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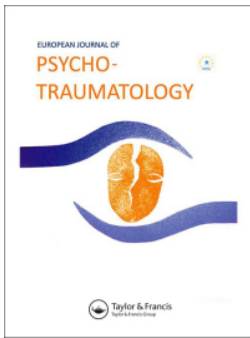
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Anniversary reactions among journalists covering terror: stress reactions and well-being 10 years after the terror in Norway

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ABSTRACT

Background: Covering terror and catastrophes can be traumatic for journalists, potentially resulting in long-term impairment. This study investigated 10-year anniversary reactions among Norwegian journalists who covered the Oslo/Utøya terror incident in Norway, 2011.

Objective: The study aimed to investigate whether level of traumatic exposure and support actions in 2011 were related to anniversary reactions and current psychological well-being in 2021. It also explored if magnitude of anniversary reactions was related to level of current well-being.

Method: A cross-sectional survey was sent to journalists who still work within journalism, eight weeks after the 10-year anniversary ($N = 200$). Participants reported retrospectively on trauma exposure, ethical dilemmas and social support in 2011, as predictors, and attitude to media anniversary coverage, anniversary-related stress, and well-being, as outcome variables.

Results: More ethical dilemmas in 2011 ($r = .295, p < .001$) were related to a larger degree of anniversary-related stress in 2021. Having received less workplace social support in 2011 was related to more stress reactions ($r = -.196, p < .05$), while the magnitude of overall traumatic exposure in 2011 was not related to stress. Social support also predicted a higher level of current well-being in 2021 ($r = .381, p < .001$). More severe anniversary-related stress symptoms were significantly associated with decreased level of current well-being ($r = -.259, p < .001$).

Conclusion: Journalists can experience lasting consequences from demanding experiences at work, including fluctuating stress symptoms during incident anniversaries. It is crucial for both journalists and newsrooms to recognize and be aware of the potential impact of anniversaries on the well-being of those involved in the initial coverage.

Reacciones al aniversario entre los periodistas que cubren el terror: Reacciones al estrés y bienestar, 10 años después del terror en Noruega

Antecedentes: Cubrir el terrorismo y las catástrofes puede ser traumático para los periodistas, lo que puede resultar en un deterioro a largo plazo. Este estudio investigó las reacciones al décimo aniversario entre los periodistas noruegos que cubrieron el incidente terrorista de Oslo/Utøya en Noruega en 2011.

Objetivo: El estudio tuvo como objetivo investigar si el nivel de exposición traumática y las acciones de apoyo en el 2011 estaban relacionadas con las reacciones al aniversario y el bienestar psicológico actual en el 2021. También exploró si la magnitud de las reacciones al aniversario estaba relacionada con el nivel de bienestar actual.

Método: Se envió una encuesta transversal a periodistas que aún se desempeñan en el periodismo, ocho semanas después de los 10 años ($N = 200$). Los participantes informaron retrospectivamente sobre la exposición al trauma, los dilemas éticos y el apoyo social en el 2011 como predictores, y la actitud hacia la cobertura del aniversario en los medios, el estrés relacionado con el aniversario y el bienestar, como variables de resultado.

Resultados: Más dilemas éticos en el 2011 ($r = .295, p < .001$) se relacionaron con un mayor grado de estrés vinculado con el aniversario en 2021. Haber recibido menos apoyo social laboral en 2011 se relacionó con más reacciones al estrés ($r = -.196, p < .05$), mientras que la magnitud de la exposición traumática general en 2011 no estuvo relacionada con el estrés. El apoyo social también predijo un mayor nivel actual de bienestar en 2021 ($r = .381, p < .001$). Los síntomas de estrés más severos relacionados con el aniversario se asociaron significativamente con una disminución del nivel actual de bienestar ($r = -.259, p < .001$).

Conclusión: los periodistas pueden experimentar consecuencias duraderas a partir de experiencias exigentes en el trabajo, incluidos síntomas fluctuantes de estrés durante los aniversarios de los incidentes. Es crucial que tanto los periodistas como las salas de redacción, reconozcan y sean conscientes del potencial impacto de los aniversarios en el bienestar de las personas involucradas en la cobertura inicial.

