The Influence of Incidental Negative News Exposure on Well-being and the Moderating

Effect of Optimism

Bachelor Thesis

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Abstract

Background: Due to the increased use of social media, incidental news exposure became more frequent. Existing literature demonstrates that consumption of negative news negatively affects well-being. However, there is not much known about the impact of being exposed incidentally to negative news on Instagram. Past research identified optimism as a positive predictor of well-being. Based on that, the present study assumed optimism to moderate the relationship between incidental negative news exposure and well-being.

Methods: To test the hypotheses an online questionnaire measuring the participants' level of optimism and their well-being before being exposed to a fictional Instagram feed was used. Half of the 211 participants were exposed to an Instagram feed including negative news articles about natural disasters due to climate change and the other half was merely presented with posts about lifestyle content. Afterwards, the well-being of the participants was assessed again.

Results: The paired samples t-test displayed a greater decline in well-being for the group being exposed to incidental negative news exposure than the control group. The moderation analysis showed no moderating effect of optimism and no negative impact of incidental negative news exposure on well-being. A direct effect of optimism on well-being was shown.

Discussion: A clear negative effect of incidental negative news exposure on well-being cannot be confirmed. Nevertheless, a greater decline in well-being was found in the experimental group. The control group experienced a decline in well-being as well, which can be affiliated with the negative effects of social media use. Therefore, it is recommended to develop practical interventions referring to positive thinking or mindfulness and social media education to support users coping with the distress caused by social media use.

Keywords: Incidental negative news, climate change, well-being, Instagram, optimism

Introduction

The use of social media increased tremendously in the last decades (Auxier & Anderson, 2021). In 2011 46% of the population in the Netherlands actively used social media platforms (Statista, 2021a). Ten years later, in 2021, 81% of the Dutch population was using social media platforms (Statista, 2021b). Usually, social media platforms are used to distribute personal content however, recently, social media platforms are increasingly used by official publishers as channels to spread news to their users (Vázquez-Herrero et al., 2019). This has substantially changed the delivery method of news (Goyanes & Demeter, 2022). In the past, news were delivered mainly through traditional media such as newspapers, TV, and radio, therefore it was mostly an active choice by the audience to consume the news (Goyanes & Demeter, 2022). Social media platforms such as Instagram use algorithms that personalise the content users receive (Swart, 2021). Based on likes, views, and trends posts are suggested to the users or hidden from them (Swart, 2021). Due to social media algorithms, users incidentally receive an unlimited amount of content, including news posts (Eslami et al., 2015). As a result, users get incidentally confronted with news articles or posts without actively searching for them during their online activities.

Incidental media exposure can be defined as the accidental acquisition of information without actively looking for it while being involved in other activities (Yadamsuren & Heinström, 2011). Already in 2010, a study by Purcell et al. showed that 80% of the participants reported receiving incidental online news at least a few times a week, while 60% reported being incidentally exposed to online news every day. Although incidental news exposure already existed before the era of digitalization, social media platforms increased their occurrence severely (Boczkowski et al., 2018). Previous research on incidental news exposure on social media set its focus on platforms such as Facebook or Twitter and neglected the importance of Instagram (Kümpel, 2019). In fact, Instagram is one of the most

used social media platforms and is particularly popular among young and middle-aged people (Statista, 2022). Moreover, it focuses on the visual presentation of content rather than on written information. Since individuals are more attentive to visual content than written ones, it is a very attractive channel to publish news in order to receive greater attention (Schäfer, 2020). Therefore, the effects of incidental news exposure on Instagram are substantial to investigate.

Negative News

Previous research found that people are more attentive to negative news, such as crimes, terrorism, or natural disasters than to positive or neutral news (Zillmann et al., 2004). Since publishers aim to achieve maximum attention on their news articles or posts, a great part of the news that is published is negative (Van der Meer et al., 2019). The study by Soroka and McAdams (2015) showed that participants had much stronger and more enduring emotional reactions to negative news than to positive or neutral ones. Another study revealed that people who were actively and frequently exposed to news about the Boston Marathon Bombing experienced a higher stress level than people who were directly confronted by the bombings because, for example, they lived close to the marathon location (Holman et al., 2014). The study showed the tremendous effect exposure to negative news can have on peoples' stress-level. If a person is not able to cope with this stress, it could be threatening to their well-being (Marroquín et al., 2017). However, there are no studies that specifically focus on the negative news that is incidentally received on social media and how this affects peoples' well-being. Thus, a better understanding of the growing phenomenon of the incidental aspect in news delivery on Instagram is important.

