

KAMIL JANOWICZ, EMILIA SOROKO, PAWEŁ KLEKA, MICHAŁ DOLCZEWSKI,
MACIEJ BORZYSZKOWSKI, APOLONIA BORZĘCKA



EXAMINING THE EFFECTIVENESS OF SELF-NARRATIVE DIARY INTERVENTION FOR MENTAL HEALTH DURING THE PANDEMIC

ABSTRACT. Kamil Janowicz, Emilia Soroko, Paweł Kleka, Michał Dolczewski, Maciej Borzyszkowski, Apolonia Borzęcka, *Examining the effectiveness of self-narrative diary intervention for mental health during the pandemic*, edited by Aldona Żurek, Ryszard Necel, "Człowiek i Społeczeństwo" vol. LIX: *Życie rodzinne współczesnych Europejczyków* [Family life among contemporary Europeans], Poznań 2025, pp. 171–207, Adam Mickiewicz University. ISSN 0239-3271, <https://doi.org/10.14746/cis.2025.59.9>.

This study, rooted in narrative psychology, examined the effectiveness of the proactive self-narrative diary intervention for adults' mental health during the COVID-19 pandemic. *Methods:* Four hundred twenty-four people aged 18 to 45 were recruited and divided into three groups: 'narrative', 'descriptive', and 'control'. On three consecutive days, participants in the 'narrative' group were asked to narrate their daily experiences related to the pandemic. Over the same period, people from the 'descriptive' group were asked to answer questions related to their daily activities, while the third group did nothing. The effect of the respective interventions on mental health was assessed in three follow-up measurements (taken a day, two weeks, and two months after the end of the intervention). Self-narrative inclination, awareness of narrative identity, and reflexivity were analyzed as factors modifying the effect of the self-diary intervention. *Results:* The results indicate a significant decrease in mental health problems over time; however, no differences were found between the three groups. Contrary to the hypotheses, none of the above-mentioned factors acted as a moderator to the effectiveness of the intervention. *Conclusions.* This experiment suggests that the self-diary intervention has no significant impact on a decrease in mental health problems, or an increase in positive mental health. As this finding is contrary to results of other studies, it can be claimed that not all narrative interventions (and not in all situations) are effective.

Keywords: mental health, pandemic, narrative psychology, narrative-diary intervention

Kamil Janowicz, SWPS University in Poznań, Center for Research on Personality Development, ul. Kutrzeby 10, 61-719 Poznań, e-mail: kjanowicz@swps.edu.pl, <https://orcid.org/0000-0002-6193-5331>.

Emilia Soroko, Adam Mickiewicz University in Poznań, Faculty of Psychology and Cognitive Science, ul. A. Szamarzewskiego 89, 60-568 Poznań, e-mail: soroko@amu.edu.pl, <https://orcid.org/0000-0003-3527-1698>.

Paweł Kleka, Adam Mickiewicz University in Poznań, Faculty of Psychology and Cognitive Science, ul. A. Szamarzewskiego 89AB, 60-568 Poznań, e-mail: pawel.kleka@amu.edu.pl, <https://orcid.org/0000-0003-0841-0015>.

Michał Dolczewski, Adam Mickiewicz University in Poznań, Faculty of Psychology and Cognitive Science, ul. A. Szamarzewskiego 89AB, 60-568 Poznań, e-mail: micdol@st.amu.edu.pl, <https://orcid.org/0000-0002-2563-8794>.

Maciej Borzyszkowski, Adam Mickiewicz University in Poznań, Faculty of Psychology and Cognitive Science, ul. A. Szamarzewskiego 89AB, 60-568 Poznań, e-mail: macbor5@st.amu.edu.pl, <https://orcid.org/0000-0002-6721-9256>.

Apolonia Borzęcka, Adam Mickiewicz University in Poznań, Faculty of Psychology and Cognitive Science, ul. A. Szamarzewskiego 89AB, 60-568 Poznań, e-mail: apobor@st.amu.edu.pl, <https://orcid.org/0000-0003-4547-5854>.

Correspondence concerning this article should be addressed to Kamil Janowicz, Center for Research on Personality Development, SWPS University in Poznań, Kutrzeby 10 Street, 61-719, Poznań, Poland; e-mail: kjanowicz@swps.edu.pl

Introduction

The SARS-CoV-2 pandemic was a challenge for both societies and individuals across the world. There is emerging evidence surrounding the psychological impact of the pandemic and quarantine on the populations across various countries (e.g., Salari et al., 2020; Tang, 2021; Wang, 2020), including difficulties in mental health such as increasing depressiveness, stress, or anxiety. However, there is some evidence (Holmberg et al., 2022; Mills et al., 2022) that people may also experience positive changes due to the pandemic. Thus, there is a profound need to develop empirically validated interventions aimed at not only buffering the possible negative psychological consequences of the pandemic, quarantine, and lockdown (e.g., Carbone, 2020) but also supporting positive mental health and well-being. Moreover, the significance of transparent information about these interventions is also essential (Wiltsey Stirman et al., 2019).

With such findings in mind, in this article, we focus on the potential health benefits of self-narrative diary intervention, one of the established psychological narrative interventions. As there are multiple ways to design narrative interventions (Giebel, 2018), alongside the need to base psychological

practice on scientific evidence, in this study we tested the effectiveness of a self-narrative diary intervention for mental health and psychological well-being during the pandemic. Short (one day to two weeks) and medium (two months) term outcomes were validated using multiple measures. Additionally, specific psychological differences (e.g., self-narrative inclination, reflexivity, awareness of narrative identity) were investigated as possible moderators of this effectiveness. Thus, we have examined if simple (requiring no more than 15 minutes for three days), accessible (able to be done on one's own at home), inexpensive (no necessity of contact with professionals) narrative diary intervention is helpful, and therefore could be administered to general populations facing the pandemic. Such investigations are important, as future pandemics are possible (Behl et al., 2022) – it is suggested that we learn from the SARS-CoV-2 pandemic so that we may be better prepared for similar situations in the future (Harrington et al., 2021) and avoid the feeling of being lost, lack of tools and interventions for supporting people's mental health in such crisis.

The SARS-Cov-2 pandemic as a threat and a chance

The pandemic can be understood as a critical life event (Şek, 2001) with the potential to trigger an emotional crisis, which is understood as a 'state of critical, breaking-through, and disruptive disequilibrium which forces crucial changes in existence, self-conceptions, and identity' (Kubacka-Jasiecka, 2010, p. 18). Critical life events are non-normative, meaning that there is a lack of cultural and societal scripts providing insight on how to cope with them. The sheer novelty of the current situation therefore may force people to rely on previously developed patterns of reactions which were adaptive in the past, but may be not under the present circumstances. The dynamic nature of the situation and, as a result, unpredictability of daily life (increasing or decreasing number of new cases of COVID-19, government decisions) may lead to anxiousness, doubts, and uncertainty. Moreover, pandemic-related experiences that deviate from previous ones might disrupt the sense of continuity. All of these factors have been related to increasing depressive and anxiety symptoms, maladaptive coping strategies, as well as decreases in mental health, psychological well-being, a sense of purpose, a sense of meaning, and a feeling of continuity (Kubacka-Jasiecka, 2010).

Many studies investigating mental health issues during the pandemic have been conducted in recent years (for review: Manchia et al., 2022).

The meta-analyses prepared by Salari et al. (2020) indicate that about 30% of people may have been affected by high stress, 34% by depression, and 32% by strong anxiety. In line with these findings, diaries written by about 400 Poles aged from 18 to 29 have also revealed that many people experienced a worsening of psychological well-being (Głowacka et al., 2020). Existing evidence suggests that women were more affected by the pandemic (Babore et al., 2020; Mazza et al., 2020; Robb et al., 2020; Wang et al., 2021; Xiong et al., 2020), as were youths (Mazza et al., 2020; Robb et al., 2020; Xiong et al., 2020), those who had no children (Babore et al., 2020; Dawson & Golijani-Moghaddam, 2020), people working with COVID-19 patients (Babore et al., 2020; Rehman et al., 2021), and those who had lost someone due to COVID-19 (Gallagher et al., 2020; Mazza et al., 2020). Additionally, previous mental and general health problems (Mazza et al., 2020; Xiong et al., 2020), more frequent use of social media and greater exposure to news related to the pandemic (Xiong et al., 2020), a strong fear of being infected (Nikčević et al., 2021; Whitehead & Torossian, 2021), and coping strategies based on avoidance and suppression (Babore et al., 2020; Dawson & Golijani-Moghaddam, 2020) were predictors of worse mental health during the pandemic. Overall, as illustrated by the aforementioned studies, many people have faced serious mental health problems during the pandemic. As another pandemic is possible in the future (Behl et al., 2022), there is an enhanced need to develop psychological interventions that will support the preservation of well-being in such situations (Inchausti et al., 2020). It is worth noting that some findings have suggested (e.g., Holmberg et al., 2022; Mills et al., 2022) that some people experienced positive changes during the pandemic, including having more free-time, feeling emotionally closer to other people, and understanding the importance of interpersonal relationships. Accordingly, we have examined the effectiveness of our intervention not only in terms of decreasing the risk of problems like depressive and anxiety symptoms, but also in contributing to positive mental health.

