

A preliminary study of disaster media use as a coping mechanism and the psychological impact of the 2014 Sewol ferry disaster

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ABSTRACT

Background: The 2014 Sewol ferry disaster is the only South Korean mass casualty incident broadcasted in real time and the first instance of the nation collectively experiencing a disaster through social media. Compared to the large body of literature on disaster media as a stressor, its role as a coping tool remains underexplored.

Objective: We explored the associations between coping styles in disaster media use and the psychological impact of the Sewol ferry disaster among the South Korean general public.

Method: A paper-based survey of the nationwide general population ($N = 876$) evaluated disaster media use from the perspective of the approach-avoidance model of coping and assessed levels of posttraumatic distress and perceived growth. Participants were divided into three groups based on their coping orientation towards the media around the Sewol ferry disaster: approach-oriented (i.e. actively seeking out event-related news; $n = 282$; 32.2%), avoidance-oriented (i.e. intentionally avoiding event-related news; $n = 69$; 7.9%), and neutral (neither seeking nor avoiding event-related news; $n = 474$; 54.1%). The levels of posttraumatic distress and perceived growth were compared between these groups with ANCOVA controlling for age, sex, and/or the date of survey participation.

Results: Approach-oriented disaster media use was associated with both elevated posttraumatic distress and perceived growth, while avoidance-oriented disaster media use was associated with elevated posttraumatic distress without significant perceived growth. The neutral group reported the lowest levels of both posttraumatic distress and perceived growth.

Conclusions: The findings demonstrated that not posttraumatic distress but perceived growth was the distinguishing factor between the two coping styles in disaster media use. This suggests the potential benefits of approach-oriented disaster media use, considering the salutogenic role of perceived growth in the recovery process. Future longitudinal research is required to determine the predictive role of disaster media use as coping.

Un estudio preliminar del uso de medios de comunicación en caso de desastre como un mecanismo de afrontamiento y el impacto psicológico en el desastre del ferry de Sewol

Antecedentes: El desastre del ferry de Sewol es el único incidente con víctimas masivas en Corea del Sur transmitido en tiempo real y es la primera vez en que la nación experimenta un desastre de forma colectiva a través de redes sociales. En comparación con el gran cuerpo de investigación en medios de comunicación de desastres como un estresor, su rol como mecanismo de afrontamiento no se ha explorado suficientemente.

Objetivo: Exploramos las asociaciones entre los estilos de afrontamiento en el uso de medios de comunicación en caso de desastre y el impacto psicológico del desastre del ferry de Sewol entre el público general de Corea del Sur.

Método: Una encuesta en papel de la población general a nivel nacional ($N = 876$) evaluó el uso de medios de comunicación en caso de desastre desde la perspectiva del modelo de afrontamiento de evitación-aproximación y evaluó los niveles de angustia postraumática y crecimiento percibido. Los participantes fueron divididos en tres grupos en base a su orientación de afrontamiento hacia los medios de comunicación en torno al desastre del ferry de Sewol: orientado hacia la aproximación (es decir, buscando activamente noticias relacionadas con el evento; $n = 282$; 32.2%), orientado hacia la evitación (es decir, evitando intencionalmente las noticias relacionadas con el evento; $n = 69$; 7.9%), y neutral (no buscaban ni evitaban las noticias relacionadas con el evento; $n = 474$; 54.1%). Los niveles de angustia postraumática y crecimiento percibido fueron comparados entre estos grupos usando ANCOVA controlando por edad, sexo, y/o fecha de participación en la encuesta.

Resultados: El uso de medios de comunicación en caso de desastre orientados a la aproximación se asociaron con angustia postraumática elevada como también con

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HIGHLIGHTS

- Examined how South Koreans engaged with Sewol ferry disaster news as a means of coping.
- Approach-oriented disaster media use prevailed over avoidance-oriented disaster media by more than four times.
- Elevated posttraumatic distress levels were associated with both approach – and avoidance-oriented disaster media use, but elevated perceived growth levels were associated only with approach-oriented disaster media use.

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crecimiento percibido, mientras que el uso de medios de comunicación en caso de desastre orientados a la evitación se asoció con angustia elevada sin crecimiento significativo percibido. El grupo neutral reportó los niveles más bajos de angustia postraumática y crecimiento percibido.