Climate Change in the News

The most threatening issue contemporary society is facing is climate change (IPCC, 2022). Thus, news about climate change and its consequences on the environment and the

population appears increasingly frequent in newspapers, TV, radio as well as on social media platforms (Schmidt et al., 2013). For instance, the publisher "The Guardian" declared in 2019 that they will prioritize the coverage of climate change related content and that they will use language that recognizes the severity of climate change (Viner, 2019). This pledge was made to raise awareness of the emerging situation and encourage readers to recognize climate change as a serious problem (Feldman & Hart, 2021). Existing studies investigated the psychological effects of being exposed to news about the climate crisis (Doherty & Clayton, 2011; McBride et al., 2021). The results showed that being confronted with the information about the consequences of climate change leads to an increase in anxiety, hopelessness, and depression, and a decline in well-being (Doherty & Clayton, 2011; McBride et al., 2021). In this regard, a new expression concerning people suffering from symptoms of anxiety due to the potential threats of the climate crisis, namely climate anxiety, was established in the last years (Clayton, 2020). Climate change is the most threatening crisis at the current time and its consequences affect not only the environment and humans' physical health but also peoples' mental health (IPCC, 2022; Van Susteren, 2018). Hence, it is essential for societies' well-being to investigate and comprehend the psychological effects of climate change related news further.

Well-being and the Effect of Optimism

Well-being has become a more relevant aspect of mental health (Dodge et al., 2012). In 2004 the World Health Organization defined mental health no longer as the absence of psychopathology but as "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). Well-being is a complex and multifaceted construct (Dodge et al., 2012). It is constructed out of three facets, namely, emotional, psychological, and social well-being (Keyes, 2002). Emotional well-

being can be defined as the presence or absence of positive feelings concerning life (Keyes, 2002). Psychological well-being refers to a positive state of mind, including satisfaction, self-acceptance, personal growth, and self-management (Lamers et al., 2011). Social well-being is the presence or absence of positive interactions and relationships with people and in communities (Keyes, 1998). Particularly in positive psychology, well-being is recognised as an essential contributor to positive mental health (Keyes & Haidt, 2010).

Existing studies identified various factors affecting well-being in humans, for instance, personality traits, life satisfaction, resilience, and optimism (Yildrim, 2020). In particular, optimism has been shown to have a positive effect on well-being (Gallagher & Lopez, 2009). Optimism describes the belief of a person that a future event will turn out positively or desirable (Carver et al., 2010). According to Seligman (2002), optimists, contrary to pessimists, interpret negative events as temporary and positive events are perceived as something permanent. Moreover, existing studies found a buffering effect of optimism on the relationship between stress and well-being (Lai, 2009; Thomas et al., 2011). Buffering can be defined as lessening or moderating the shock of an event (Thomas et al., 2011). Furthermore, McNaughton-Cassill (2001) identified that low levels of optimism are related to higher levels of anxiety due to news exposure. Based on that, the moderating effect of optimism on the direct negative effect of incidental negative news exposure on well-being is a potentially promising coping mechanism and therefore important to explore.

The Present Study

Due to social media platforms such as Instagram people are frequently incidentally exposed to negative news. Therefore, it is important to investigate how the negative impact on people's well-being can be moderated. The research question *"To what extent does incidental negative news exposure affects well-being and how does optimism moderate this relationship?"* will be investigated (Fig 1).

With respect to the research question following two hypotheses were developed:

H1: Individuals being exposed to incidental negative news, experience lower well-being compared to those not exposed to incidental negative news.

H2: Optimism positively moderates the negative effect of incidental negative news exposure on well-being.

Figure 1

Model of Optimism moderating the Relationship between Independent Variable "Incidental negative news exposure" and Dependent Variable "Well-being".
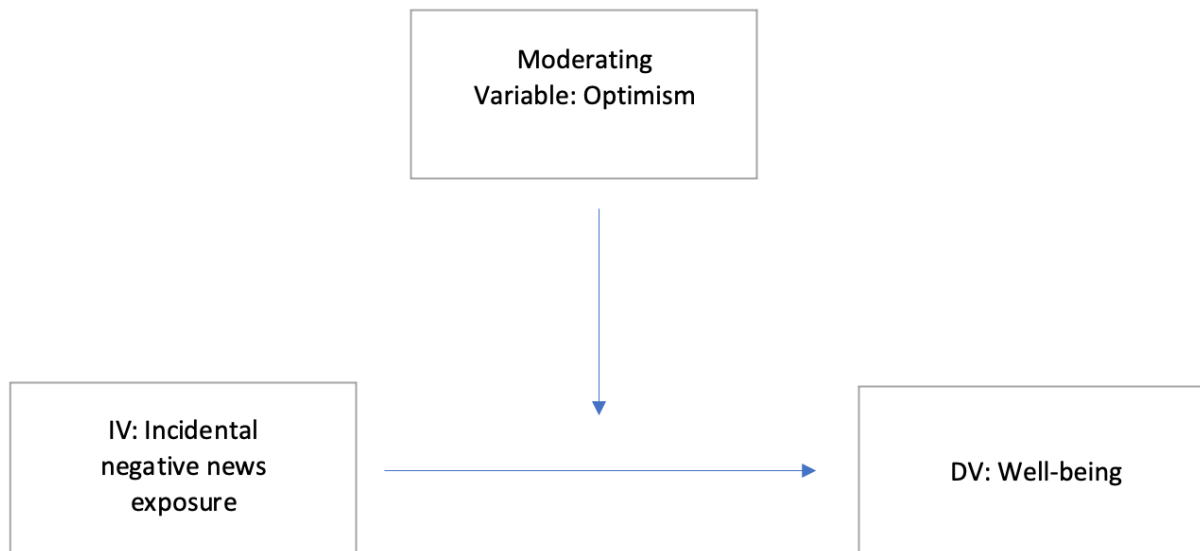
Methods

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. Optimism was hypothesized to be the moderating variable. This study has been ethically approved by the BMS faculty of the University of Twente with request number 220301.