Guidelines for psychological interventions during pandemic

Due to the dynamic situation of the pandemic, including the extraordinary novelty of daily pandemic experiences and difficulties in predicting its consequences on societies and individuals, these interventions during the pandemic should simultaneously: a) support people in their present-day emotional situation; b) facilitate the process of redefining one's values, goals, and

self-conceptions; and c) be proactive, minimizing the risk of future mental health problems (Inchausti et al., 2020; Kubacka-Jasiecka, 2010). Accordingly, we suggest that interventions rooted in a narrative approach meet these requirements, as they are aimed at: a) assimilating new experiences into self; b) meaningfully integrating positive and negative, congruent and contradictory experiences; and c) re-constructing one's life story to make it more coherent and complex (Adler et al., 2008; McAdams, 2006). This idea is in line with Davis et al. (2020), whose work indicates that written emotional disclosure promoted mental health during the pandemic.

Narrative activity and mental health

Integrating new experiences into our identity can help preserve a sense of purpose, meaning, and continuity, thus contributing to improved psychological well-being (Adler et al., 2008; McAdams, 2001, 2006). In this sense, even when new experiences are challenging, they could become meaningful and incorporated into the self. This process of autobiographical reasoning fosters a sense of understanding of self and others (McLean & Pratt, 2006; Pasupathi & Mansour, 2006; Singer & Bluck, 2001). Autobiographical reasoning consists of interpreting and evaluating these experiential memories. The process of repeatedly interpreting experiences and integrating them into one's life story is called 'narrative identity processing' (Pals, 2006). A study conducted by Pals (2006) revealed that this transformational processing of difficult life experiences involves acknowledging negative emotions from the past and using them to develop new ways of experiencing positive emotions in the present. We propose that these processes may be beneficial during the pandemic, when daily experiences may be inconsistent with previous ones, potentially leading to a feeling of discontinuity, and losing one's sense of meaning. According to the narrative approach (McAdams, 2001; McAdams & McLean, 2013; McLean & Pratt, 2006), putting one's life into a story supports the process of integrating new experiences into self, because the structure of narration forces one to organize these experiences in temporal order, exploring causal relations between various aspects, and uncovering the underlying themes and motives which drive the person. It has even been suggested that mental health depends on dialectics between building life stories and deconstructing them, between being able to form a narration and adjust it in the face of new experiences (see Holmes, 1999, cited in: Salvatore et al., 2004). Thus, both coherence (achieving self-continuity and meaning)

and flexibility (adapting to the heterogeneity of experiences) are key features of narratives that are relevant to mental health and psychotherapy (Oliveira et al., 2018). Considering the dynamic nature of the pandemic, the ability to integrate daily experiences into one's life story, and to reconstruct this story, may be crucial for mental health.

Numerous studies based on the aforementioned theoretical framework have been conducted to verify the effectiveness of various narrative interventions. Narrative intervention is understood either as external narratives, which the psychologist delivers to the patient/client to stimulate pro-health behavior and improve health (Graaf et al., 2016; Perrier & Martin Ginis, 2018), or internal narratives, encouraging the activation of self-narrative activity, e.g., through experimental written disclosure (Pennebaker, 2004). In the present study, we are concerned with the latter form that is connected both in non-specific (narrative diary as an example of self-care strategies) and specific factors (stimulating narrative activity).

Many studies have demonstrated the effectiveness of narrative interventions in situations of trauma or emotional crisis (Adler, 2012; Burton & King, 2008; Pennebaker & Segal, 1999), including coping with being threatened by war (Veronese & Barola, 2018), having a serious illness (Smyth et al., 1999; Smyth et al., 2001), or having a child with autism (Trzebiński et al., 2016). Another area of research has suggested that encouraging expressive writing may positively influence general and mental health (Mosher & Danoff-Burg, 2006; Pennebaker & Chung, 2011), even when people participate via the internet (Baikie et al., 2012). Danof-Burg et al. (2010) demonstrated that both traditional and modified, narrative versions of expressive writing lead to positive outcomes in terms of mental health.

Narrative interventions in pandemic

Based on these encouraging results, some researchers have explored the utility of expressive writing during the pandemic; however, the results of these studies are inconsistent. Procaccia et al. (2021) investigated the effect of expressive writing in health care professionals working with COVID-19 patients. On three consecutive days, participants were encouraged to write about what happened to them in recent months. One group was instructed to focus on emotions and personal thought, while the second one was guided to do it 'objectively', without writing about personal feelings. A significant decrease in PTSD symptoms and depressive symptoms was observed in the

‘expressive’ group, while in the ‘neutral’ group there was no effect on PTSD symptoms and, instead, an increase in depressive symptoms. Another study corroborating the utility of an expressive writing intervention for mental health during the COVID-19 pandemic was conducted by Bechard et al. (2021). They invited 63 adults to participate in six weekly writing classes, introducing them to the Pennebaker Paradigm (Pennebaker, 2004) and various forms of expressive writing such as writing focused on emotional expression, transactional writing, poetic writing, affirmative writing, legacy writing, and mindful writing. The effect of this intervention was assessed immediately after the last session, and one month after classes concluded. Both follow-up measurements observed an increase in resilience and post-traumatic growth, as well as a decrease in perceived stress and depressive symptoms. It should be taken into consideration that there was no control group in this study. Another study reported on the effect of expressive writing not focused on general past experiences, as well as those related to the pandemic, and mental health during the pandemic. Wong et al. (2021) recruited 88 students and divided them into three groups. The first group was encouraged to write about positive experiences from their whole life, the second one about negative experiences, and the third one (control) about the last day. Importantly, the control group was instructed not to focus on emotions and to be as objective as possible. Three 15–20 minute sessions were conducted, with a one-week gap between each session. The measurement of the effectiveness of this intervention was conducted immediately after the end of the last session. An increase in positive affect and a decrease in both negative affect and depressive symptoms were observed in the positive expressive writing group. In the negative writing group, a decrease in positive affect and an increase in negative affect were observed. Participants belonging to the control group experienced a decrease in negative affect. Contrary to the aforementioned results, Vukčević Marković et al. (2020) did not find any positive changes in mental health and well-being in the adults involved in five sessions of expressive writing over a period of two weeks. Similarly, Marschin and Herbert (2021) observed a lack of effect of positive expressive writing, based on the Pennebaker Paradigm, on quality of life, positive and negative affect, depressive symptoms, and eating disorders among a group of students. It should be noted that there was no control group in this study. The inconsistency between these results necessitates further investigation of the potentially beneficial role of narrative and expressive writing interventions on mental health during the pandemic, which is the main goal of this particular project. Additionally, we examined several individual differences

in narrative activity as factors that could possibly strengthen the intervention's effectiveness.

Current study

When examining the effectiveness of techniques (interventions), the question is not only “does it work?” but also “when, and for whom, does it work?” The existing literature points to different boundary conditions for the effectiveness of experimental disclosure on one's psychological health, physical health, and overall functioning. As a result of a meta-analysis, Frattaroli (2006) concluded that the successful study tended to: 1) use participants with a health problem or participants with a history of trauma; 2) make sure participants were very comfortable during disclosure (e.g., by allowing them to disclose at home); 3) pay participants; 4) administer a large dose of disclosure (e.g., by requiring at least three disclosure sessions); 5) have participants disclose events that had yet to be fully processed (e.g., more recent events); 6) provide very detailed and specific disclosure instructions (e.g., directed questions); 7) have relatively short follow-up periods (e.g., less than 1 month).

In our study, the conditions were as follows: (1) participants were in a potential pandemic crisis (due to living during the pandemic, the risk of infection, and actual limitations), with varying mental health; (2) they wrote in the diary at home; (3) they were paid; (4) they were invited to three disclosure sessions;¹ (5) they wrote about recent events; (6) the instruction was specific; (6) varied but relatively short follow-up periods (with one longer [two months]). Additionally, in considering the potential for individual differences to modify the effectiveness of narrative intervention— which had not previously been addressed in research – we have considered self-narrative inclination, reflexivity, and awareness of narrative identity as factors which may influence the effectiveness of self-diary intervention for mental health during the pandemic. This component was introduced to address the above-mentioned “when, and for whom, does it work?” issue.

