👤 kelly_langmore en anderen vinden dit leuk
lisi_sunni my wallet is crying but my heart is happy ;D
itswyattsnell Looks like it's time for a photo shoot?
kelly_langmore Wooow so pretty!! ❤️💕
1 daa geleden · Vertalina weeraeven



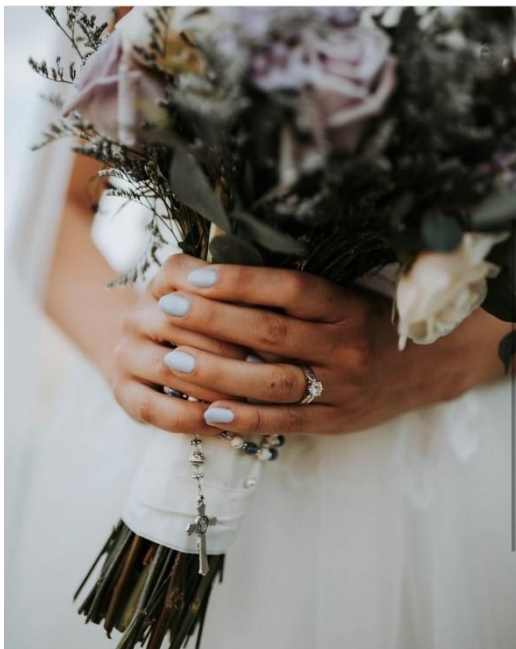
carlo_travel



👤👤👤 juliaa_baauer en 50 anderen vinden dit leuk
carlo_travel 🌿🌿🌿
#hiking #waterfall #nature
1 dag geleden · Vertaling weergeven



itswyattsnell



kelly_langmore en 321 anderen vinden dit leuk

itswyattsnell My sister Ruth got married last week! Thanks for having me as your wedding photographer. It was my honor.

lisi_sunni ruth and ben are the cutest together <3

itswyattsnell @lisi_sunni They really are.



kelly_langmore



27 vind-ik-leuks

kelly_langmore Treated myself during my morning walk.

#iscreamforicecream #delish 🍦

2 dagen geleden · Vertaling weergeven

 lisi_sunni
Den Haag



 kelly_langmore en anderen vinden dit leuk
lisi_sunni jullie zijn geweldig <3 weekendje in den haag
#lekkermetdemeidenmeidenmeiden
1 dag geleden

 itswyattsnell



 kelly_langmore en 254 anderen vinden dit leuk
itswyattsnell Office days.
lisi_sunni coffee first :D 
itswyattsnell @lisi_sunni Haha! Damn right. 
1 dag geleden · Vertaling weergeven

 **kelly_langmore**
The Club



42 vind-ik-leuks
kelly_langmore TGIF 🍷
1 opmerking bekijken
2 uur geleden

 **lisi_sunni**
Nijmegen



 kelly_langmore en anderen vinden dit leuk
lisi_sunni spring vibes <3
itswyattsnell Nice photo composition. 
1 dag geleden · Vertaling weergeven

Appendix E

Instagram Feed (Experimental Condition)



juliaa_baauer en 39 anderen vinden dit leuk
carlo_travel 🤔
1 dag geleden



17 vind-ik-leuks
kelly_langmore Kylie and Kendall watching me procrastinate...
Guilty as charged 🤔🤔
2 dagen geleden · Vertaling weergeven

lisi_sunni
Den Haag City



kelly_langmore en anderen vinden dit leuk
lisi_sunni my wallet is crying but my heart is happy ;D
itswyattsnell Looks like it's time for a photo shoot?
kelly_langmore Wooow so pretty!! ❤️💕
1 daa geleden · Vertalina weeraeven



guardian

Only rapid and drastic action in next decade can prevent climate catastrophe

Swipe to understand the damning climate report on the 'irreversible' changes humans have caused



40.865 vind-ik-leuks

guardian As a verdict on the climate crimes of humanity, the new Intergovernmental Panel on Climate Change report could not be clearer: we're guilty as hell.