Conclusión: Los hallazgos demostraron que no la angustia postraumática, pero el crecimiento percibido fue el factor distintivo entre los estilos de afrontamiento en el uso de medios de comunicación en caso de desastre. Esto sugiere los beneficios potenciales del uso de los medios de comunicación del desastre orientados a la aproximación, considerando el rol salutogénico del crecimiento percibido en el proceso de recuperación. Investigaciones longitudinales futuras son requeridas para determinar el rol predictivo del uso de medios de comunicación en caso de desastre como afrontamiento.

1. Introduction

The 2014 Sewol ferry disaster in South Korea, where 250 of the 304 deaths were high school students on a field trip and the remaining drowning victims consisted of teachers and tourists (Woo, 2021), has been the only South Korean mass casualty incident broadcasted in real time, becoming the first instance of the nation collectively experiencing a disaster through social media. Smartphone usage in South Korea at that time for those in their 20s, 30s, and 40s was already over 90% (Survey on Smartphone, 2019), and the Internet and social media were chosen as the most preferred media to stay informed about the disaster (Park et al., 2018; Wong et al., 2018). Since media use has become a common coping behaviour in disaster contexts due to the prevalence of the Internet and smartphones (Wolffers & Schneider, 2021), the Sewol ferry disaster offered a unique opportunity to observe, on a large scale, how the general public engaged with disaster media as a means of coping. The present study therefore investigated if individuals' distinct coping styles in disaster media use had any associations with the psychological impact of the Sewol ferry disaster.

Coping refers to a cognitive and behavioural activity to manage threats that exceed one's resources (Folkman & Lazarus, 1980); this can take one of two primary forms: approach or avoidance (McNaughton et al., 2016; Roth & Cohen, 1986). In relation to disaster media use, coping styles can be characterized by one's orientation either towards or away from the disaster news. During the following months of intense media focus on the Sewol ferry disaster, some actively sought out event-related news and participated in discussions on the Internet, while others intentionally avoided disaster-related media coverage and refrained from any relevant conversations. Regardless of whether interactions with the disaster media were an involuntary reaction or a deliberate response, the manner in which the individuals engaged with the news about the disaster was indicative of different coping styles.

Previous research on the Sewol ferry disaster has shown that disaster media has a far-reaching impact on those who follow the event through the media. Approximately 30% of the South Korean general public

reported symptoms equivalent to partial or full post-traumatic stress disorder (PTSD) despite not being rescued survivors, witnesses present at the site or someone with any personal relationship to the victims (Wong et al., 2018). Moreover, a spike in acute cardiovascular events was observed in the general public in the months following the tragedy compared to similar timeframes in previous years, presumably triggered by emotional stressors related to the disaster (Kong et al., 2019).

Media coverage of major disasters captures widespread public attention by being pervasive, continuous, and intense, frequently through disturbing footage containing death, injury, and destruction (Houston et al., 2018). Researchers have primarily focused on its harmful effects, perceiving the media as a stressor rather than a coping tool. Positive associations between the quantity of media-based exposure to a disaster and posttraumatic distress (PD) were not only confirmed by Pfefferbaum et al. (2019) in their meta-analysis of 43 identified studies with 9,083 total participants but also in another study on the Sewol ferry disaster (Lee et al., 2016). This connection was explained as follows by Wayment (2004) and Mash et al. (2018): viewing media accounts about disaster victims incites viewers to identify with them, and this perceived similarity to the victims potentially increases PD. Moreover, experimental evidence based on the trauma film paradigm, which corroborated that viewing disturbing images can elicit intrusive thoughts, images, and memories, as well as negative moods (Holmes & Bourne, 2008; James et al., 2016), provided the basis for recommendations to limit exposure to media coverage in times of disaster for better mental health (Ahern et al., 2002; Bernstein et al., 2007; Holman et al., 2014).

However, the quantity of media-based exposure to a disaster that is positively associated with the adverse psychological effects (Lee et al., 2016; Pfefferbaum et al., 2019) is likely influenced by an individual's coping style, as the general public typically has control over their media usage. Individuals may seek information about the disaster in an attempt to understand how it happened, what could have been done better to prevent it, and what meaning, if any, the tragedy and suffering can provide (Houston et al., 2008). This

behaviour driven by a desire to regain control or process the event is evident in crises such as the COVID-19 pandemic, where seeking information was one of the most common coping mechanisms (Bae, 2023; Wolfers et al., 2024). Similarly, in the aftermath of the Sewol ferry disaster, disaster media use might have heightened distress while also providing individuals with a sense of agency. Excessive consumption of news about the Sewol ferry disaster was not simply a cause of traumatization but also a coping effort in response to the event.