Participants

To recruit participants, convenience sampling was used. Partly, participants were reached 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 and share the study with others. Lastly, the researchers posted a link to the survey on the social media platforms Instagram and Reddit. Instagram was used as a distribution channel for the survey as it is easy to reach a big amount of people. Furthermore, the researchers suggested that regular Instagram users would be familiar with the layout chosen in the present study, which would make it easier for them to orient to the fictional Instagram feed to which they were exposed. Reddit was used as communities exist on it that voluntarily fill out scientific questionnaires and therefore more participants could have been recruited. A prerequisite for participation in the study was the minimum age of 18 years, to ensure that the participants themselves can give their consent. Since the study was in English, another requirement was sufficient English competency to ensure a correct understanding of the questions. The participants were informed about the necessity to have good English skills before starting the survey. Furthermore, in the first control question, they were asked to write down in English what they saw on the Instagram feed in order to ensure their sufficient English skills (Appendix F).

Materials

Qualtrics.com was used as a platform for administering the questionnaire. Firstly, the participants agreed to an informed consent form before taking part in the survey (Appendix A). The main part of the survey included demographic questions regarding the participants' age, gender, and nationality (Appendix B). Following that, the items of the Mental Health

Continuum Short Form (MHC-SF) and a scale measuring optimism were displayed to the participant (Appendix C). Thereafter, an Instagram feed was embedded into Qualtrics, followed by the MHC-SF again (Appendix D, Appendix E, Appendix F).

The questionnaire also included 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 (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 (Appendix G). At the end of the survey, the participants received a debriefing form (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 to which the control group was exposed, and Appendix E presents the one shown to the experimental group.

Instagram Feed

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 lifestyle topics such as travel, fashion, and photography. The choice of content was based on the most popular hashtags on Instagram in 2019, which were fashion, travel, and photography (Statista, 2019). Two posts of each profile were combined to create a realistic Instagram feed that included posts from several users about different kinds of content, (Appendix D, Appendix E).

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 showed a picture of wildfires and referred to the emergency to take action to prevent the climate crisis and the other one showed people suffering from floods (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 fourth 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 that was received last can be remembered better than information one was exposed to before (Logie, 2003). Accordingly, the participants might remember the news posts during the survey better and it is ensured that the effect of the incidentally delivered news post on the participants' well-being is measured. 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. 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 ($\alpha=0.89$), 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). The results of the present study showed excellent reliability with a Cronbach's alpha of 0.9 when measuring well-being before being exposed to the fictional Instagram feed and a Cronbach's alpha of 0.91 measuring well-being afterwards.

Optimism

This research is a cooperation of four Bachelor Psychology students, in which each researcher focuses on a different dimension of psychological capital (PsyCap), namely optimism, hope, resilience, and self-efficacy. For the data collection, the Psychological Capital Questionnaire 24 (PCQ-24) which was developed by Luthans et al. (2007) was utilized. In a study by Görgens-Ekermans and Herbert (2013), the PCQ-24 has been shown to have a high discriminant and external validity. The present report exclusively focused on the moderating effect of optimism and consequently only items 19 to 24 that measure optimism were used (Appendix C). According to Hazan Liran and Miller (2019) the optimism subscale defines optimism as "a positive attribution about succeeding now and in the future". In an existing study, the subscale displayed good internal reliability with a Cronbach's alpha of 0.78 (Hazan Liran & Miller, 2019). Since the PCQ-24 mainly focuses on PsyCap at the workplace but this research aims to assess the general PsyCap of an individual, the researcher adapted the items slightly. For instance, item 22 "I'm optimistic about what will happen to me in the future as it pertains to work." from the original version was reformulated to "I'm optimistic about what will happen to me in the future". A six-point Likert scale ranging from '1 = Strongly disagree' to '6 = Strongly agree' was used (Appendix C). The results displayed high reliability with a Cronbach's alpha of $\alpha = 0.9$, for the modified subscale of optimism in the present study.

Procedure

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 (Appendix A). In the consent form, it was clarified that all data would be processed anonymously, and that participation was entirely voluntary and could be stopped at any time. To keep the news exposure incidental, the informed consent form omitted the fact that negative news would be shown. 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 well-being. Next, the PCQ questionnaire followed to determine the participants' degree of optimism. A randomizer function in Qualtrics assigned the participants evenly to either the control group or the experimental condition. Screenshots of the artificial posts were taken, and their originally very low number of likes was edited to be higher. Furthermore, the time when the posts have been posted was edited. This was done to create the illusion that the artificial accounts were real 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 group 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 about natural disasters due to the climate crisis from 'The Guardian' .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 on the Instagram feed. This was done to establish whether participants paid sufficient attention to the posts presented to them and to ensure their sufficient English competency.