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关键词

记者; 恐怖; 周年纪念反应; 应激; 幸福感

HIGHLIGHTS

- In a cross-sectional study carried out in 2021, journalists who had faced more ethical dilemmas while covering terror in 2011 had more anniversary-related stress symptoms in 2021. A larger magnitude of overall traumatic exposure in 2011 was not related to stress reactions ten years later.
- Journalists who had received more workplace social support in 2011 had lower stress levels in 2021.
- Journalists who had received more support in 2011 had higher levels of current well-being in 2021.
- Journalists with lower levels of anniversary-related stress symptoms had higher current well-being.

报道恐怖事件记者的周年纪念反应：挪威恐怖事件发生 10 年后的应激反应和幸福感

背景：报道恐怖和灾难对记者来说可能是一种创伤，可能导致长期损害。本研究调查了报道 2011 年挪威奥斯陆/于特岛恐怖事件的挪威记者在 10 周年纪念日的反应。

目的：本研究旨在考查 2011 年的创伤暴露水平和支持行动是否与 2021 年的周年纪念反应和当前心理健康水平相关。它还探讨了周年纪念反应的强度是否与当前幸福感水平相关。

方法：在 10 周年纪念日八周 ($N=200$)，向仍在新闻业工作的记者发送了一项横断面调查。参与者回顾性地报告了 2011 年的创伤暴露、道德困境和社会支持作为预测因素，以及对媒体周年报道的态度、周年相关应激和幸福感作为结果变量。

结果：2011 年时更多的道德困境 ($r=.295, p<.001$) 与 2021 年更大程度的周年纪念相关应激相关。2011 年获得较少的工作场所社会支持与更多的应激反应相关 ($r=-.196, p<.05$)，而 2011 年总体创伤暴露的程度与应激无关。社会支持还预测 2021 年更高的当前幸福感水平 ($r=.381, p<.001$)。更严重的周年纪念相关应激症状与当前幸福感水平下降显著相关 ($r=-.259, p<.001$)。

结论：记者可能会因费心费力的工作经历而经历持久的后果，包括在事件周年纪念日期间波动的应激症状。对于记者和新闻编辑室来说，认识到并了解周年纪念日对参与最初报道者幸福感的潜在影响至关重要。

1. Introduction

‘Anniversary reactions’ refer to stress reactions an individual can experience around the anniversary of a traumatic event. Traumatic experiences can be stored in the memory and may resurface as distress around the incident’s date (Hamblen et al., 2016). Unlike other long-term impairment, anniversary reactions fluctuate throughout the year, reaching their peak around the anniversary. Memories may cause distress and medical symptoms years after the traumatic experience, especially if marked with a specific date, like September 11 for the US terror in 2001 or July 22 for the Norway terror 2011. The present study focuses on the ten-year anniversary of the terror attack in Norway. Seven people died in a bombing at Oslo’s Government quarter. This was followed by a shooting rampage at Utöya Island’s summer camp, where 69 members of the Labour party’s youth organization were killed.

Stress reactions (i.e. post-traumatic stress symptoms) can be reactivated by sensory impressions reminiscent of the original trauma. The memory triggers an alert response, even though the new situation represents no danger. But the anniversary reactions are not necessarily related to such sensory impressions. They can reoccur under circumstances that remind of the event, like media coverage of the anniversary. And the reactions can also be activated by subtle or unapparent triggers, not just by media coverage or high-profile public events. For instance, a study followed US war veterans with traumatic experiences for six years after finishing military service (Morgan et al., 1999). Anniversary reactions occurred at a frequency that was nearly twice that expected by chance alone, even without external triggers.

When studying anniversary reactions, possible participant memory distortion needs to be considered.

Retelling the story, reflection, or developing one’s understanding of the situation can cause memory amplification, where recall of threat intensity increases over time after an incident (Heier et al., 2009). Media coverage of an event can broaden one’s understanding of it, providing new details that may affect one’s memory. Furthermore, over time, it might become difficult to differentiate between actual traumatic experiences and what could have happened, which is called memory distortion (Heier et al., 2009; Strange & Takarangi, 2015).

There is a limited number of studies on anniversary reactions with varying samples and traumatic events, including survivors of earthquakes (Thurnbull et al., 2020) and floods (Assanangkornchai et al., 2007), young survivors of terror (Cohen et al., 2006), and first responders after terror (Daly et al., 2008). Different methods have been used to distinguish anniversary reactions from other long-term impairment. Morgan and colleagues screened veterans’ reactions retrospectively two and six years after their service (Morgan et al., 1999), asking them to identify months with least or most PTSD symptoms during the past year. Other studies conducted measurements at given time intervals after the incident (Assanangkornchai et al., 2007; Cohen et al., 2006; Daly et al., 2008; Thurnbull et al., 2007). All studies detected heightened distress levels around the anniversaries.