¹ We have decided for the intervention consists of three sessions due to at least a few reasons: First, that was similar to other studies examining narrative interventions during the pandemic (e.g., Procaccia et al., 2021; Vukčević Marković et al., 2020; Wong et al., 2021); Second, a meta-analysis conducted by Frattaroli (2006) found that interventions including at least three sessions are more effective. Third, we were looking for a brief intervention, which may be easily implemented into daily life, so it should not be too long.

The first of these factors is self-narrative inclination, which is the tendency to 1) take a third-party perspective on one's life and speculate about events involving oneself, particularly regarding the impact of past events on the present; and (2) recounting and reporting autobiographical events and personally important experiences in the form of a story in which the narrator is a protagonist (Soroko, 2013). An important feature of inclination is its identity-forming aspect, achieved by looking at one's life from a distance and treating it as a story (e.g., Suchańska & Ligocka, 2011). This inclination is not the same as narrative competence (the ability to understand and create stories; Baldock, 2006), because it does not concern the level of performance but, rather, the tendency or need of a person to develop and express his/her own experiences narratively. It has been shown that the level of self-narrative inclination moderates the effect of narrative instruction during a psychological interview, i.e. people with lower self-narrative inclination do not construct an elaborate and well-structured self-narrative, although they have been encouraged to do so (Soroko, 2009). Their answers are also shorter than those developed by people with high self-narrative inclination (Soroko, 2013). Accordingly, we predict that people with a higher self-narrative inclination will be more eager to be involved in writing a narrative diary, which may lead to greater beneficial outcomes for their mental health.

The second factor potentially modifying the effectiveness of the designed narrative intervention utilized in the project is reflexivity. Its positive aspect refers to people's strong desire to explore their inner self and personal feelings, i.e. being an introspective and meditative person. The negative aspect of reflexivity, rumination, refers to rehashing things in the mind, thinking about embarrassing moments from the past, and difficulties in shutting off negative thoughts and focusing on negative aspects of self (Trapnell & Campbell, 1999). We hypothesize that more reflective people will be more eager to be involved in writing a narrative diary, which should lead to greater positive outcomes post-experiment.

The third factor considered as potentially modifying the effectiveness of the designed narrative intervention included in the study is awareness of narrative activity. Hallford and Mellor (2015) argued that people may develop an awareness of narrative identity on the basis of self-knowledge of how willing they are to tell and narratively look at their lives. They also proposed and partially demonstrated that 'basic awareness of having life stories that bring cohesion and meaning to events from a person's life, irrespective of the content of those stories, may itself be adaptive' (Hallford & Mellor, 2015, p. 2). Higher awareness of developing a narrative identity

positively correlates with developing more coherent stories with a higher integrative meaning (Hallford & Mellor, 2015; Soroko et al., 2019). In line with this, we predict that, in people with a stronger awareness of narrative identity, writing about daily experiences will be more sensible and their motivation may be stronger, which should lead to better health outcomes in our study (lower level of symptoms, higher level of positive health, better general mood).

Objectives of the study

According to the conceptual framework presented in the introduction and the gaps in knowledge mentioned above, our study has two primary goals. First, to verify the effectiveness of self-narrative diary intervention for mental health during the COVID-19 pandemic in emerging and established adults.² Second, to examine the modifying role of self-narrative inclination, awareness of narrative identity, and reflexivity for the effectiveness of self-narrative diary intervention on mental health.

Method

Measures

Mental Health. The General Health Questionnaire (GHQ-30) (Goldberg & Hillier, 1979; Polish adaptation by Frydecka et al., 2010) consists of 30 items to which the participants respond on a four-point scale. All points of the scale are described, but the wording for individual items is different (e.g., from ‘completely not’ to ‘much more often than before,’ from ‘better than before’ to ‘definitely worse than before’). The GHQ-30 is used to assess mental health in relation to anxiety and depression, interpersonal relations, and general functioning. The internal reliability of the entire questionnaire was very high ($\omega = .94$). The reliability for all scales was as follows: $\alpha = .87$

² We have limited our sample to people in emerging and established adulthood (aged from 18 to 45; Mehta et al., 2020) for at least a few reasons. First, to make our sample more homogenous. Second, we have expected that for older participants it may be more difficult to take part in the online study, which may influence our results. Third, we have expected more difficulties in recruiting older participants, so we have resigned from inviting them to the study. Finally, participants in most of the former studies investigating the effectiveness of self-narrative interventions during the pandemic were also people in these developmental periods.

for anxiety and depression, $\alpha = .61$ for interpersonal relations, and $\alpha = .80$ for general functioning. This indicates that the results concerning difficulties in interpersonal relations should be taken with caution.

Positive Mental Health. The Mental Health Continuum – Short Form (MHC-SF) (Keyes, 2009; Polish adaptation by Karaś et al., 2014) consists of 14 items representing various facets of well-being. They are divided into three subscales: emotional well-being (three items), social well-being (five items), and psychological well-being (six items). Questions are answered on a six-point scale (from *never* to *every day*) and describe the frequency of experiencing various symptoms of well-being within the past month. Higher scores indicate higher levels of well-being. The internal reliability of MHC-SF in this study was good with McDonald's ω .94 and Cronbach's α for the subscales .87 (emotional well-being), .80 (social well-being), and .89 (psychological well-being).

Emotional Mood. The General Mood Scale (GMS) (Wojciszke & Baryła, 2004) consists of 10 items referring to various aspects of general mood (positive and negative), e.g., being in a 'good mood', 'feeling relaxed', or 'feeling upset'. Participants are asked to assess how each consecutive statement describes their current mood with a five-point scale ranging from *I disagree* to *I agree*. Higher scores indicate a more positive general mood. The internal reliability of the GMS in this study was good with Cronbach's $\alpha = .96$.

Self-narrative Inclination. The Self-Narrative Inclination Questionnaire (IAN-R; Soroko, 2013) encompasses self-narrative inclination as a three-dimensional construct: distancing from experience (inclination to take a third-party perspective on one's life and speculate about events involving oneself, in particular about the impact of past events on the present; 13 items), self-narrative recounting (inclination to recount autobiographical events in a convention of a story in which the narrator is a protagonist; 13 items), and making use of cultural heritage (inclination to make use of cultural heritage, like books, films, cultural patterns, when referring to one's own experiences; four items). Participants responded to 30 items using a five-point lettered scale: A – I absolutely agree (5 points), a – I partially agree (4 pts.), ab – hard to say (3 pts.), b – I partially disagree (2 pts.), B – I absolutely disagree (1 pt.). Higher scores indicate stronger self-narrative inclination with regard to each aspect. The internal consistency of the IAN-R in this study was good ($\omega = .94$ for the whole scale, and Cronbach's α for the subscales: .89, .90, and .79, respectively).

Awareness of Narrative Identity. The Awareness of Narrative Identity Questionnaire (ANIQ) (Hallford & Mellor, 2015; Polish adaptation (ANIQ-PL):

Soroko et al., 2019) is a 20-item self-report questionnaire to assess awareness of narrative identity and the perception of how globally coherent one's autobiographical memories are in terms of temporal order, causal associations, and themes. The ANIQ has 20 items divided into four scales (each includes five items): awareness, temporal coherence, causal coherence, and thematic coherence. Participants responded to each item using a 10-point end-defined scale ranging from 1 (I absolutely disagree) to 10 (I absolutely agree). Higher scores indicate: a) a higher level of awareness that one has developed the stories about one's own life, b) being more conscious about drawing on these stories to understand the person, c) perceiving personal autobiographical memories as more coherent in terms of temporal order, causal associations, and themes. The ANIQ-PL scales demonstrated high internal consistency levels in this sample ($\omega = .96$ for the whole scale; subscales $\alpha = .84$ for awareness, $\alpha = .95$ for temporary coherence, and $\alpha = .91$ for the other two).

Rumination and Reflection. The Rumination-Reflection Questionnaire (RRQ) (Trapnell & Campbell, 1999; Polish adaptation: Radoń, 2014) consists of 24 items divided into two scales – rumination (12 items) and reflection (12 items). The subscale 'rumination' refers to negative aspects of repetitive thinking about the past, the present, and the future (maladaptive thoughts, evaluations, and emotions). The subscale 'reflection' refers to positive aspects of thinking about one's life, which may be related to gaining insight and new perspectives on experiences. Participants respond to each item using a five-point scale ranging from *I completely disagree* (1) to *I completely agree* (5). Higher scores indicate a higher intensity of rumination and/or reflection. Both subscales demonstrated good internal reliability with Cronbach's α .83 for the 'rumination' subscale and .81 for the 'reflection' subscale.