The repeatedly ignored warnings of scientists over past decades have now become reality. Humanity, through its actions, or lack of action, has unequivocally overheated the planet. Nowhere on Earth is escaping rising temperatures, worse floods, hotter wildfires or more searing droughts.

The future looks worse. "If we do not halt our emissions soon, our future climate could well become some kind of hell on Earth," says Prof Tim Palmer at the University of Oxford.

So what do we need to know about the IPCC's most damning report to date - and what needs to come next? Swipe to read more.



carlo_travel

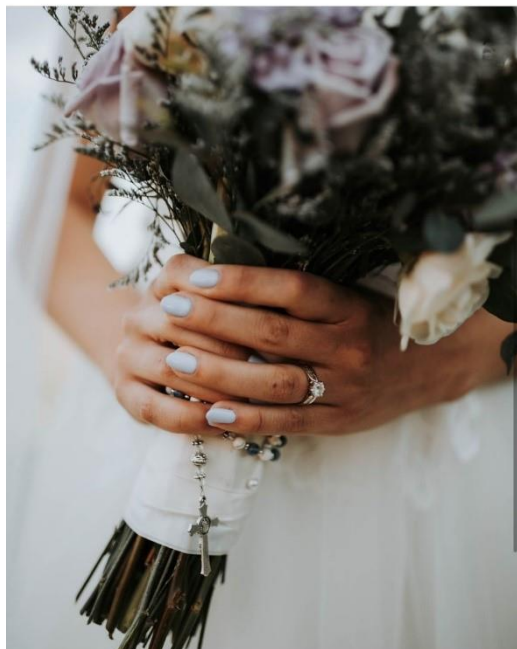


juliaa_bauer en 50 anderen vinden dit leuk
carlo_travel 🌿🌿🌿

#hiking #waterfall #nature
1 dag geleden · Vertaling weergeven



itswyattsnell



kelly_langmore en 321 anderen vinden dit leuk
itswyattsnell My sister Ruth got married last week! Thanks for having me as your wedding photographer. It was my honor.
lisi_sunni ruth and ben are the cutest together <3
itswyattsnell @lisi_sunni They really are.



 kelly_langmore ...



27 vind-ik-leuks
kelly_langmore Treated myself during my morning walk.
#iscreamforicecream #delish 🍦
2 dagen geleden · Vertaling weergeven

 lisi_sunni
Den Haag ...



 kelly_langmore en anderen vinden dit leuk
lisi_sunni jullie zijn geweldig <3 weekendje in den haag
#lekkermetdemeidenmeidenmeiden
1 dag geleden



itswyattsnell



kelly_langmore en 254 anderen vinden dit leuk

itswyattsnell Office days.

lisi_sunni coffee first :D

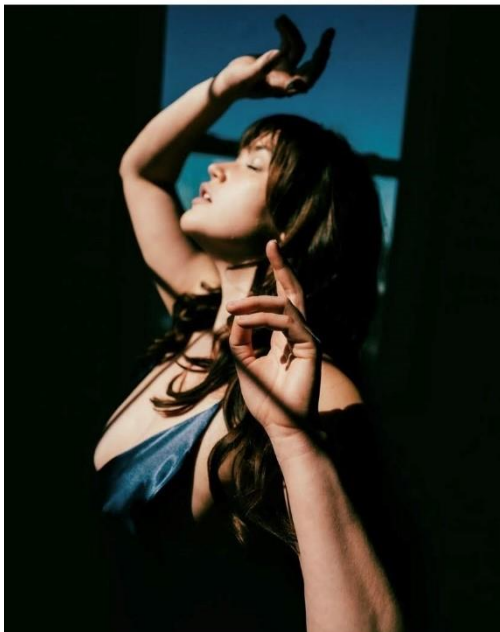
itswyattsnell @lisi_sunni Haha! Damn right.