Anniversary reactions may vary among individuals and do not follow a typical pattern. Some experience grief and sadness, while others experience symptoms of PTSD such as intrusion, avoidance, negative alteration, and/or arousal (Hamblen et al., 2016). Youth in New York had higher scores of anxiety, depression, dissociation, and PTSD around September 11 (Cohen et al., 2006). US veterans experienced increased post-traumatic stress symptoms, irritability, sleep disturbances and emotional numbness (Morgan et al., 1999).

To our knowledge, the current study is the first quantitative investigation of anniversary reactions among journalists. It follows a previous project conducted with Norwegian journalists eight-nine months after the 2011 terror incident (Backholm & Idås, 2015; Idås et al., 2019) (hereafter called ‘the terror study’). Journalists’ exposure to potentially traumatic events (Smith et al., 2015) may increase their risk for anniversary reactions and subsequent mental impairment, which may be difficult to relate to an incident experienced many years ago.

The study measured the following anniversary reaction subtypes: Journalists’ attitudes towards the anniversary media coverage (e.g. whether the coverage was too extensive) and anniversary-related post-traumatic stress symptoms (PTSS). Attitude to the anniversary coverage was investigated since previous studies have suggested that this may cause stress among the public, first responders and survivors (Roxberg et al., 2010; Vasterman et al., 2005). The study included anniversary-related PTSS to allow for comparisons with previous studies with other occupational samples (e.g. Morgan et al., 1999).

In relation to anniversary reactions, understanding the potential long-term impact of trade-specific risk and protective factors in journalism is important (Feinstein et al., 2002; McMahan, 2016; Smith et al., 2015). The terror study (Backholm & Idås, 2015) indicated that work-related ethical dilemmas, i.e. an inner conflict and moral dissonance (Aronson, 1969; Litz et al., 2009) due to a clash between professional requirements and the personal moral compass, predicted more post-traumatic stress among journalists. Such dilemmas included for instance insecurity about how to carry out work in accordance with the rules of conduct.

Social support has been important for journalist’s resilience in previous studies (Hatanaka et al., 2010; McMahan, 2016). The term is about being cared for and belonging to a supportive social network. Theories on social support have an ethnological foundation, describing humans as being dependent on a group to survive. Social support thus provides an experience of safety and belonging (Taylor, 2011).

One current study aim was to investigate whether magnitude of trauma exposure, ethical dilemmas, and work-place social support during or in the direct aftermath of the 2011 work assignment was related to potential anniversary reactions 2021. Our hypothesis was that more severe personal impact, more exposure on the crisis scene and more ethical dilemmas would predict more anniversary reactions. Furthermore, more social support in 2011 would predict fewer reactions ten years later.

A second study aim was to investigate if trauma exposure and anniversary reactions were related to current psychological well-being. Well-being can be

divided into hedonic and eudaimonic dimensions (Joseph & Linley, 2008). Hedonic well-being is related to pleasure in life, and eudaimonic well-being to self-realization and personal growth. Increased psychological functioning, self-respect, and self-regard are related to eudaimonic well-being (Flanagan et al., 2015). According to Maslow (1996), adversity is a necessary part of a self-actualization process, even if it involves suffering and pain. Well-being could therefore be a paradoxical consequence of trauma coping (Selnes et al., 2004).

To summarize, the current study investigated whether trauma exposure, ethical dilemmas, or social support after the 2011 assignment were related to current psychological well-being, and if magnitude of anniversary reactions in 2021 was associated with level of well-being. Our hypothesis was that more severe exposure, more exposure on the crisis scene and more ethical dilemmas in 2011, and a higher score on anniversary reactions, would predict diminished current well-being. More social support in 2011 would be related to a higher score on well-being.

2. Method

2.1. Participants and procedure

A web-based, cross-sectional, survey was distributed by the Norwegian Union of Journalists (NUJ), in September 2021, two months after the 10-year incident anniversary. Six hundred and eighty-five journalists who covered the incident were traced through NUJs membership register and social media. Of the 353 who completed the survey (52%), 153 (43%) were today out of journalism. These had varying reasons for leaving journalism, like retiring, staff reductions, or choosing another career path. Preliminary logistic regression analyses were performed to investigate if this subgroup differed from active journalists on main study variables. No significant differences were found, and to make the group more homogeneous, only participants still working within journalism were included ($N = 200$).