The participants were debriefed on what the purpose of the study was and were provided with the 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 a second time. If they did not agree on the final consent form, their data was excluded from the analysis. After the debriefing, the question was asked whether the participants had guessed the real purpose of the study beforehand. Lastly, the respondents were thanked for their participation.

Analysis

IBM SPSS Statistics 28 was used as a statistical tool to analyse the data. Before the data analysis was conducted, the sample was inspected and prepared. Respondents who were underaged, 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 54 respondents had to be removed from the sample. Frequency tables were used to inspect the results of the demographic questions.

To compute the participants' well-being scores, all 14 items of the MHC-SF were summated, and the mean was calculated. For optimism, the total scores of the optimism subscale were summated. A paired samples t-test was used to inspect the difference between pre- and post-well-being per group. To analyse whether optimism acts as a moderator in the

relationship between incidental negative news exposure and well-being, the PROCESS macro v4.1 add-on by Andrew F. Hayes was used. More specifically model 1 was applied. For making judgments about statistical significance, a p-value smaller than .05 was used as a cut-off point.

Results

Demographics

The final sample consisted of 211 participants. The experimental group consisted of 106 participants and the control group included 105 participants. The mean age of the sample was 22.34 years ($SD = 5.76$), ranging from 18 to 66 years. As displayed in *Table 1*, 117 of the respondents were of German nationality (55.5%), 45 of Dutch nationality (21.3%) and 49 respondents belonged to one of the other 28 nationalities (23.2%). The final sample consisted of 148 participants identifying as female (70.1%), 61 identifying as male (28.9%), and 2 participants identifying as non-binary (0.9%).

Table 1

Demographics of Sample (N = 211)

Baseline Characteristics	Full sample	
	n	%
Gender	211	100
Female	148	70.1
Male	61	28.9
Non-Binary	2	0.9
Nationality	211	100
German	117	55.5
Dutch	45	21.3
American	7	3.3
Greek	3	1.4
Romanian	3	1.4
Other Nationalities	36	17

Control questions

Concerning the first control question "*Can you say in your own words what kind of Instagram posts you just saw, regarding the type of content?",* every participant gave a suitable response such as "lifestyle", "food" or "travel". The second control question asked, *"Did you guess what this study was really about before seeing the debriefing?".* 40 participants of the control group answered to have guessed the real purpose of the study while 65 answered no. In the experimental group, 66 participants respond to having guessed the real purpose of the study, and 40 did not guess it (*Table 2*).

Table 2

Responses to Second Control Question: "Did you guess what this study was really about

before seeing the debriefing?"

Condition	Yes	No
Control Group	40	65
Experimental Group	66	40

Hypotheses testing

Relationship between Incidental Negative News Exposure and Well-being

A paired samples t-test was conducted for each condition to test the first hypothesis *"Individuals being exposed to incidental negative news, experience lower well-being compared to those not exposed to incidental negative news."* A significant decrease of well-being was found in the control group comparing the pre-test scores ($M = 3.08$, $SD = 0.84$) to the post-test scores ($M = 3.02$, $SD = 0.92$; $t(104) = 2.42$, *one-sided p = .09, two-sided p =* .017). Likewise, in the experimental group a decrease of well-being comparing the pre-test scores ($M = 3$, $SD = 0.86$) to the post-test scores ($M = 2.88$, SD = 0.9; $t(105) = 4.53$. $p < .001$) was displayed (*Table 2*).

Table 3

Paired samples t-test

|	Pre-Well-Being		Post-Well-Being					
	M	*SD*	*M*	*SD*	*t*	*df*		*p*
Control Group	3.08	0.84	3.02	0.92	2.42	104	One-Sided	Two-Sided
							.09	.017
Experimental Group	3	0.86	2.88	0.9	4.53	105	< .001	< .001

Moderating Effect of Optimism

To test the second hypothesis "*Optimism positively moderates the negative effect of incidental negative news exposure on well-being.*", a moderation analysis was conducted. The used outcome variable was the post-well-being variable, and the predictor variable was the condition to which the participants have been assigned, whether being exposed to incidental negative news or not. As a moderator variable optimism was used.

The results indicated that the overall model is significant {$F(3, 207) = 51.65$, $p <$ .001, $R^2 = .43$, $b = 0.861$, 95% *C.I.* (0.18, 1.54), $p = .014$}. As visualised in *Figure 2*, the interaction between condition and optimism has shown to be statistically insignificant {$b = -0.101$, 95% *C.I.* (-0.34, 0.13), $p = .394$}. The relationship between incidental exposure to negative news and well-being revealed to be insignificant as well {$b = 0.24$, 95% *C.I.* (-0.73, 1.21), $p = .626$}. Furthermore, it is displayed that optimism has a significant effect on well-being {$b = -0.783$, 95% *C.I.* (0.62, 0.95), $p < .001$}.