Procedure

Due to the pandemic, this study was conducted via the internet and advertised on social media. The study started in December 2020 and ended in February 2021.³ The procedure of the study was as follows: First, people were asked

³ The number of new confirmed cases (~8.5 thousand per day) and the range of limitations (e.g. the mandatory physical distance of 1.5 meters between people and mask-wearing inside buildings; shops and galleries were opened in a sanitary regime; maximum five people can participate in meetings organized in a home; cinemas, pools, hotels, gyms were

to fill a recruitment questionnaire verifying whether they met the criteria of a) being between 18 and 45 years old; b) having access to the internet and e-mail; c) not living with another participant of this study; d) not being under psychiatric treatment; e) not being (now or earlier) infected by SARS-CoV-2.⁴

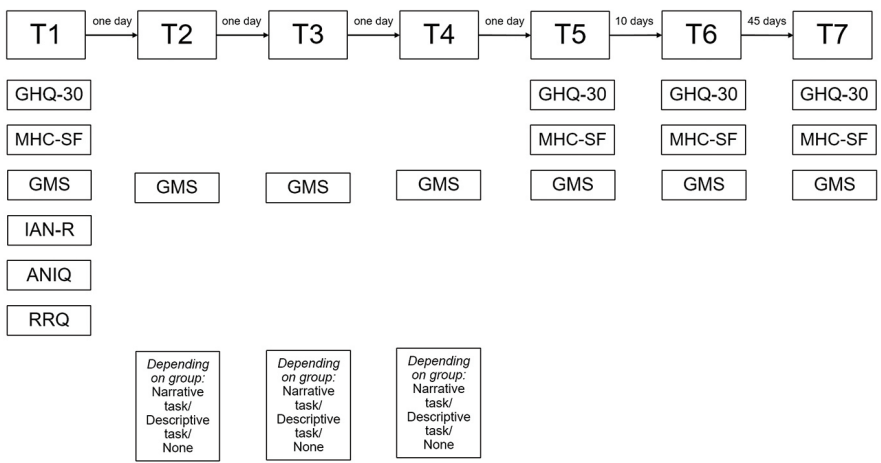


Fig. 1. Time-line of the experiment. Source: self-elaborated

Those who met these criteria were asked to sign an informed consent via the internet forms.⁵ Second, participants were asked to fill out a set of questionnaires related to their mental health (GHQ-30, MHC-SF and GMS), various aspects of the narrative activity (IAN-R and ANIQ), issues related to a pandemic, and sociodemographic data (T1). Third, participants were divided into three groups.⁶ On the next three consecutive days (T2, T3, T4)

closed; online classes in schools) were similar at the beginning and at the end of the study (Koronawirus w Polsce, 2021a, 2021b).

⁴ People who were infected (during the study or earlier) were excluded to make our sample more homogenous and avoid an additional factor potentially influencing the intervention outcome. Moreover, we assumed that people not having the experience of being infected, may experience a stronger fear than people who were over that.

⁵ It was done by ticking the “agree” box in MS Forms after the section introducing all necessary information about the project.

⁶ Dividing participants into three groups was done randomly and automatically by the script developed to automatize the whole study. The script was prepared by the third Author and the fifth Author. After recruiting half the planned number of participants, we checked whether the groups were the same regarding gender and age. They were, so we continued the procedure.

participants were asked to: a) write narratively about one important event each day and complete the General Mood Scale (GMS) (in the first group called 'narrative'); b) list three important events, what they have done for their health, what they have done in relation to daily duties (work, school, university, home), what they have done for other people, assess with how many people they have personal/online contact, and complete the GMS (in the second group called 'descriptive'); or c) only complete the GMS (in the 'control' group).⁷ On each of these days, (T2, T3, T4) participants received a dedicated instruction and a link to their task day via email. In the 'narrative' and 'descriptive' groups, participants were asked to complete their allotted task (writing a story, or answering the questions) via on-line form. We have not controlled how much time participants spent on the task each day. In e-mail sent every day, participants were encouraged to complete their task alone and in a peaceful place. They were also informed about the characteristics of their task and its possible duration. Then, the next day (T5), all participants were asked to fill out a set of questionnaires related to their mental health (GHQ-30, MHC-SF and GMS) to assess the short-term effect of experimental manipulation. This set of questionnaires was also sent to participants ten days (T6), and about two months (T7), after the experiment. Participants were compensated with 75 PLN of Sodexo vouchers after finishing the first stage of the study (T1-T5), and with a 125 PLN voucher to shop online for music, books, and games after finishing the second stage of the study (T6, and T7). The procedure of the study was reviewed and accepted by the Ethical Committee on Faculty of Psychology and Cognitive Science on Adam Mickiewicz University in Poznań.

Sample size and participants

Using G*Power statistical software (based on simulations for Repeated Measures ANOVA with within-between interactions, detection of medium effect sizes, power of at least .95), and based on the research hypotheses, a minimal number of participants was estimated – each group should not contain fewer people than 70 in the last measurement. Accordingly, the total number of participants expected in the T7 measurement was about 210 people.

⁷ Detailed instructions used in 'narrative' and 'descriptive' groups are presented in the Appendix 1. in Online Supplementary Materials.

At the beginning of the study, we received responses from 442 participants, but after analyzing the response style (e.g., only extreme or middle answers in the response format), missing data, technical communication problems (emails not arriving on time), 18 of them were excluded from the study. Finally, we studied a sample of 424 participants aged between 18 and 45 ($M = 24.60$, $SD = 5.11$). Thus, our sample consists of people in emerging adulthood (from 18 to 29 years old; 85.1%; $n = 361$), and established adulthood (from 30 to 45 years old; 14.9%; $n = 63$) (Mehta et al., 2020).

Of the 424 participants, 76% ($n = 321$) were female. Most of the participants (60.1%, $n = 255$) lived in cities above 200,000 citizens. With regard to romantic relationships, the majority of participants were single (34.9%; $n = 148$) or engaged in some sort of relationship but not married (50.2%; $n = 213$). About 20% of participants ($n = 82$) had at least one chronic disease. All participants were native citizens of Poland. There were no initial differences between people in all three groups in terms of age ($F(2, 424) = 0.45$; $p = .956$), gender ($\chi^2(2, 424) = 1.897$; $p = .387$), education ($\chi^2(12, 424) = 8.242$; $p = .766$), place of residence ($\chi^2(10, 424) = 12.597$; $p = .247$), or intimate relationship status ($\chi^2(12, 424) = 5.893$; $p = .921$). During the study, 12 participants (2.8%) have been infected by the SARS-Cov-2, 58 participants (13.7%) have someone in a close family who has been infected, and 36 participants (8.5%) have been directed to compulsory quarantine. All characteristics are presented in Table 1.

Table 1. Characteristics of participants

n	Overall ($n = 424$)	Control ($n = 147$)	Narrative ($n = 130$)	Descriptive ($n = 147$)	<i>p-value</i>
Gender = Male (n (%))	103 (24.3%)	39 (26.5%)	26 (20.0%)	38 (25.9%)	.387
Age (mean (SD))	24.60 (5.11)	24.71 (5.33)	24.54 (4.92)	24.56 (5.08)	.956
Education (n (%))					.766
High school	174 (41.0%)	61 (41.5%)	57 (43.8%)	56 (38.1%)	
Technical college	33 (7.8%)	10 (6.8%)	7 (5.4%)	16 (10.9%)	
Bachelor degree	106 (25.0%)	37 (25.2%)	31 (23.8%)	38 (25.9%)	
Master degree	90 (21.2%)	32 (21.8%)	27 (20.8%)	31 (21.1%)	
PhD and higher academic degrees	21 (5.0%)	7 (4.8%)	8 (6.2%)	6 (4.1%)	
Status (n (%))					.921
Single	148 (34.9%)	47 (32.0%)	47 (36.2%)	54 (36.7%)	
Engaged	213 (50.2%)	78 (53.1%)	61 (46.9%)	74 (50.3%)	
Married	54 (12.7%)	20 (13.6%)	19 (14.6%)	15 (10.2%)	
Other	9 (2.1%)	2 (1.4%)	3 (2.3%)	4 (2.7%)	