Coping styles and psychological outcomes were found to have significant associations in empirical studies of the September 11 terrorist attacks, which shared strong similarities with the Sewol ferry disaster in that both disasters were broadcast live, flooding media outlets with the disaster footage which played on loop for months. For example, posttraumatic stress symptoms in a US national sample were positively associated with early disengagement from coping such as giving up, denial, and self-distraction (Silver et al., 2002); and posttraumatic growth was positively associated with problem-focused coping as well as emotion regulation strategies such as acceptance, positive reinterpretation, accessing social support, and prayer (Park et al., 2008). However, those research has mostly been founded on a standardized measurement that assesses individuals' coping strategies in general (e.g. the COPE Inventory Carver et al., 1989), the Ways of Coping (Folkman & Lazarus, 1985), or the Coping Inventory for Stressful Situations (Endler & Parker, 1990). As a result, there is a lack of information about media use as a coping mechanism during times of large scale disaster events.

The present study, therefore, aimed to shed light on the psychological impact of the Sewol ferry disaster by examining how the South Korean general public engaged with the disaster media based on the approach-avoidance model of coping by Roth and Cohen (1986). They claimed that approach is more adaptive than avoidance because approach facilitates appropriate actions to ultimately resolve stressful situations, whereas avoidance reduces stress in the short term but interferes with taking appropriate actions (Roth & Cohen, 1986). From this theoretical foundation, we hypothesized that approach-oriented and avoidance-oriented disaster media use among the

South Korean general public would be associated differently with the positive and negative psychological impacts of the Sewol ferry disaster, represented by PD and perceived growth (PG). We expected approach-oriented media use to be related to elevated PD and PG levels, given that disaster media could serve both as a stressor and coping tool. However, considering that avoidance-oriented media use would primarily serve to reduce stress rather than take part in processing the situation, we expected that it would only be associated with elevated PD levels.

2. Methods

2.1. Participants and procedure

The data used in this study to investigate disaster media interactions as a coping mechanism were derived from the same data sets from the authors' previous publication on the prevalence of probable PTSD among the general public following the Sewol ferry disaster (Wong et al., 2018). The nationwide participants in South Korea (male: $n = 327$; female: $n = 493$; unknown: $n = 56$), with ages ranging from 14 to 70 ($M = 31.60$, $SD = 12.31$) were recruited by convenience sampling. The data were collected from May to September 2014; the average number of elapsed days since the Sewol ferry disaster at the time of survey participation (Elapsed Days Since the Disaster: EDSD) was 65.71 ($SD = 21.13$). The participants signed an informed consent agreeing to the purpose of the study and filled out a self-report questionnaire that included demographic information, the Impact of Event Scale-Revised-Korean (IES-R-K) (Eun et al., 2005), Korean-Stress-related Growth Scale-Revised (K-SRGS-R) (Kwon & Kim, 2007), and a question asking about how they engaged with the disaster news following the Sewol ferry disaster. Participants were divided into three groups based on their answer to the question about disaster media use: approach-oriented, avoidance-oriented, and neutral groups. The PD and PG levels of each group were then compared after controlling for covariates. The study protocol was approved by the review board of Hallym University Kangnam Sacred Heart Hospital (IRB No. 2018-12-001).

Table 1. The general public's disaster media use following the Sewol ferry disaster.

Coping Styles	Frequency	Percent	Posttraumatic distress			Perceived growth		
			<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Approach-oriented	282	34.2	265	14.72	15.38	275	21.13	14.24
Avoidance-oriented	69	8.4	65	18.85	15.96	66	18.39	13.80
Neutral	474	57.5	453	11.55	13.56	455	17.07	13.64
Total	825	100.0	783	13.23	14.56	796	18.58	13.98

Note. Posttraumatic Distress = a total score for Impact of Event Scale-Revised-Korean; Perceived Growth = a total score for Korean-Stress Related Growth Scale-Revised. Little's MCAR test: $\chi^2 = 92.064$, $DF = 95$, $p = .566$. Cases with missing values were excluded from each analysis.