Seventy-nine participants (39%) were women. Participant average age was 46.07 years ($SD = 9.5$). Female journalists were significantly younger than males (females $M = 43.95$, $SD = 9.62$, males $M = 47.46$, $SD = 9.27$, $p < .05$). Furthermore, 130 (65%) had worked at a crisis scene in 2011, while 41 (20%) had participated from national/regional newsrooms during the first 24 h. Ninety-five journalists (48%) had covered the 2021 10-year anniversary.

2.2. Measures

Several measures were constructed for this study since no relevant validated instruments were found.

Existing scales were adjusted when necessary. Modifications were evaluated by topic experts, including trauma researchers and professionals in the field. The study was a collaboration with the NUJ journalists' working conditions expert group, and they were thus involved as an evaluation advisory board.

Table 1 presents included measures, with scale ranges, means, standard deviations and correlations. Scales are also presented below. In cases where the sum scale reflects exposure to various types of events or similar rather than a unified underlying construct, a reliability assessment is not presented.

Magnitude of trauma exposure (MTE) in 2011 was measured by three dichotomous items constructed for this study, covering whether (a) family members/friends were among the victims, (b) the newsroom had been damaged and/or evacuated, and (c) the journalist had been working at a crisis scene between July 22 and 24, 2011. A sum score was constructed, with a range from 0 to 3.

Exposure on the Scene (EOS) was about traumatic exposure on one or several crises' scenes in 2011. These were the Oslo Government quarter where a bomb exploded, the beach and the hotel where the Utöya Island massacre survivors were collected, and the hospitals in the region. Journalists who had been at the scene(s) during or in the direct aftermath of the crisis responded to six dichotomous items constructed for this study, covering (a) fear of becoming a victim of additional attacks during the unfolding situation; (b–d) witnessing dead bodies, physically injured victims, or persons in shock; (e) exposure to direct threats from directly affected or bystanders; and (f) having to reject someone who asked for help. A sum score for EOS was constructed, with a range from 0 to 6.

Ethical dilemmas (ED) was measured by one item from Thoresen (2007) and two developed previously by the authors (Backholm & Idås, 2015). Items measured experiences during the attack in 2011: whether journalists (a) had covered tasks that went against personal values, (b) felt uncertainty about the code of conduct, or (c) experienced EDs due to situations that were out of their control. Items contained five response categories: (0 = *not at all*, 1 = *to a small extent*, 2 = *to some extent*, 3 = *to a large extent* and 4 = *to a very large extent*). A sum score was constructed, ranging from 0 to 12. To provide easily interpretable descriptive results, items were also dichotomized into not having ('*not at all*', '*to a small extent*') or having ('*to some extent*' through '*to a very large extent*') experienced the dilemma.

Three items measured *Social support (SS)* at work during and in the coverage aftermath. Items were adjusted variants of Thoresen's (2007) questions (see also Backholm & Idås, 2015), covering (a) received support (Did you receive a satisfactory offer of organized support/debrief?); (b) perceived support (To

what extent could you be open about reactions after a demanding task without this being considered as a weakness by leaders and/or colleagues?); and (c) recognition (To what extent did you receive recognition for the job done from your leaders and/or colleagues?). Items contained five response categories: (0 = *not at all*, 1 = *to a small extent*, 2 = *to some extent*, 3 = *to a large extent*, and 4 = *to a very large extent*). A sum score was constructed (range 0–12; Cronbach's $\alpha = .68$). Items were also dichotomized into not having ('*not at all*', '*to a small extent*') or having ('*to some extent*' through '*to a very large extent*') received support.

Traumatic memory reactivation due to 10-year anniversary media coverage with the *Negative attitude to anniversary coverage (NAC)* sum scale. Two items were constructed for the study. The first indicated how respondents experienced the extensiveness of media coverage in relation to what one would subjectively expect of anniversary coverage of a crisis of a similar magnitude. Five response categories were used: (0 = *far too limited coverage*, 1 = *too limited coverage*, 2 = *right amount of coverage*, 3 = *too much coverage*, 4 = *far too much coverage*). The second item covered if the journalist experienced the coverage as burdensome (0 = *not at all*, 1 = *to a small extent*, 2 = *to some extent*, 3 = *to a large extent*, and 4 = *to a very large extent*). The sum scale had a range from 0–8.