n	Overall (n = 424)	Control (n = 147)	Narrative (n = 130)	Descriptive (n = 147)	p-value
Living with other people (n (%))					.149
With a family of origin	154 (36.3%)	46 (31.3%)	49 (37.7%)	59 (40.1%)	
Alone	58 (13.7%)	14 (9.5%)	22 (16.9%)	22 (15.0%)	
With partner (and children)	126 (29.7%)	55 (37.4%)	34 (26.2%)	37 (25.2%)	
Other	86 (20.3%)	32 (21.8%)	25 (19.2%)	29 (19.7%)	
Having a child (n (%))					.947
No	381 (89.9%)	130 (88.4%)	118 (90.8%)	133 (90.5%)	
Expecting (pregnancy)	4 (0.9%)	2 (1.4%)	1 (0.8%)	1 (0.7%)	
Yes	39 (9.2%)	15 (10.2%)	11 (8.5%)	13 (8.8%)	
Occupational activity (n (%))					.514
Unemployed	10 (2.4%)	3 (2.0%)	2 (1.5%)	5 (3.4%)	
Working	134 (31.6%)	45 (30.6%)	38 (29.2%)	51 (34.7%)	
Studying and working	112 (26.4%)	46 (31.3%)	32 (24.6%)	34 (23.1%)	
Studying	168 (39.6%)	53 (36.1%)	58 (44.6%)	57 (38.8%)	
Place of residence (n (%))					.247
Village	54 (12.7%)	16 (10.9%)	18 (13.8%)	20 (13.6%)	
Country	14 (3.3%)	3 (2.0%)	6 (4.6%)	5 (3.4%)	
Town <5,000 citizens	11 (2.6%)	5 (3.4%)	2 (1.5%)	4 (2.7%)	
Town 5,001–50,000	41 (9.7%)	10 (6.8%)	11 (8.5%)	20 (13.6%)	
Town 50,001–200,000	49 (11.6%)	19 (12.9%)	9 (6.9%)	21 (14.3%)	
Town >200,000	255 (60.1%)	94 (63.9%)	84 (64.6%)	77 (52.4%)	
Covid-related experiences during the study (n (%))					
infected	12 (2.8%)	3 (2%)	3 (2.3%)	6 (4.1%)	.522
family members infected	58 (13.7%)	32 (21.8%)	13 (10%)	13 (8.8%)	<.01
compulsory quarantine	36 (8.5%)	12 (8.2%)	9 (6.9%)	15 (10.2%)	.611

Of the 424 people who took part in Measurement 1 (T1), 50.2% ($n = 213$, 70.9% of women) finished the study and filled in questionnaires in T7. There were no differences in terms of age ($t(422) = 0.559$, $p = 0.577$), education ($\chi^2(6, 424) = 3.957$, $p = 0.682$), relationship status ($\chi^2(6, 424) = 3.877$, $p = 0.693$), or place of residence ($\chi^2(30, 424) = 34.911$, $p = 0.246$) between people who finished the study and those who did not. With regard to gender, women more frequently resigned from the study than men ($\chi^2(1, 424) = 5.397$, $p < .05$), with a 53% drop-out rate for women, and only 39.8% for men. More information about the drop-out rate at each stage of the project is in Figure 2.

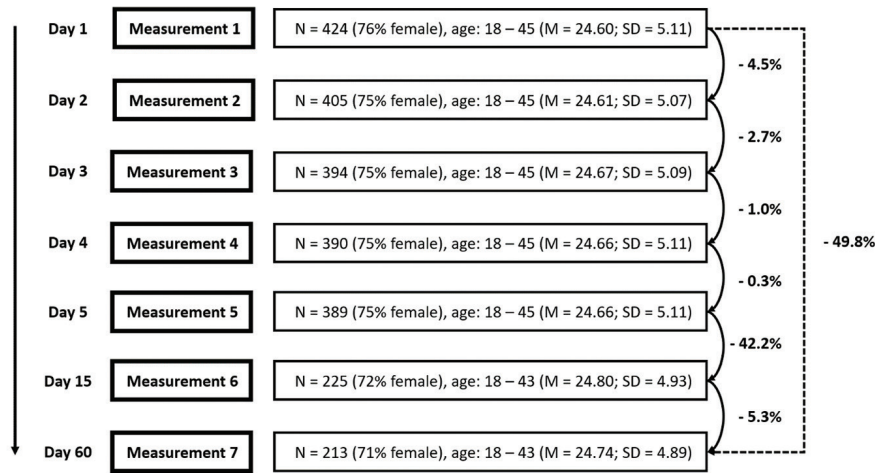


Fig. 2. Drop-outs on the consecutive parts of the study. Source: self-elaborated

Data analysis

We conducted a quantitative analysis of the data gathered in our study, which was registered with Google Forms and then processed and merged using R-project (ver. 4.1.0). Finally, statistical analyses were performed using Jamovi (ver. 2.2.2.0). First, we used a mixed ANOVA (repeated measures) with within factor (time of measurement: T1-T7) and between factor (intervention type: narrative, descriptive, control) to compare the effect of self-narrative diary intervention on mental health (GHQ, MHC) and mood (GMS). In the analysis, we made corrections in case where the assumptions about sphericity were not met. As measures of variability, we used the mean with measurement error of the mean. Secondly, we used mixed ANOVA to compare the role of self-narrative inclination, awareness of narrative identity, and reflexivity for the effectiveness of self-narrative diary intervention on mental health. The division of quantitative variables into terciles was adopted to facilitate the interpretation of results and the comparison of subgroups. It should be noted that such a breakdown may lead to the loss of some of the information associated with the continuous nature of the variables, it does however allow for the detection of non-linear relationships between variables. To assess the magnitude of effects (also statistically insignificant), we reported the value of the partial eta-squared (η^2p) and the Bayes Factor with default prior (BF, Rouder et al., 2012).

Results

While the main objective of the project was to verify the effectiveness of a self-narrative diary intervention for mental health, we compared the ‘narrative’, ‘descriptive’, and ‘control’ group in terms of changes in mental health problems and positive mental health across all measurements. There was a statistically significant decrease in the GHQ Total Scale score associated with measurement ($F(2.64, 555.2) = 9.145, p < .001, \eta^2_p = .043, BF_{10} = 1070$), with no difference between groups ($F(2, 210) = 1.403, p = .248, BF_{10} = 0.221$) and a non-significant interaction effect between measurement and group membership ($F(5.29, 555.2) = .691, p = .638, BF_{10} = 0.006$). A decrease in GHQ Total score from 73.7 ($SE = 1.01$) to 72.1 ($SE = 1.11$) was observed between measurements, and 70.6 ($SE = 1.20$) and 69.5 ($SE = 1.18$) in subsequent measurements. A similar pattern of results (significant decrease associated with measurement, and a non-significant interaction effect between measurement and group membership) was observed also for all analyzed aspects of mental health: Anxiety-Depression, Interpersonal Relationships, and General Functioning. For each of them and time point, the results are presented in Table 2. According to these results, it is evident that the self-narrative diary intervention had no effect on mental health in this study. Detailed information about means and standard deviations of all variables across all measurements are available in Table S1. in the Appendix 2., while detailed information about means and standard deviations of all variables in each group (narrative, descriptive, and control) in T1 are available in Table S2. in the Appendix 2.

Table 2. Results from repeated ANOVA analysis and means for all time points for GHQ subscales

Variables	Mean (standard errors)				F	df1	df2	p	η^2_p	BF ₁₀
	T1	T5	T6	T7						
Anxiety-Depression Effects	24.7 (0.44)	24.1 (0.46)	23.2 (0.48)	23.1 (.48)	9.124 ^{HF}	2.78	583.2	< .001	0.042	860
	measurement * group				0.240	5.55	583.2	0.956		0.002
	between group				1.38	2	210	0.255		0.217

Inter-personal Relationships	9.8 (0.15)	9.5 (0.16)	9.6 (0.18)	9.2 (0.18)	4.374 ^{HF}	88	604.4	0.005	0.020	1.1
	measurement * group				0.231	5.76	604.4	0.936		0.001
	Effects									
					between group	0.228	2	210	0.796	0.061
General functioning	21.3 (0.27)	20.6 (0.29)	20.4 (0.32)	19.9 (0.32)	9.525 ^{GG}	2.66	558.2	< .001	0.043	1078
	measurement * group				1.229	5.32	558.2	0.293		0.015
	Effects									
					between group	1.206	2	210	0.302	0.145

Note. Indices GG and HF mark corrections for lack of sphericity: HF – Hyundai-Feldt, GG – Greenhouse-Geisser. BF_{10} – Bayes factor for the probability of true H₁ over the probability of true H₀ given data.

Moreover, there was no statistically significant change in the MHC Total Scale score associated with measurement ($F_{GG}(2.66, 552.8) = 1.197$, $p = .309$, $BF_{10} = .30$) with no difference between groups ($F(2, 208) = 1.656$, $p = .193$, $BF_{10} = 0.01$). Averaging across time, the mean MHC Total score was 29.2 ($SE = 0.66$). For each MHC scale dimension and time point, the results were not significant for measurements (Emot: $F_{GG}(2.78, 570.2) = 0.37$, $p = .759$, $BF_{10} = 0.22$; Soc: $F_{GG}(2.69, 531.9) = 2.197$, $p = .095$, $BF_{10} = 0.05$; Psych: $F_{HF}(2.83, 583.3) = 1.304$, $p = .273$, $BF_{10} = 0.01$) nor were there differences between groups (Emot: $F(2, 205) = 1.496$, $p = .226$, $BF_{10} = 0$; Soc: $F(2, 198) = .554$, $p = .575$, $BF_{10} = 0.10$; Psych: $F(2, 206) = 1.729$, $p = .180$, $BF_{10} = 0.30$).