Figure 2

Results of Moderation Analysis of Optimism on Well-being
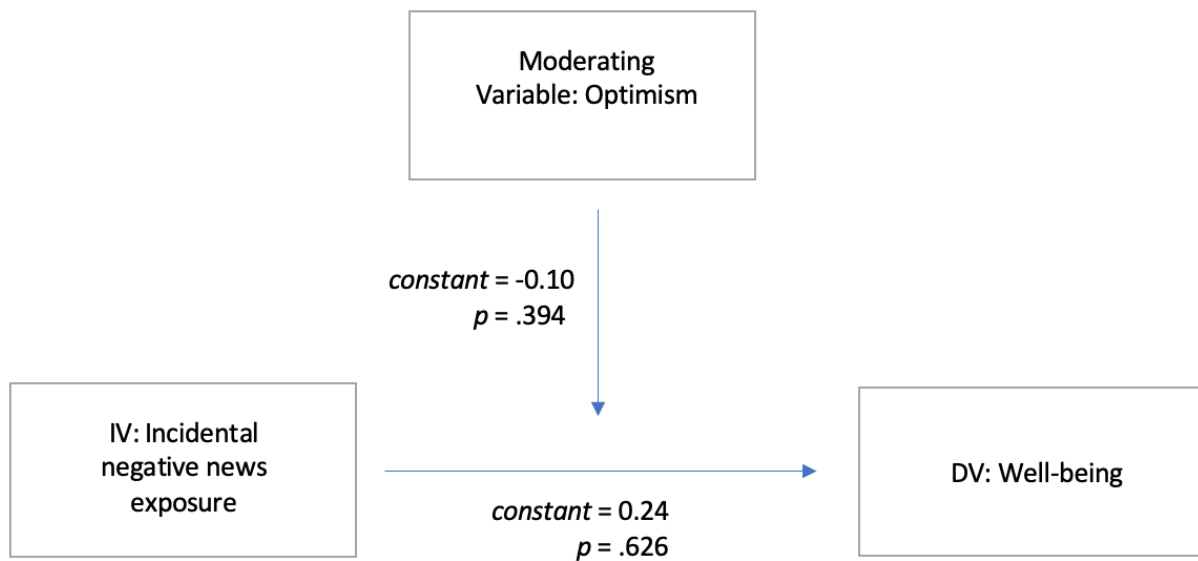
Discussion

The objective of this study was to investigate the effect of incidental negative news exposure concerning the threats of climate change on well-being. Additionally, optimism and its potential moderating effect when dealing with the stressors of being exposed incidentally to negative news were explored. Consequently, optimism was assumed to be a moderator variable. As a delivery channel of the negative news, Instagram was used. Based on the findings of the study, a stronger decline in well-being was displayed for the group being exposed to incidental negative news exposure than for the control group. However, optimism could not be identified as a moderator.

The first hypothesis *"Individuals being exposed to incidental negative news, experience lower well-being compared to those not exposed to incidental negative news."* was accepted. Due to the results of the paired samples t-test, a decline in well-being could be identified for the group being exposed to an Instagram feed including negative news about climate change. The control group displayed a decrease in well-being as well, however, it was two times smaller than in the experimental group. In the moderation analysis, no

significant negative relationship between incidental negative news exposure and well-being was shown. This contradicts the results of the paired sample t-test and questions the acceptance of *H1*. Nonetheless, it cannot be neglected that a twice as great decline in well-being was found for the experimental group. Therefore, the researcher decided to accept the first hypothesis as the decline of well-being in the experimental group at least to some degree can be affiliated with incidental negative news exposure.

Despite that, the decrease in well-being in the control group cannot be ignored. A possible explanation might be related to the findings by Keyte et al. (2021) which showed that social media can have negative effects on well-being. Contents on Instagram often show an ideal image of peoples' life, such as doing sport, having a body-conforming the ideal societal norms, or eating healthy (Sherlock and Wagstaff, 2019). Oftentimes users tend to compare themselves to it, which results in a feeling of unsatisfaction and thus a decrease in well-being (Sherlock and Wagstaff, 2019). The aspect that the present study used fictional posts that correspond to an average Instagram feed could explain the decrease in well-being in the control group.

A further explanation for incidental negative news exposure displaying a rather small negative effect on well-being could be the chosen content of the news posts. Although climate change is a major risk for society, there are some possible reasons why the moderation analysis did not display a significant difference in the decline of well-being between the control and experimental group. It has to be considered that a big part of the public does perceive news about climate crisis or environmental destruction as uninteresting and less negative than other topics (Nowakowski & Oswald, 2020). According to Nowakowski and Oswald (2020), Europeans ranked climate change in fifth place among the societal problems, behind challenges of social security, inflation, unemployment, and the economic situation. Furthermore, merely five percent of the European population mentioned

being extremely worried about climate change (Nowakowski & Oswald, 2020). Additionally, a great part of society, especially in the US denies the existence of climate change (Wong-Parodi & Feygina, 2020). This could partly be explained by Milfont (2010), who found that many humans experience a psychophysiological barrier since the most physical signs of climate change cannot immediately be perceived such as global warming, instead, it is a continuous process. Furthermore, the consequences of humans' actions on the environment are time-delayed (Spence et al., 2012). Next, humans tend to be more concerned about events happening in their proximity (Spence et al., 2012). Lastly, acting pro-environmentally is oftentimes more cost-intensive in terms of comfort and economics (Milfont, 2010). According to de Hoog and Verboon (2020), the negative news types that showed the greatest negative effect on peoples' well-being concerned war and terrorism. Based on that, the news about climate catastrophes the experimental group has been exposed to might have affected the participants less than for instance news about war would have affected them.