2.2. Measures

Posttraumatic distress (PD) was assessed using the Impact of Event Scale-Revised-Korean (IES-R-K) (Eun et al., 2005). Eun et al. (2005) translated and validated the Impact of Event Scale – Revised by Weiss and Marmar, which was based on DSM-IV criteria for PTSD (Weiss & Marmar, 1997). It is a 22-item questionnaire that assesses the severity of subjective distress during the past week after a traumatic experience (e.g. ‘I thought about it when I didn’t mean to’), using a 5-point Likert scale ranging from 0 (not at all) to 4 (extremely). The maximum score is 88. It consists of four factors: *intrusion* (five items); *avoidance* (six items); *hyperarousal* (six items); and *sleep disturbance, emotional numbing, and dissociation* (five items). Higher sum scores indicate greater severity of symptoms. The recommended cutoff score for partial PTSD is 18 and higher, while the one for PTSD is 25 and higher (Eun et al., 2005). The coefficient α for this sample was .952 as already presented in the authors’ previous publication (Wong et al., 2018). The subscales also reported strong reliability and internal consistency (*intrusion* α of .891; *avoidance* α of .907; *hyperarousal* α of .869; and *sleep disturbance, emotional numbing, and dissociation* α of .715).

Perceived growth (PG) was assessed using Korean-Stress-related Growth Scale-Revised (K-SRGS-R) Kwon and Kim (2007). Kwon and Kim (2007) translated and validated the Stress-Related Growth Scale-Revised by Roesch et al. (2004). It is a 29-item questionnaire measuring the level of perceived growth following a stressful life event (e.g. ‘I feel freer to make my own decisions’), using a 3-point Likert scale, ranging from 0 (not at all) to 2 (a great deal). The maximum score is 58. It consists of three factors: *mature thinking* (nineteen items), *affective growth* (seven items), and *religious growth* (three items). Higher sum scores indicate a greater experience of growth. The coefficient α for this sample was .966 as already presented in the authors’ previous publication (Wong et al., 2018). The subscales also reported strong reliability and internal consistency (*mature thinking* α of .960; *affective growth* α of .884; and *religious growth* α of .876).

Coping Styles in Disaster Media Use were evaluated by asking research participants’ attitudes towards or away from the disaster news following the Sewol ferry disaster. We assessed individual’s coping orientation by selecting one out of the following three options: (1) *I actively sought out media coverage of the disaster*, (2) *I intentionally avoided media coverage of the disaster*, or (3) *I neither sought out nor avoided the media coverage of the disaster*. Each option was labelled as an approach-oriented coping group, an avoidance-oriented coping group, or a neutral group, respectively.

Table 2. Descriptive statistics and correlations.

	M	SD	1	2	3	4	4-1	4-2	4-3	4-4	5	5-1	5-2	5-3
1. EDSD	65.57	21.15	–											
2. Sex†	.60	.49	-.185***	–										
3. Age	31.20	11.98	.015	-.008	–									
4. PD	13.13	14.53	-.148***	.185***	.009	–								
4-1. Hyp	2.67	3.86	-.106***	.161***	.017	.913***	–							
4-2. Avo	4.18	5.13	-.175***	.192***	.005	.917***	.754***	–						
4-3. Int	3.87	4.16	-.141**	.183***	-.002	.907***	.783***	.773***	–					
4-4. Sle	2.42	2.96	-.083*	.108**	.017	.850***	.766***	.697***	.684***	–				
5. PG	18.63	14.00	.028	.060	.130**	.268***	.241***	.263***	.248***	.196***	–			
5-1. MT	13.99	10.24	-.005	.070	.097**	.290***	.259***	.284***	.279***	.203***	.982***	–		
5-2. AG	3.70	3.38	.090*	.030	.172***	.178***	.171***	.170***	.148***	.147***	.824***	.824***	–	
5-3. RG	.96	1.62	.087*	.015	.151***	.109**	.089*	.122**	.072	.106**	.561***	.450***	.482***	–

Note. $N = 717$. EDSD = Elapsed Days Since the Disaster; PD (Posttraumatic distress) = a total score for Impact of Event Scale-Revised-Korean; Hyp = hyperarousal; Avo = avoidance; Int = intrusion; Sle = sleep disturbance, emotional numbing, and dissociation. PG (Perceived Growth) = a total score for Korean-Stress Related Growth Scale-Revised; MT = mature thinking; AG = affective growth; RG = religious growth. † = point biserial correlation. The data used for this analysis partially overlap with a correlation analysis in the authors’ previous publication (Wong et al., 2018).
* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3. Posttraumatic distress and perceived growth depending on coping styles.