The second main goal of this project was to verify the hypothesis about the modifying role of self-narrative inclination, awareness of narrative identity, and reflexivity for the effectiveness of self-narrative diary intervention on mental health. Accordingly, we used cut-off points (33rd and 66th percentiles) to split participants from the ‘narrative’ group into three subgroups (low scorers, moderate scorers, and high scorers) in terms of self-narrative inclination, awareness of narrative identity, rumination and reflexivity. Our hypothesis was first tested in relation to mental health problems (GHQ Total Scale). Contrary to our predictions, self-narrative inclination ($F(3, 207) = 0.15$, $p = .930$, $BF_{10} = 0.33$), awareness of narrative identity ($F(3, 207) = 0.44$, $p = .722$, $BF_{10} = 0.36$), or reflexivity ($F(3, 207) = 1.0$, $p = .394$, $BF_{10} = 0.17$) did not modify the effectiveness of the self-narrative diary intervention for

mental health problems. Similarly, changes in positive mental health in the ‘narrative’ group were not related to the level of self-narrative inclination ($F(3, 207) = 0.46, p = .710, BF_{10} = 0.48$), awareness of narrative identity ($F(3, 207) = 0.45, p = .717, \eta^2 p = .01, BF_{10} = 0.68$), or reflexivity ($F(3, 207) = 2.32, p = .076, BF_{10} = 0.42$). According to these results, it seems that the level of self-narrative inclination, awareness of narrative identity, and reflexivity did not modify the effectiveness of the self-narrative diary intervention on mental health. This intervention was ineffective irrespective of these factors.

In our study, there was a statistically significant increase in the GMS Total Scale score associated with measurement ($F(5.57, 1170) = 5.18, p < .001, \eta^2_p = .020, BF_{10} = 55.3$) with no difference between groups ($F(2, 210) = 1.280, p = .281, BF_{10} = 0.10$) and a non-significant interaction effect between measurement and group membership ($F(11.15, 1170) = .740, p = .704, BF_{10} = 0$). An increase in the GMS Total score from 3.04 ($SE = 0.07$) to 3.25 ($SE = 0.08$) was observed between T1 and measurements at T2, T3, and T4 (tasks ‘narrative’, ‘descriptive’, and ‘control’). The follow-up results were T5 measurement 3.42 ($SE = 0.07$), T6 equal 3.37 ($SE = 0.07$), and T7 equal 3.30 ($SE = 0.07$). The last three were significantly higher than the T1 score. The results for the GMS Total score at the assessed time points are presented in Figure 2.

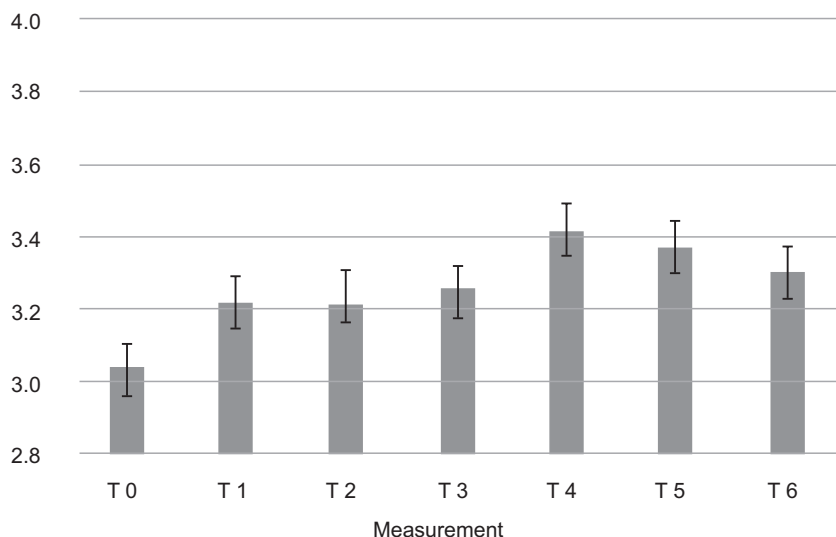


Fig. 3. Marginal means with standard errors of measurement for GMS Total score at time points. Source: self-elaborated

Meanwhile, the indirect effect of narrative activity variables did not identify any of these variables as significantly related to changes in general mood across measures. The indirect effect explained less than 1% of the relationship between T1 and T7 in the GMS score (the direct effect was 0.517, $SE = 0.053$).

Discussion

This study assessed the effectiveness of a self-narrative diary intervention for mental health in adults in the context of the COVID-19 pandemic. Our study found no evidence that three consecutive days of describing personal experiences narratively generated benefits in terms of lowering depression, anxiety, and problems in general functioning and increasing positive mental health. The results obtained are not conclusive regarding this lack of effect. Based on the magnitude of the BF coefficient, the null hypotheses are only marginally more likely ($1.47 < BF_{01} < 3.03$) than our hypotheses. We obtained greater confidence in the absence of effect only for reflexivity ($BF_{01} = 5.88$). The results of the follow-up assessment indicated that the severity of mental health problems measured by the GHQ-30 total score substantially ($BF_{10} = 1070$) decreased in all groups; however, no differences between groups were obtained. These results indicate that participation in the self-narrative diary intervention did not have short-term or long-term effects. Finally, the results indicated that the level of self-narrative inclination and awareness of narrative identity did not modify the effectiveness of self-narrative diary intervention for mental health during the COVID-19 pandemic.

The findings of our study are surprising and inconsistent with the theoretical framework rooted in this narrative approach (McAdams, 2001; McAdams & McLean, 2013; McLean & Pratt, 2006), and the results of many former studies on the effectiveness of narrative interventions for mental health and well-being (e.g., Adler, 2012; Burton & King, 2008; Pennebaker & Chung, 2011; Pennebaker & Segal, 1999; Trzebiński et al., 2016), as well as those conducted during the pandemic (e.g., Procaccia et al., 2021; Wong et al., 2021). Accordingly, we propose considering two explanations for the lack of effects observed in our study. Firstly, the process of narrative elaboration of everyday experiences simply may not play a significant role in maintaining mental health in the context of the COVID-19 pandemic, or, secondly, our intervention may have failed to kick-start the processes of narrative

processing and autobiographical reasoning. Both of these possibilities will be discussed in reference to previous research and theoretical concepts.

Because there is a considerable amount of existing literature on the role of narrative processing and autobiographical reasoning for mental health, and narrative interventions have been shown to be useful in many contexts (Gonçalves & Machado, 1999; Józefik et al., 2012; Odachowska et al., 2019; Smyth et al., 1999; Trzebiński et al., 2016), it is difficult to explain the reason for the lack of an effect in terms of a pandemic. However, we would like to draw attention to one issue: In the vast majority of prior studies, the narrative intervention was conducted a few months, or even years, after the challenging and stressful event. On the contrary, in this study, the self-narrative diary intervention was performed at a time when the stressor (the COVID-19 pandemic and its consequences) was still present. Moreover, no reliable information was available on when it is expected to end. Thus, the potential integration of experiences, as well as the reorganization of emotions and thoughts required for beneficial outcomes from narrative activity, may have been disrupted under these circumstances. Moreover, the involvement in writing a self-narrative diary during a stressful event might have led to focusing on the negative aspects of daily life, increasing awareness of the existing threat and intensifying people's concerns. From this point of view, a self-narrative diary intervention may result not in reflective distancing and recounting (as we hypothesized) but rather in ruminations, which are maladaptive in terms of coping with serious stress (Littleton et al., 2007). This possible explanation of the lack of effectiveness of narrative intervention on mental health during the COVID-19 pandemic is in line with conclusions presented by Vukčević-Marković et al. (2020), who did not find evidence for a beneficial role for an expressive writing intervention during the pandemic.

We would like to expand this explanation by adding two thoughts to that: Firstly, being affected by the actual stressful event may not only result in ruminations, but these ruminations may also interfere with potentially beneficial processes like distancing, recounting, and autobiographical reasoning. From this perspective, focusing on present experiences may not only increase negative affect, but also undermine the potential positive effects of the intervention. However, in our study, we controlled for the general mood during all measurements, and it did not differ across groups. Secondly, it may be the case that present experiences may not have affected people's mental health yet, so there 'was nothing' to process narratively. Additionally, after about nine months of the pandemic, these daily events may

not be emotionally involving and important for participants. The additional rationale for this argument is that, in most prior studies, people have been asked to write narratively about their past experiences, as mentioned above.