The second hypothesis "*Optimism positively moderates the negative effect of incidental negative news exposure on well-being.*" was rejected. The results displayed a non-significant moderating effect of optimism on the relationship between being incidentally exposed to negative news and well-being. This is contradicting previous studies which demonstrated a moderating effect of optimism for well-being (Lai, 2009; Thomas et al., 2011). Nevertheless, the findings indicated a direct positive effect of optimism on well-being. Existing literature confirms that optimistic individuals can cope better with difficult or stressful situations and that people expecting good things for the future generally have greater well-being (Conversano, 2010; Segerstrom, 2017). Furthermore, a study by Costa-Font et al. (2009) found that optimistic people perceive risks such as climate change as less severe, which might lead to higher well-being but also leads to being less likely to act pro-environmentally. Although the present study did not identify optimism as a moderator in the

relationship between well-being and being exposed to incidental negative news, it substantiates existing research that an optimistic attitude has a positive effect on well-being.

Strengths and Limitations

Several strengths and limitations can be identified for the present study. A strength was that the participants were exposed to a fictional Instagram feed, which created a real-life experience. Moreover, the subjects did not know the actual purpose, namely investigating the effects of incidental negative news exposure, as it was merely mentioned that the research is about social media and well-being in the beginning. Another benefit of the study was the specific investigation of news exposure on Instagram. Instagram is one of the most utilized social media platforms of the last years. It focuses on visual content and therefore it might have had a greater effect on users' perceptions than social media platforms that focus on written content, such as Twitter would reach (Schäfer, 2020). Since the study investigated news exposure on Instagram, a picture-heavy social media platform, it might be that the study did not measure the impact of negative incidental news in general but of visual negative news. It raises the question if people just look at the pictures and get emotionally affected by the picture or if they actually read the news and might even inform themselves further by looking for more information about the topic (Vázquez-Herrero et al., 2019). This could be an interesting impulse for future research.

A limitation of the study that needs to be considered was the high number of participants from the control group answering in the second control question to have guessed the true purpose of the study. However, the chance to have guessed the purpose was marginal since they were not exposed to incidental negative news. An explanation for that could be that it was the last question of the survey. Before the participants answered the last question, they received the following 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.". This message could have been perceived as the end of the survey and as a possible result, some participants did not read the control question carefully and just answered randomly to it.

Moreover, the study focused on the general population and not on a specific target group. However, the mean age of the target group was approximately 22 years. Compared to the mean age of the Dutch population, which was 42.3 years in 2021, the sample of the study is twice as young and therefore not representative of a general population (Statista, 2021c). Furthermore, twice as many individuals identifying as female than male participated in the study. This is contradicting the gender proportions of the Dutch population which approximately consists of 50% female and 50% male citizens (Statista, 2022). All researchers in the research group were young and female. Since convenience sampling was used and many friends and acquaintances of the researchers participated, unequal distribution of the sample was caused. A further explanation for the young sample is that participants were recruited through the SONA-system of the University of Twente and therefore many young students were reached.

Moreover, the subscale used to measure the level of optimism was adapted by the researcher. As the original version explicitly focuses on optimism referring to the working environment and career the researcher changed the items slightly in order to measure optimism in general. The results showed good reliability of the subscale. Nevertheless, further research using the adapted optimism subscale would need to be done to revalidate it.

Although the study created a fictional Instagram feed that aimed to be representative of an average user and be as realistic as possible, it might not have been realistic for everyone. Since every individual has unique preferences, every Instagram feed contains different posts personalised to their interests (Swart, 2021). It might be that some participants could not identify with the posts chosen for the fictional Instagram feed and therefore the

experience might not have been perceived as realistic. This could have influenced the validity of the results.

Future Research

The decrease in well-being in the control group might indicate that already the exposure to an Instagram feed that aimed to be representative of an average user might have a negative effect on well-being. This is in accordance with past research on the negative psychological effects of social media on users' well-being (Keyte et al., 2021). Social media became a dominant part of society, and its negative effects should be prevented. Previous research showed that educating users about healthy social media use increased the safe consumption of social media (DiFranzo et al., 2019). However, in real life, there is a lack of available interventions that are implemented in the educational systems. Therefore, it is recommended to further research coping techniques for healthy social media use and develop interventions that can easily be implemented. For instance, social media education should be introduced into schools, universities, and other institutions.

Optimism showed to have a direct positive effect on well-being and existing literature confirms this relationship (Sagone & De Caroli, 2014; Segerstrom, 2017). If optimism can help individuals to improve their well-being, the development of strategies to learn to integrate optimistic thinking into one's life would be beneficial for society. According to Cunningham et al. (2010) teaching optimistic thinking enhanced coping efficacy and reduced depressive symptoms. Existing research identified the effects of social media as increasingly causing mental distress, especially in the younger generation (Abi-Jaoude et al., 2020). To prevent tremendous negative effects on societies' mental health, it is advised to specifically develop evidence-based interventions that enhance optimistic thinking in the future.