Anniversary-related post-traumatic stress symptoms (AR-PTSS) was measured with the Impact of Event Scale-6 (IES-6; Thoresen et al., 2009). The survey time frame focused on to what degree the anniversary provoked stressful memories of the incident. The scale introductory text was worded as follows: 'Below you will find a list of reactions that you can get after stressful experiences. To what extent have you experienced the following in connection with the 10-year anniversary?' To obtain comparable results to the terror study (Idås et al., 2019), response categories from the original Impact of Event Scale (Horowitz et al., 1979) were used (0 = *not at all*, 1 = *rarely*, 3 = *sometimes*, and 5 = *often*). The sum scale ranged from 0 to 30 (Cronbach's $\alpha = .82$).

Current well-being (CWB) was measured with a version of the Warwick-Edinburgh Mental Well-being Scales (WEMWBS) previously modified for a study on working conditions among journalists (Grimsmo & Heen, 2013). Twelve items cover hedonic well-being, for instance 'I've been feeling cheerful', and eudaimonic well-being, 'I've been feeling confident'. The scale included five response categories: (0 = *not at all*, 1 = *to a small extent*, 2 = *to some extent*, 3 = *to a large extent*, and 4 = *to a very large extent*). The sum scale ranged from 0 to 48 (Cronbach's $\alpha = .94$).

Table 1. Possible scale ranges, means (M), standard deviations (SD), and correlations among study variables.

Sum scales	Possible scale range	M	SD	1.	2.	3.	4.	5.	6.
1. Magnitude of trauma exposure 2011	0–3	0.86	0.56						
2. Exposure on the scene 2011 ^a	0–6	2.11	1.39	.250**					
3. Ethical dilemmas 2011	0–12	2.60	2.16	-.023	.344***				
4. Social support 2011	0–12	7.11	2.81	.053	-.091	-.114			
5. Negative attitude to anniversary coverage 2021	0–8	2.51	0.89	.074	.074	.211**	-.119		
6. Anniversary-related post-traumatic stress symptoms 2021	0–30	6.40	6.01	.315**	.315**	.370***	-.237**	.699***	
7. Current well-being 2021	0–48	36.13	7.86	-.090	-.090	-.014	.378**	-.203*	-.296***

* $p < .05$, ** $p < .01$, *** $p < .001$.

^a $n = 130$; Only journalists on the scene in 2011 responded to these items.

2.3. Data analyses

Correlation analyses were used to investigate how included scales were related to each other. The scales were magnitude of trauma exposure 2011, exposure on the scene 2011, ethical dilemmas 2011, social support 2011, negative attitude to anniversary coverage 2021, anniversary-related post-traumatic stress symptoms 2021, and current well-being 2021.

Linear regression analyses were conducted to investigate whether magnitude of trauma exposure, exposure on the scene, ethical dilemmas, and/or social support were associated with negative attitude to anniversary coverage, anniversary-related post-traumatic stress symptoms, and current well-being. A regression analysis was also conducted to investigate whether negative attitude to anniversary coverage and/or anniversary-related post-traumatic stress symptoms were associated with current well-being. Regarding exposure on the scene, only journalists who had been working on a crisis scene were included ($n = 130$). Furthermore, Student's t tests were performed to investigate whether this subgroup differed from others on ethical dilemmas and social support variables. No significant differences were detected. Continuous sum scales were used. Expectation-Maximization (EM) was used to replace missing data. The advantage of using EM for mean imputation is that it does not change the relationship between replaced and other variables. However, EM might somewhat underestimate standard errors (Tzoreff & Weiss, 2017). Respondents with a score on less than 80% of the items in a scale were excluded from the study (eight respondents). All analyses were performed in SPSS, version 27.

3. Results

3.1. Descriptive statistics

Demographic data about experiences in 2011, anniversary-related reactions in 2021, and current wellbeing are first presented below. Then, analyses related to study aims are discussed.

Regarding trauma exposure in 2011, approximately three out of four participants (76%) had experienced one or more of the three magnitude of trauma exposure

subtypes (see Tables 1 and 2). Two out of three had been on one or several crisis scenes. More than one third worked in a newsroom that had been damaged/evacuated because of the Oslo bombing. Thirteen percent had family members or friends among the victims.

More than eight out of ten journalists who were on a crisis scene had experienced at least one of the exposure on the scene items. Witnessing injured victims (64%) and persons in shock (72%) were the most common types. Furthermore, one out of three had experienced fear of becoming a victim while covering the incident.