There are also possible reasons why the self-narrative diary intervention may not lead to starting the process of narrative processing and autobiographical reasoning. Firstly, it may be that intervention was not sufficiently immersive, and asking to describe one event for three consecutive days was not enough to get these processes off the ground. However, three days of 20-minute sessions of expressive writing in a study by Proccacia et al. (2020) resulted in a significant decrease in PTSD and depressive symptoms in people working with COVID-19 patients. Similarly, significant decreases in negative affect and depressive symptoms were observed after three 15- to 20-minute sessions of positive expressive writing in a study by Wong et al. (2021). Concerning the Proccacia et al. (2020) study, the differences in sampling should be highlighted – our sample was recruited from the general population, while Proccacia et al. (2020) focused on recruiting people working with COVID patients. Their experiences could vary from the experiences of average people, and for them, this kind of intervention may be beneficial. On the other hand, Burton and King (2008) showed that even two minutes of writing on two consecutive days had a positive impact on health. Nevertheless, a meta-analysis conducted by Frattaroli (2006) found that writing longer than 15 minutes tended to show a larger effect than sessions lasting less than 15 minutes. As the time spent on writing about each experience was not controlled in this study, this should be taken into consideration as one of its limitations. It may be that people spent less than 15–20 minutes on this task, which may decrease the potential effectiveness of the intervention. Further studies, focused on a specific task (e.g., writing about past or present events) rather than on ‘writing for a specific amount of time’ should control how long it takes people to write their stories. It is also possible that participants have not been motivated to engage in writing, and their self-narratives were superficial. This low level of engagement may be caused by the external motivation for taking part in the study because participants were financially compensated. Even so, a study conducted by Litman et al. (2014) on MTurk users revealed that greater financial compensation does not result in a decrease in data quality. While results on the effectiveness of narrative intervention for mental health during a pandemic are inconsistent, it is important to investigate not only the effectiveness of such an intervention, but also the factors related to increasing or decreasing its effects.

The lack of effect may also be related to the nature of health-promoting self-narrative activity, which requires the event to involve the *Self* and be personally meaningful and representative of that *Self*. In the absence of a temporal distance to the event (the pandemic was, after all, ongoing at the time of the study), the person had not yet developed his or her self-narration, which could perform regulatory functions by reaching for facilitated episodic memory (e.g., Trzebiński et al., 2021). Then, the health-promoting effect would not so much be related to the narrative processing of arbitrary experiences but rather to the sustained development through the narration of a particular conception of the *Self* and the world based on reflection.

In future research, it is worth administering a larger dose of self-narrative activity (more consecutive days) or asking participants to elaborate on events that had yet to be fully processed but were acknowledged as personally meaningful. Moreover, the disclosure in the form of a story could be more beneficial when addressed to the important or at least personalized listener.

The second main objective of this study was to examine the role of 1) self-narrative inclination, 2) awareness of narrative identity, and 3) reflexivity on the effectiveness of the designed self-narrative diary intervention. This hypothesis was also not supported by the data. At least two possible explanations should be discussed here. First, after splitting the 'narrative' group into three subgroups (low scorers, moderate scorers, and high scorers), each of them contained only about 25–35 people. Thus, this result should be interpreted with caution due to the limited number of participants. Second, as mentioned above, described daily experiences may not be emotionally involving, significantly related to the *self*, and encouraging reflection and narratively processing them. Thus, none of the aforementioned factors could have influenced the effect of the task. Ultimately, this result is surprising, and it is difficult to explain.

Finally, the results suggest that, during the two months of the study, the level of mental health problems in participants decreased significantly, and the general mood increased significantly, but there was no difference between groups (narrative vs. descriptive vs. control), and none of the controlled factors (sociodemographic or psychological) modified this effect. These findings are in line with those provided by Mills et al. (2022), who showed that people may also experience positive changes during the pandemic. Our results underline the significance of engaging control groups in studies aiming to verify the effectiveness of any intervention on mental health. According to our data, the findings reported by Bechard et al. (2021) and

Marschin and Herbert (2021) should be taken with caution because there was no control group in these studies.

We would also like to propose three possible explanations for this result indicating a decrease in mental health problems and an increase in general mood during the study with no significant effect of the experimental intervention. Firstly, it may be that taking part in the study itself was beneficial for participants. Involvement in the study and a feeling of ‘being helpful and useful’ (for researchers and science) and ‘taking part in something important’ (a study aimed at mental health) may result in an increase in well-being. It is consistent with our observation that the general mood significantly increased across the measurements. Secondly, a decrease in mental health problems and an increase in general mood may be the result of adaptation to the pandemic, gaining new experiences, developing new strategies for coping, or just getting used to this situation as something ‘normal’. Thirdly, it could have been caused by situational factors related to the pandemic, although the situation was similar at the beginning of the study (the second half of December 2020) and nearly to its end (the end of February 2021); the number of new confirmed cases was almost the same (8,818 cases per day in the last two weeks of December, and 8,431 new cases per day in last two weeks of February; Koronawirus w Polsce, 2021a). Additionally, the range of limitations was similar from the beginning of November 2020 to the second half of March 2021 (Koronawirus w Polsce, 2021b). Finally, from an assessment perspective, it is also worth noting the ‘attenuation effect’ of detecting a decrease in symptom severity associated with repeatedly testing a person with the same or similar tools (see Dougherty et al., 2008). This effect makes it difficult to determine whether an emerging improvement in score on a particular tool is clinically meaningful. Accordingly, the current data do not provide an answer to the reason for a decrease in mental health problems and an increase in the general mood of the participants. It highlights the reasonableness of including a group that does not do a pre-test in further experimental research on the effectiveness of narrative interventions to control the possible impact of the attenuation effect.

Limitations

Even though this study adds valuable knowledge on the effectiveness of a self-narrative diary, there are limitations that need to be addressed. First, participants were aged 18 to 45 (with a majority of people under 30 years

old); thus, the results cannot be generalized to adolescents or older adults and refer only to emerging and established adults (Mehta et al., 2020). Second, we excluded people who were infected (at the beginning of the study or earlier), which made our sample more homogenous but limited the range of generalization of results. Third, conducting research via the internet limited the possibility of controlling participants' honesty and engagement, rendering it impossible to determine whether superficial narratives were the effect of low motivation or low narrative competency. As mentioned earlier, controlling the time spent by participants on writing about each experience could help distinguish motivated and non-motivated participants. However, a study conducted by Baikie et al. (2012) showed that expressive writing also had a positive effect on mental health when it was conducted via the internet. Fourth, the instruction to encourage stories about the past day may have evoked experiences that were too current or too commonplace. Despite the crisis caused by the pandemic, these could still be everyday matters, which did not have the potential to become personally meaningful. Hence, the narrative's integrative potential (fostering autobiographical inference) could not be sufficiently mobilized. Fifth, the situation in Poland was dynamic during the months when this study was conducted. As data was gathered in three waves, it is possible that the pandemic and societal context of taking part in the study were different across participants. Finally, the number of participants who took part in all measurements limited the possibility of verifying the hypothesis related to the modifying role of self-narrative inclination, awareness of narrative identity, and reflexivity for the effectiveness of the designed self-diary intervention on mental health.

Conclusions

The present study aimed to verify the effectiveness of a self-narrative diary intervention for mental health in the context of the COVID-19 pandemic. Our experiment with three follow-ups did not support this intervention outcome of a significant decrease in mental health problems and an increase in positive mental health. Additionally, self-narrative inclination, awareness of narrative identity, and reflexivity did not modify the effectiveness of this intervention. Our study further calls the potentially beneficial role of narrative intervention during the pandemic into question (Marschin & Herbert, 2021; Vukčević Marković et al., 2020). While other studies (Bechard et al., 2021; Procaccia et al., 2020; Wong et al., 2021) have indicated a positive

effect of expressive writing on mental health in the context of the COVID-19 pandemic, our findings suggest that various factors may influence the effectiveness of narrative interventions, e.g., the specificity of sampling, the type of intervention, participants' engagement, and the influence of contextual factors. Moreover, verifying the effectiveness of narrative interventions focused on past experiences referring to the pandemic instead of present, daily experiences may be a good idea.

Funding. The research project was funded by the Rector of Adam Mickiewicz University in Poznań within the competition "Research on COVID-19" (1.11.2020–30.04.2021).

Acknowledgments. Kamil Janowicz has been awarded the Adam Mickiewicz University's Foundation scholarship for the Academic Year 2021/2022.

Ethics approval. The procedure of the study was reviewed and accepted by the Ethical Committee on Faculty of Psychology and Cognitive Science on Adam Mickiewicz University in Poznań (positive decision issued on 11th of January, 2021).

Conflict of interest. We have no conflict of interest to disclose.

Consent to participate. Informed consent was obtained from all individual participants included in the study.

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Appendix 1

Instructions in 'narrative' and 'descriptive' group used in the study

The instruction for T1 – T3 in the 'narrative group':

People experience differently the fact that there is a Covid-19 pandemic in the world. Think about the past day, recalling the context of the pandemic. Write about one event or experience, preferably from today, that was meaningful or touched you somehow. Write about it as if you were going to write a story with you as the main character. You can start with "It began with..." or "In the beginning...". We are aware that this may seem a bit unnatural at first, but we encourage you to describe your experience in this narrative way. It may appear that the first sentences will not seem coherent to you. Don't worry about that or grammar or spelling. Try to tell the story as well as you can. The most important thing is that it is your story about your experiences.