Moreover, the effects of incidental negative news exposure on the consumers might not merely be unfavourable. According to existing research incidental news exposure leads to

a greater interest in the news (Kim, et al. 2013). Oeldorf-Hirsch (2018) found out that users on social media have an increased elaboration of content due to liking, sharing, or commenting on it. For instance, users could get incidentally informed about the consequences of climate change who otherwise would not inform themselves about the climate crisis actively. Therefore, people could get interested in the topic and might feel the need to get engaged in climate activism or increase their pro-environmental behaviour. Although incidental negative news exposure might cause a decline in well-being, it could have the positive effect of increasing peoples' knowledge about current societal, political or environmental issues. For future research, it could be interesting to not only focus on the emotional consequences of incidental negative news exposure, but also on the impact on peoples' attitudes and interest towards societal challenges.

Implications

The present study found that not only incidental negative news exposure might have negative effects on well-being, but also strengthened previous findings that social media can decrease well-being. However, there are still few interventions available that support people in coping with stressors due to social media. Therefore, the present study draws attention to the urgency to implement coping strategies for the distress due to social media use into practice. Based on the findings, it is suggested to particularly investigate optimism as a positive predictor of well-being. Since especially young people are users of social media, future interventions should focus on a young target group. Moreover, it is important to implement the theoretical knowledge into practice. For instance, parents, teachers, and other caregivers should be educated about the risks of social media and on how they can transmit healthy social media use to the younger generation (Krutka & Carpenter, 2016). Furthermore, universities and other educational institutes could educate about the risks of social media and coping techniques.

Moreover, Jones et al. (2022) found that increased engagement in social media often leads to less mindfulness. Since previous research showed that mindfulness positively predicts well-being, interventions including mindful practices, such as meditation, could be effective and easy interventions to support people in dealing with the negative impacts of Instagram use (Klussman et al., 2020; Zollars et al., 2019). Especially, concerning incidental negative news exposure users could use mindful activities in order to refocus and stay in the present moment to prevent a decline in well-being (Jones et al., 2022). In general, the present study raises the question of how a decline in well-being due to social media use can be prevented. Particularly the effects of incidental negative news exposure should be focused on, as it is a phenomenon very little is known about yet.

Conclusion

The present study found a higher decrease in well-being for the group being incidentally exposed to negative news compared to the one not experiencing incidental news exposure. However, since the control group also experienced a decline in well-being, a clear negative effect of incidental negative news exposure about the consequences of climate change on well-being cannot be concluded. Optimism showed no positive moderating effect on this relationship. Still, a positive direct influence of optimism on well-being was identified. Based on the findings it was recommended to further investigate the effects of incidental negative news exposure on well-being. Furthermore, the present study raises awareness of the importance to investigate coping methods for society to deal with the negative effects of social media and the related incidental negative news exposure on peoples' well-being. Particularly, it is essential to develop interventions that can be practically implemented, such as social media education, optimistic thinking interventions, and mindfulness programmes.

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Appendices

Appendix A

Consent form as embedded into Qualtrics

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,

████████████████████████

Katharina Hof (k.l.hof@student.utwente.nl)

███████████████████████████████████

███████████████████████████

I consent to my participation in this study

     o   Yes, I consent (1)

     o   No, I do not consent (2)

Appendix B

Demographic Questions as embedded into Qualtrics

What is your nationality?

- o   Dutch (1)

- o   German (2)

- o   Other, namely... (3)

  _____

With what gender do you identify as?

- o   Male (1)

- o   Female (2)

- o   Non-binary / third gender (3)

- o   Prefer not to say (4)

What is your age?

  _____

Appendix C

Mental Health Continuum Short Form and PSYCAP X SCALE as embedded into Qualtrics

First, we will ask you some questions regarding how you see life. Please try to answer as truthfully as possible.

	Strongly Disagree (1)	Disagree (2)	Somewhat Disagree (3)	Somewhat Agree (4)	Agree (5)	Strongly Agree (6)
I feel confident analyzing a long-term problem to find a solution. (1)	○	○	○	○	○	○
I feel confident in representing my work or school in official meetings. (2)	○	○	○	○	○	○
I feel confident contributing to discussions. (3)	○	○	○	○	○	○
I feel confident to set targets / goals in life. (4)	○	○	○	○	○	○
I feel confident contacting people to discuss problems. (5)	○	○	○	○	○	○

I feel confident presenting information to a group of people. (6)	○	○	○	○	○	○
If I should find myself in a jam in life, I could 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 succesful 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 has a silver lining." (24)	○	○	○	○	○	○

The next couple of questions concern your well-being. Again, please try to answer as truthfully as possible.

During the past month, how often did you feel...