Four out of five had experienced ethical dilemmas (ED) to some extent. However, the overall impact was low for most journalists (Tables 1 and 2). The typical source for dilemma were situations out of one's control, for instance sudden crisis developments during the coverage that led to dilemmas about how to carry on with journalistic tasks. Approximately 75% had experienced such dilemmas. Furthermore, two out of three had experienced dilemmas related to uncertainty about the code of conduct during massive incidents.

Almost all respondents had received work-related social support in 2011 (Table 2). Perceived support, for example informal comments and talks, was the most common. The second most frequent was informal recognition. Furthermore, more than one out of five journalists were not offered any satisfactory

Table 2. Prevalence of subtypes of exposure, ethical dilemmas, and social support in 2011, reported in 2021.

Magnitude of exposure 2011 (n , %)		
Family/friends among victims	Office evacuated	At work at crisis scene
26, 13.0	73, 36.5	130, 65.0
Ethical dilemmas 2011 (n , %) ^a		
Tasks against personal values	Uncertainty about code of conduct	EDs related to situations out of their control
13, 6.5	46, 23.0	64, 33.0
Social support 2011 (n , %) ^a		
Received support	Perceived support	Received recognition
138, 69.0	167, 83.5	160, 80.0

^aThe score of the items is dichotomized: 0 = 'not at all', 'to a small extent'; 1 = 'to some extent' through 'to a very large extent'. Score 1 is reported in this table.

organized support, typically organized by the employer, after the incident.

Moving on to attitudes to the anniversary coverage in 2021, nine out of ten participants experienced the amount of media coverage to be according to expectations, while 10% experienced it as at least somewhat burdensome (score \geq 'to some extent').

More than four out of five respondents had experienced at least one anniversary-related post-traumatic stress symptom to some degree in connection to the 10-year anniversary coverage (score \geq 'rarely'). One out of five reported having experienced at least one stress reaction 'often'.

Scores on the current well-being sum scale indicated that most respondents were doing well in their daily lives in 2021. Only 5% responded 'not at all' to at least one item. Three respondents (2%) responded 'not at all' or 'to a small extent' to at least half of the items.

3.2. Predictors 2011 and anniversary related stress symptoms 2021

The first aim of the study was to investigate whether magnitude of trauma exposure, ethical dilemmas, or social support during or in the direct aftermath of the 2011 work assignment were related to potential anniversary reactions in 2021 and level of current psychological well-being. A series of regression analyses were conducted, and a detailed presentation of results is summarized in Table 3. Ethical dilemmas were the only predictor that was significantly associated with negative attitude to anniversary coverage ($p < .05$). Participants that had experienced more

ethical dilemmas while working 10 years ago also reported more negative attitudes towards the anniversary coverage of the attack.

Ethical dilemmas and social support had a significant effect on anniversary-related stress reactions. The predictors explained 20 percent of the variation in anniversary-related stress symptoms ten years later. More ethical dilemmas were related to a larger degree of stress symptoms, while having received less workplace social support in 2011 was likewise related to more stress.

Regression analyses with magnitude of trauma exposure, exposure on the scene, ethical dilemmas, and social support as predictors, and current well-being as the outcome variable, indicated a significant association between one predictor, social support, and well-being (Table 3). More social support ten years ago was associated with a higher score on well-being in 2021. None of the other predictors were significantly associated with current well-being.

3.3. Anniversary related stress symptoms and current well-being

The second aim of the study was to investigate if magnitude of anniversary reactions was related to level of current well-being. A regression analysis was conducted, with negative attitude to anniversary coverage and anniversary-related post-traumatic stress symptoms as predictors, and current well-being as outcome variable (Table 3). Anniversary-related stress was significantly associated with current well-being ($p < .001$). A lower level of anniversary-related stress symptoms was associated with a higher

Table 3. Summary of regression analyses of the predictive effects of experiences in 2011 for anniversary reactions 2021 and current well-being, and for anniversary reactions 2021 on current well-being.