	Approach-oriented			Avoidance-oriented			Neutral			<i>F</i>	η_p^2	Šidák's Pairwise Comparisons($p < .05$)
	<i>n</i>	<i>EMM</i>	<i>SE</i>	<i>n</i>	<i>EMM</i>	<i>SE</i>	<i>n</i>	<i>EMM</i>	<i>SE</i>			
PD ^{†a}	253	3.17	.13	64	3.77	.26	430	2.73	.10	9.085***	.024	N < Ap, Av
hyp ^{†a}	264	1.30	.07	66	1.34	.15	436	1.01	.06	5.791**	.015	N < Ap
avo ^{†a}	265	1.61	.08	66	2.24	.16	438	1.39	.06	12.677***	.032	N, Ap < Av
int ^{†a}	264	1.74	.07	66	1.76	.15	436	1.44	.06	6.266**	.016	N < Ap
sle ^{†a}	263	1.27	.06	67	1.46	.13	440	1.11	.05	4.364*	.011	N < Av
PG ^b	272	21.22	.83	66	18.24	1.69	448	17.13	.65	7.514**	.019	N < Ap
MT ^b	273	16.15	.61	69	13.74	1.21	453	12.80	.47	9.530***	.024	N < Ap
AG ^c	267	4.13	.20	66	4.02	.41	441	3.50	.16	3.301*	.009	N < Ap
RG ^{†c}	268	.61	.05	67	.54	.10	446	.55	.04	.480	.001	<i>n.s.</i>

Note. PD (Posttraumatic Distress) = a total score for Impact of Event Scale-Revised-Korean; hyp = hyperarousal; avo = avoidance; int = intrusion; sle = sleep disturbance, emotional numbing, and dissociation. PG (Perceived Growth) = a total score for Korean-Stress Related Growth Scale-Revised; MT = mature thinking; AG = affective growth; RG = religious growth. Little's MCAR test: $\chi^2 = 92.064$, $DF = 95$, $p = .566$. Cases with missing values were excluded from each analysis. † = scores were square root transformed to reduce deviations from normality. ^a = adjusted for EDSD and sex. ^b = adjusted for age. ^c = adjusted for EDSD and age. Ap = approach-oriented group; Av = avoidance-oriented group; N = neutral group. *n.s.* = not significant.

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

2.3. Data analysis

IBM SPSS Statistics for Windows, Version 26.0 (Armonk, NY: IBM Corp.), was used for the statistical analyses. Of the total 876 participants, 58.9% ($n = 516$) were single, 34.4% ($n = 301$) were married, 1.2% ($n = 10$) were divorced or widowed, and 5.6% ($n = 49$) were unknown. Over half (52.4%, $n = 459$) of the total participants were living in Daegu; 24.9% ($n = 218$) were living in Seoul, Incheon, or Gyeonggi-do; 15.6% ($n = 137$) were living in Busan, Ulsan, or Gyeongsang-do; 1.6% ($n = 14$) were living in Jeolla-do, Chungcheong-do, or Gangwon-do; and 5.5% ($n = 48$) were unknown. Out of the total sample, 51 participants who did not respond to the question asking about their disaster media interactions were excluded from the list (Table 1). The Missing Values Analysis indicated that Little's (1988) test of Missing Completely at Random (MCAR) was not significant, $\chi^2 = 92.064$, $DF = 95$, $p = .566$, suggesting that values were missing entirely at chance. Thus, pairwise deletion was used in the statistical analyses. Descriptive statistics and correlation analyses were conducted (Table 2). We conducted ANCOVA to compare the PD and PG levels of three groups with distinct coping styles in the form of disaster media interactions: the approach-oriented coping, avoidance-oriented coping, and neutral groups (Table 3). Covariates were selected by variables according to the initial correlation coefficients presented in Table 2, which were age, sex, and/or EDSD. Some dependent variables were skewed and/or kurtotic, so we normalized their distributions with square-root transformations as indicated in the Table 3. For pairwise comparisons of unequally sized groups, the Šidák correction method was applied at $p < .05$ (Midway et al., 2020; Šidák, 1967).