1 dag geleden · Vertaling weergeven



kelly_langmore
The Club



42 vind-ik-leuks

kelly_langmore TGIF 🍷

1 opmerking bekijken

2 uur geleden

lisi_sunni
Nijmegen



kelly_langmore en anderen vinden dit leuk
lisi_sunni spring vibes <3
itswyattsnell Nice photo composition.
1 dag geleden · Vertaling weergeven

guardian



Climate crisis
Extreme weather
across the world
in 10 photos



82.459 vind-ik-leuks
guardian The Earth is changing faster than at any point in human memory as a result of human-caused global heating.
From extreme heat and wildfires to devastating flooding as well as drought, our picture desk has collated a series of photos documenting how severe weather conditions have been affecting so many of us in the last six months.
Swipe through to see 10 of the most powerful images, and tap the link in bio to view Joe Plimmer's full 50 photograph selection.

That you liked most parts of your personality (9)	•	•	•	•	•	•
Good at managing the responsibilities of your daily life (10)	•	•	•	•	•	•
That you had warm and trusting relationships with others (11)	•	•	•	•	•	•
That you had experiences that challenged you to grow and become a better person (12)	•	•	•	•	•	•
Confident to think or express your own ideas and opinions (13)	•	•	•	•	•	•
That your life has a sense of direction or meaning to it (14)	•	•	•	•	•	•

Q35

Can you shortly mention in your own words what kind of Instagram posts you just saw, regarding the type of content? (Food, fitness, etc.)
 Feel free to use bullet points!



Appendix G

Debriefing Form and Second Control Question

Q8
Debriefing

Dear participants, In the beginning of this study, we indicated that we were interested in identifying the relationship between social media and well-being. However, that information was incomplete.

We were also investigating incidental negative news exposure, which is the process of being confronted with negative news without expecting it or wanting it. It has been connected to increased stress and other negative effects on mental health in research. This is why the experimental group of this research was also shown screenshots of news posts about climate change. If you were part of the control group, you only saw Instagram posts of fictional people.

Additionally, we asked you questions about how hopeful, resilient etc. you are. The aim behind this was to see whether someone with a lot of hope is less affected by incidental negative news exposure. We apologize for any distress the climate-change-related posts might have caused for you.

Again, we would like to offer you the opportunity to reach out to us if you would like to share something with us or ask a question. Here are our email addresses:

Julia Bauer [j.bauer@student.utwente.nl]

Katharina Hof [k.l.hof@student.utwente.nl]

Tijana Mihajlović [t.mihajlovic@student.utwente.nl]

Elisa Ufferfilge [e.ufferfilge@student.utwente.nl]

Please indicate whether you still consent to being part of this study, knowing the complete information now.

- I confirm my consent. (1)
- I do not consent anymore. (This will terminate your participation) (2)

Q58

Information to those who do not access this study through University of Twente's SONA-System: You will likely see an error screen after clicking further, but this is not a problem. Your data will be saved, and all is fine. :)

Did you guess the true purpose of this study before reading the debriefing form? Please answer truthfully.

- Yes (1)
- No (2)

Appendix H

Modified version of the PCQ-24

1. I feel confident analyzing a long-term problem to find a solution.
2. I feel confident in representing my work or school area in official meetings
3. I feel confident contributing to discussions.
4. I feel confident helping to set targets/goals in life.
5. I feel confident contacting people to discuss problems.
6. I feel confident presenting information to a group of people.
7. If I should find myself in a jam in life, I could think of many ways to get out of it.
8. At the present time, I am energetically pursuing my life goals.
9. There are lots of ways around any problem.
10. Right now, I see myself as being pretty successful in life.
11. I can think of many ways to reach my current life goals.
12. At this time, I am meeting the life goals that I have set for myself.
13. When I have a setback in my life, I have trouble recovering from it, moving on.
14. I usually manage difficulties one way or another in life.
15. I can be “on my own,” so to speak, if I have to.
16. I usually take stressful things in life in stride.
17. I can get through difficult times because I’ve experienced difficulty before.
18. I feel I can handle many things at a time in life.
19. When things are uncertain for me, I usually expect the best.
20. If something can go wrong for me in life, it will.
21. I always look on the bright side of things regarding life.
22. I’m optimistic about what will happen to me in the future.
23. In life, things never work out the way I want them to.
24. I approach life as if “every cloud has a silver lining.”