	Never (1)	Once a week (2)	About once a week (3)	About 2 or 3 times a week (4)	Almost every day (5)	Every day (6)
Happy (1)	○	○	○	○	○	○
Interested in life (2)	○	○	○	○	○	○
Satisfied with life (3a)	○	○	○	○	○	○
That you had something important to contribute to society (4)	○	○	○	○	○	○
That you belonged to a community (like a social group, or your neighborhood) (5)	○	○	○	○	○	○
That our society is becoming a better place,	○	○	○	○	○	○

for all people (6)						
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 responsibilit ies 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)	○	○	○	○	○	○

Appendix D

Instagram Feed (Control Condition)

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

lisi_sunni
Den Haag City

···

kelly_langmore en **3 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 dag geleden · **Vertaling weergeven**

carlo_travel

···

juliaa_baauer en **4 anderen** vinden dit leuk

carlo_travel ⛰️🌿🏞️

#hiking #waterfall #nature

1 dag geleden · **Vertaling weergeven**

itswyattsnell

kelly_langmore en **2 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

2 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.

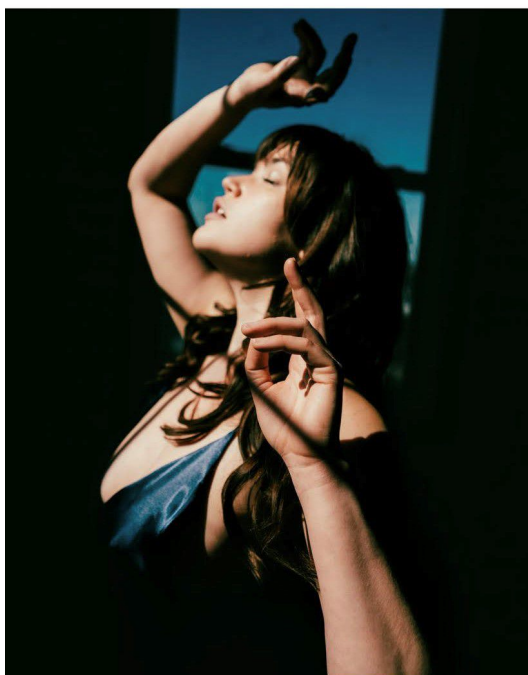lisi_sunni coffee first :D

itswyattsnell @lisi_sunni Haha! Damn right.

1 dag geleden · Vertaling weergeven

kelly_langmore
The Club

2 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)
You will now see an Instagram feed. Spend some time to look at each of the posts, their

captions and comments.

carlo_travel

juliaa_baauer en **2 anderen** vinden dit leuk
carlo_travel 🐻
1 dag geleden

kelly_langmore

lisi_sunni
Den Haag City

•••

kelly_langmore en **3 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 dag geleden · **Vertaling weergeven**

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_baauer en **4 anderen** vinden dit leuk
carlo_travel 🏔️ 🌿 🎋

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

itswyattsnell

kelly_langmore en **2 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

2 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

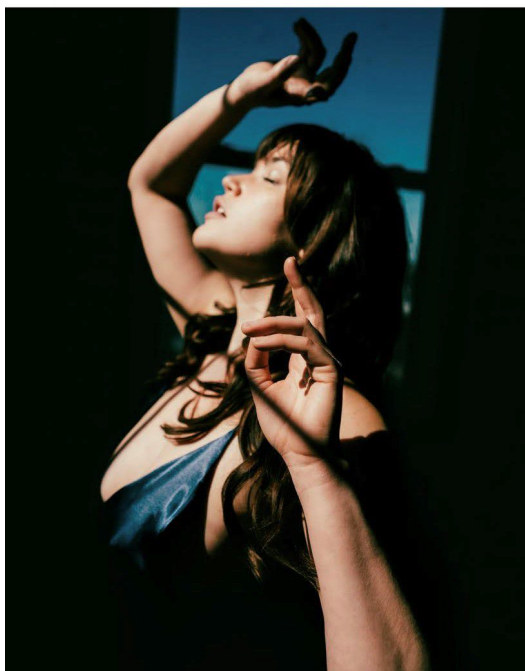kelly_langmore en 254 anderen vinden dit leuk

itswyattsnell Office days.

lisi_sunni coffee first :D

itswyattsnell @lisi_sunni Haha! Damn right.

1 dag geleden · Vertaling weergeven

kelly_langmore
The Club

2 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

< **Bericht** ↻

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.

Appendix F
Second display of Mental Health Continuum Short Form and First Control Question as embedded into Qualtrics

We would like you to fill out the questions about your well-being again.

During the past month, how often did you feel...

	Never (1)	Once a week (2)	About once a week (3)	About 2 or 3 times a week (4)	Almost every day (5)	Every day (6)
Happy (1)	○	○	○	○	○	○
Interested in life (2)	○	○	○	○	○	○
Satisfied with life (3)	○	○	○	○	○	○
That you had something important to contribute to society (4)	○	○	○	○	○	○
That you belonged to a community (like a social group, or your neighborhood) (5)	○	○	○	○	○	○
That our society is becoming a better place, for all people (6)	○	○	○	○	○	○
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 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)	○	○	○	○	○	○

Can you say 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

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:

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

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

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

Q58
Information to those wo 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 what this study was really about before seeing the debriefing? Please answer truthfully.

- o Yes (1)
- o 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."