1. Negative attitude to anniversary coverage 2021 ($R = .232$, $R^2 = .054$, Adj. $R^2 = .024$)		B^a	B 95%CI	β	p
Magnitude of trauma exposure 2011		-.016	[-.206, .174]	-.015	.869
Exposure on the scene 2011 ^b		.000	[-.122, .123]	.000	.996
Ethical dilemmas 2011		.083	[.006, .159]	.200	.034
Social support 2011		-.030	[-.085, .025]	-.095	.282
2. Anniversary-related post-traumatic stress symptoms 2021 ($R = .478$, $R^2 = .228$, Adj. $R^2 = .204$)		B^a	B 95%CI	β	p
Magnitude of trauma exposure 2011		.974	[-.185, 2.133]	.136	.099
	Exposure on the scene 2011	.699	[-.048, 1.446]	.162	.066
	Ethical dilemmas 2011	.823	[.356, 1.289]	.295	<.001
	Social support 2011	-.419	[-.755, -.083]	-.196	.015
3. Current well-being 2021 ($R = .388$, $R^2 = .151$, Adj. $R^2 = .123$)		B^a	B 95%CI	β	p
Magnitude of trauma exposure 2011		-.431	[-2.020, 1.158]	-.046	.592
	Exposure on the scene 2011	-.345	[-1.369, .679]	-.061	.506
	Ethical dilemmas 2011	.178	[-.462, .817]	.049	.583
	Social support 2011	1.064	[.603, 1.525]	.381	<.001
4. Current well-being 2021 ($R = .305$, $R^2 = .093$, Adj. $R^2 = .084$)		B^1	B 95%CI	β	p
Negative attitude to anniversary coverage		-.735	[-2.056, .586]	-.083	.274
Anniversary-related post-traumatic stress symptoms		-.34	[-.534, -.142]	-.259	<.001

^a B is the unstandardized regression coefficient.

^b $n = 130$; Only journalists on the scene in 2011 responded to these items.

score on current well-being, meaning that those who experienced that the anniversary provoked stressful memories of the incident had a lower score on well-being in 2021 than colleagues who experienced less reactivation of memories ten years after the coverage.

4. Discussion

This study investigated long-term mental consequences for journalists covering potentially traumatic events, specifically 10-year anniversary reactions among journalists who covered the Oslo/Utøya terror in Norway 2011. Reactivation of stress symptoms and experience of well-being were studied. To our knowledge, this is the first quantitative study to investigate anniversary reactions among journalists. It adds to the limited number of studies on anniversary reactions among samples who are exposed to traumatic events in their line of work, such as first responders and military personnel.

The first aim of the study was to investigate to what extent experiences were associated with the magnitude of reactions related to the anniversary coverage. At the outset, we want to remind readers that experiences from 2011 were reported retrospectively in 2021. There is a risk that memories from 10 years ago are coloured by time and maturity, especially for the considerable number of summer temporaries who took part in the coverage, with limited experiences of ethical dilemmas and the professional code of conduct. These factors add to potential uncertainty related to memory distortion and amplification, described in the introduction chapter (Heier et al., 2009; Strange & Takarangi, 2015). The interpretation of study results should be made bearing this in mind.

Anniversary reactions were investigated by asking participants to rate their experiences of the recent terror attack anniversary. Two instruments were used: one scale covering negative attitude to the anniversary media coverage, the other covering anniversary-related post-traumatic stress symptoms. Our hypotheses were that more severe personal impact, more exposure on the crisis scene and more ethical dilemmas in 2011 would predict more anniversary reactions in 2021, and furthermore, that more social support would predict fewer anniversary reactions ten years later.

In accordance with our hypotheses, the study indicated that journalists with more ethical dilemmas in 2011 experienced the anniversary coverage as significantly more demanding than colleagues who did not face the same level of dilemmas. The study did however not support our hypotheses that magnitude of trauma exposure and more exposure on the scene would be significantly associated with negative attitude to anniversary coverage.

These two predictors, as well as the outcome variable, were constructed for the study. The outcome measure also consists of relatively few items and may thus fail to detect all facets of the measured factor (see also Limitations below). The findings are nevertheless in line with previous studies on how Norwegian journalists experienced the incident (Backholm & Idås, 2015; Idås et al., 2019). In those studies, post-traumatic stress reactions eight to nine months after the incident were less related to external stressors, like losses within one's family or witnessing grotesque details, than to the ethical dilemma-related inner conflict between what the journalist had to do as a professional during the incident and how he would prefer to act as a human being (e.g. taking photos of a badly injured victim instead of helping her). Such moral dissonance might result in guilt and shame, feelings typically repressed and avoided until anniversary media coverage might bring them to the surface (Aronson, 1969; Litz et al., 2009). Memories of external stressors, in the current study measured with magnitude of trauma exposure and exposure on the scene, might be easier to talk about and handle through social interaction with colleagues and friends, and may thus become an integrated part in the journalist's life.