The instruction for T1 – T3 in the 'descriptive group':

People experience differently the fact that there is a Covid-19 pandemic in the world. Think about the past day, recall the pandemic's context, and answer the following questions. 1. List any three significant events from today. 2. List the activities you did today for your health. 3. List the activities you did concerning your responsibilities (e.g., school, work, study, taking care of your home). 4. List what you have done for other people today. 5. Approximately how many people have you talked to online by video today?

Appendix 2

Table S1.

Descriptives statistics for all questionnaires (whole sample) among the subsequent measurements.

Variable	Mean (SD), Median			
	T0, N = 424	T4, N = 389	T5, N = 225	T6, N = 213
ghq_total	73.55 (14.389), 72	72.85 (16.277), 71	70.35 (17.442), 67	69.48 (17.144), 66
ghq_anx_depr	24.74 (6.255), 25	24.36 (6.871), 25	23.14 (6.891), 22	23.10 (7.005), 22
ghq_interp_rel	9.66 (2.246), 10	9.59 (2.375), 9	9.54 (2.654), 10	9.20 (2.541), 9
ghq_gen_funct	21.07 (3.950), 21	20.84 (4.237), 20	20.32 (4.660), 20	19.88 (4.667), 19
mhc_total	29.32 (13.725), 28	29.08 (13.061), 28	28.78 (13.251), 27	29.47 (14.894), 28
mhc_emot	7.26 (3.528), 7	7.06 (3.216), 7	7.12 (3.239), 7	7.03 (3.382), 6
mhc_soc	7.85 (4.935), 7	7.97 (4.526), 7	7.45 (4.664), 7	7.89 (5.400), 7
mhc_psych	14.55 (7.043), 14	14.46 (6.738), 13	14.50 (6.747), 14	14.69 (7.589), 14
gms_total	3.11 (1.039), 3	3.33 (1.111), 4	3.38 (1.073), 4	3.30 (1.051), 4
	T0, N = 424		T0, N = 424	
ian_total	104.42 (20.776), 106	aniqu_awareness	33.90 (9.617), 35	
ian_dist	49.08 (10.097), 51	aniqu_temp.cohe	34.34 (11.101), 36	
ian_spea	44.05 (11.201), 46	aniqu_caus.cohe	35.18 (9.353), 36	
ian_cult	11.29 (4.461), 11	aniqu_tema.cohe	33.72 (9.414), 34	
prq_rumin	19.46 (5.416), 20	aniqu_total	137.14 (31.084), 139	
prq_refl	42.44 (9.218), 43			

Table S2.

Descriptives statistics for all questionnaires (whole sample) in T1.

Groups	Control	Narrative	Descriptive
N_T0	147	130	147
N_T4	135	117	137
N_T5	76	73	76
N_T6	71	73	69
Variables	Mean (SD), Median	Mean (SD), Median	Mean (SD), Median
ghq_total_T0	74.7 (14.33), 73	72.1 (13.55), 71	73.7 (15.14), 73
ghq_total_T4	75.1 (16.90), 75	70.4 (14.64), 70	72.8 (16.79), 72
ghq_total_T5	74.0 (16.72), 74	68.9 (17.45), 65	68.0 (17.77), 65
ghq_total_T6	71.5 (16.39), 68	69.2 (18.89), 66	67.6 (15.94), 65
ghq_anx_depr_T0	25.4 (6.26), 25	24.1 (6.00), 24	24.7 (6.45), 25
ghq_anx_depr_T4	25.3 (6.76), 25	23.5 (6.33), 24	24.2 (7.34), 25
ghq_anx_depr_T5	24.5 (6.37), 24	22.6 (7.10), 21	22.3 (7.08), 21
ghq_anx_depr_T6	23.9 (6.84), 23	22.8 (7.52), 22	22.6 (6.62), 22
ghq_interp_rel_T0	9.7 (2.31), 10	9.5 (2.11), 9	9.8 (2.30), 10
ghq_interp_rel_T4	9.8 (2.57), 10	9.2 (2.30), 9	9.7 (2.23), 9
ghq_interp_rel_T5	9.8 (2.65), 10	9.4 (2.80), 9	9.5 (2.53), 10
ghq_interp_rel_T6	9.3 (2.44), 9	9.2 (2.75), 9	9.1 (2.43), 9
ghq_gen_funct_T0	21.2 (3.75), 21	20.9 (4.13), 21	21.1 (4.01), 21
ghq_gen_funct_T4	21.1 (4.40), 20	20.5 (4.17), 20	20.8 (4.14), 20
ghq_gen_funct_T5	21.2 (4.65), 21.5	20.2 (4.75), 20	19.6 (4.52), 19
ghq_gen_funct_T6	20.5 (4.47), 20	20.1 (5.16), 19	19.0 (4.23), 19
mhc_total_T0	28.1 (13.42), 25	31.8 (13.35), 31.5	28.3 (14.15), 27.5
mhc_total_T4	28.0 (13.20), 26	30.9 (12.75), 30	28.5 (13.12), 28.5
mhc_total_T5	26.9 (12.12), 25	30.3 (14.07), 28	29.2 (13.48), 28.5
mhc_total_T6	27.9 (13.83), 28	30.8 (15.44), 28	29.6 (15.44), 27
mhc_emot_T0	7.2 (3.51), 7	7.8 (3.45), 8	6.9 (3.59), 7
mhc_emot_T4	6.9 (3.19), 6	7.5 (3.22), 7	6.8 (3.23), 7
mhc_emot_T5	6.9 (3.00), 7	7.5 (3.36), 7	7.1 (3.36), 7
mhc_emot_T6	6.4 (3.38), 6	7.5 (3.43), 7	7.2 (3.28), 6
mhc_soc_T0	7.2 (4.80), 6	8.6 (5.11), 8	7.8 (4.85), 7
mhc_soc_T4	7.8 (4.63), 7	8.2 (4.68), 7	7.9 (4.32), 8
mhc_soc_T5	7.1 (4.21), 6.5	7.5 (5.13), 7	7.7 (4.67), 7
mhc_soc_T6	7.7 (5.15), 7	7.9 (5.59), 7	8.1 (5.52), 6.5

mhc_psych_T0	14.1 (7.08), 14	15.7 (6.70), 16	14.0 (7.24), 13
mhc_psych_T4	13.8 (6.84), 13	15.4 (6.51), 14	14.3 (6.80), 13
mhc_psych_T5	13.1 (6.61), 12	15.6 (6.91), 16	14.9 (6.58), 14
mhc_psych_T6	14.0 (7.25), 13	15.5 (7.77), 15	14.6 (7.78), 15
gms_total_T0	3.1 (0.99), 3.100	3.2 (1.04), 3.400	3.0 (1.08), 3
gms_total_T1	3.1 (1.03), 3	3.2 (1.09), 3.100	3.4 (1.11), 3.5
gms_total_T2	3.1 (1.12), 3.100	3.3 (1.15), 3.600	3.3 (1.14), 3.5
gms_total_T3	3.1 (1.15), 3	3.3 (1.12), 3.5	3.3 (1.19), 3.650
gms_total_T4	3.3 (1.11), 3.600	3.5 (1.04), 3.700	3.3 (1.17), 3.5
gms_total_T5	3.2 (1.05), 3.250	3.5 (1.05), 3.900	3.5 (1.11), 3.950
gms_total_T6	3.2 (1.07), 3.400	3.3 (1.07), 3.600	3.4 (1.02), 3.600
prq_rumin	19.6 (5.27), 20	19.6 (5.73), 20	19.2 (5.32), 20
prq_refl	42.8 (9.18), 42.5	42.9 (8.71), 44	41.7 (9.68), 42
ian_total_T0	104.2 (20.45), 104	105.5 (20.85), 106.5	103.6 (21.13), 106
ian_dist_T0	49.1 (10.04), 51	49.9 (10.19), 52	48.4 (10.09), 50
ian_spea_T0	44.2 (10.67), 46	44.0 (11.53), 46	43.9 (11.50), 45
ian_cult_T0	10.9 (4.34), 10	11.6 (4.59), 11	11.3 (4.47), 11
aniq_awareness	34.2 (10.00), 35	33.9 (9.70), 35	33.6 (9.20), 34
aniq_temp.cohe	35.1 (10.75), 37	34.6 (10.39), 36	33.4 (12.02), 34
aniq_caus.cohe	35.6 (9.20), 37	36.1 (8.93), 37	34.0 (9.80), 35
aniq_tema.cohe	34.0 (9.37), 34	34.7 (9.22), 36	32.6 (9.58), 33
aniq_total	138.8 (31.46), 143	139.3 (29.60), 139	133.6 (31.87), 135