Regarding anniversary-related stress symptoms and current well-being in 2021, more ethical dilemmas and social support were significantly associated with anniversary-related posttraumatic stress symptoms. A higher score on ethical dilemmas, and a lack of social support, were associated with more stress. The magnitude of trauma exposure and exposure on the scene in 2011 were not significantly associated with anniversary stress symptoms, a finding that is in line with the results of the terror study, as described above (Backholm & Idås, 2015; Idås et al., 2019). More social support was the only predictor that was significantly associated with a higher score on well-being.

The study thus confirmed our hypotheses regarding ethical dilemmas as a predictor for anniversary-related stress. This indicates that risk factors related to demanding work experiences can cause periods with stress and less well-being for years after an assignment is completed. Such experiences might have lasting consequences for journalists' mental well-being, with a fluctuation of stress symptoms during incident anniversaries, and similar to what has been found in studies on first responders and veterans (Daly et al., 2008; Morgan et al., 1999).

Furthermore, the study confirmed our hypothesis that the level of 2011 social support would be significantly associated with anniversary reactions: a higher score on support was associated with a lower score on stress symptoms as well as with a higher score on well-being in 2021. This indicates that a culture for care and recognition in the newsroom might have lasting positive consequences for the well-being of journalists

covering demanding stories. The finding supports previous studies on social support in journalist samples (Hatanaka et al., 2010; McMahon, 2016) and underlines the in general studies with adult samples well-established positive effect of social support (Brooks et al., 2016; Taylor, 2011). Furthermore, peer support, acknowledgement and time for recovery may be important for journalists who often cover traumatic events, since the number of experiences might accumulate, resulting in reactivation of memories or in reduced well-being for a number of periods through years to come.

The second aim of the study was to investigate whether the magnitude of anniversary reactions were related to the journalist's current experience of well-being. Our hypothesis was that a higher score on anniversary reactions would predict a lower score on well-being. A higher score on anniversary-related stress was associated with a lower score on current well-being. Negative attitude to anniversary coverage had no significant effect. The difference in significance might be related to that post-traumatic stress is associated with internal stressors while media coverage is an external stressor, as described above.

4.1. Limitations

Study-results should be interpreted with caution, as findings ought to be verified in future studies. Furthermore, some limitations should be taken into account. We cannot determine causality between included factors. The present study had a cross-sectional design, which does not permit a conclusion as to whether anniversary reactions are the result of experiences 10 years ago or experience gained during the years. For investigating this in detail, a longitudinal approach should be used. A further limitation lies in the instruments used. Several items and scales, such as the magnitude of trauma exposure and negative attitude to anniversary coverage measures, are not validated, since they were adjusted or constructed for the study. Some scales consist of relatively few items, which may limit their utility. In addition, non-response bias might have affected the results, and we have no information about psychological reactions among journalists who chose to leave parts of the survey blank or declined to participate in the study.

4.2. Conclusion

The significant association between anniversary reactions in the form of post-traumatic stress symptoms and current well-being is thought-provoking, considering that the actual crisis investigated took place ten years ago. Furthermore, the study findings confirm results from other studies on the longitudinal consequences of traumatic experiences, for instance that memories of guilt and shame may resurface, or that

feelings of grief or fear might be reactivated (Hamblen et al., 2016; Morgan et al., 1999). For journalists and newsrooms, it is important to be aware of, and recognize, the impact an anniversary might have on journalists involved in the initial coverage. Newsrooms should aim for an open dialogue with employees about how anniversaries should be covered and about who should cover them, as this might prevent potential stress reactions. In addition, it is important to be aware that an anniversary might trigger stressful memories even in cases when it hasn't been framed as a public event, as Morgan and colleagues' (1999) study on war veterans indicates.

To our knowledge this is the first study to investigate anniversary reactions in journalists with a quantitative design. Future studies could control anniversary reactions for chronic stress, and they could focus on expanding our knowledge on potential risk and protective factors for journalists, including for instance the impact of pre-assignment or anniversary-related trauma dialogue/awareness efforts in newsrooms. The possible effects of memory distortion or amplification should also be addressed in more detail, to better understand how the time passed between a crisis and an anniversary may affect anniversary reactions.

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