3. Results

3.1. Descriptive information

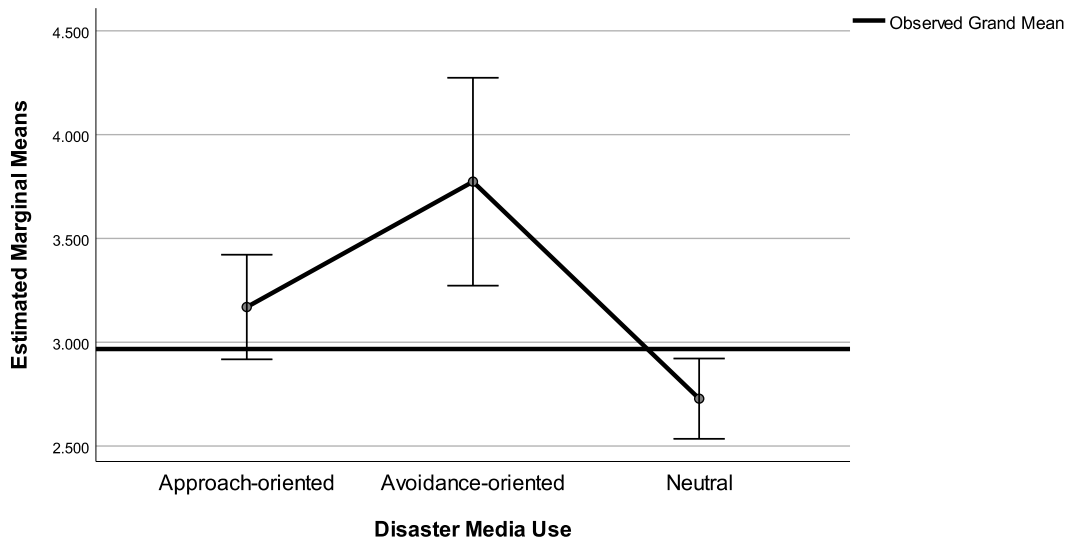
As presented in Table 1, 34.2% ($n = 282$) of the total valid sample ($N = 825$) actively sought out media

coverage of the disaster, while 8.4% ($n = 69$) intentionally avoided it. Yet, 57.5% ($n = 474$) of respondents neither sought out nor avoided media coverage. Each group's mean scores and standard deviations for PD and PG are also presented in Table 1. Notably, the mean score for PD in the avoidance-oriented coping group exceeded the cutoff score for partial PTSD (i.e. 18 and higher) (Eun et al., 2005).

As presented in Table 2, there was a slight negative correlation between EDSD ($M = 65.57$, $SD = 21.15$) and PD ($M = 13.13$, $SD = 14.53$), $r = -.148$, $p < .001$. Between age ($M = 31.20$, $SD = 11.98$) and PG ($M = 18.63$, $SD = 14.00$), there was a slight positive correlation, $r = .130$, $p < .01$. The levels of PD ($M = 13.13$, $SD = 14.53$) and PG ($M = 18.63$, $SD = 14.00$) had a positive correlation, $r = .268$, $p < .001$. An independent samples *t*-test showed that there was a significant difference between the PD levels of male ($M = 10.18$; $SD = 12.34$) and female ($M = 15.40$; $SD = 15.58$), $t(753.373) = -5.194$, $p < .001$. One-way ANOVA showed that there was no significant effect of marital status on PD, $F(2,782) = .747$, $p = .474$. Welch's ANOVA showed that there was no significant effect of marital status on PG, $F(2, 24.105) = 2.467$, $p = .106$. One-way ANOVA showed that there was no significant effect of residential district on PD, $F(3, 781) = 1.269$, $p = .284$; and on PG as well, $F(3, 794) = .389$, $p = .761$.

3.2. Psychological impact of the disaster depending on coping styles as manifested in disaster media use

We conducted ANCOVAs to compare the PD levels of the approach-oriented coping, avoidance-oriented coping, and neutral groups while controlling for EDSD and sex (Table 3, Chart 1). The PD levels differed significantly between the groups, $F(2, 742) = 9.085$, $p < .001$, $\eta_p^2 = .024$. Pairwise comparisons using the Šidák correction indicated that there were significant differences between the approach-oriented coping and neutral groups ($p < .05$), and between the



Covariates appearing in the model are evaluated at the following values: EDSD = Elapsed Days Since the Disaster = 65.68, dummy sex = .60

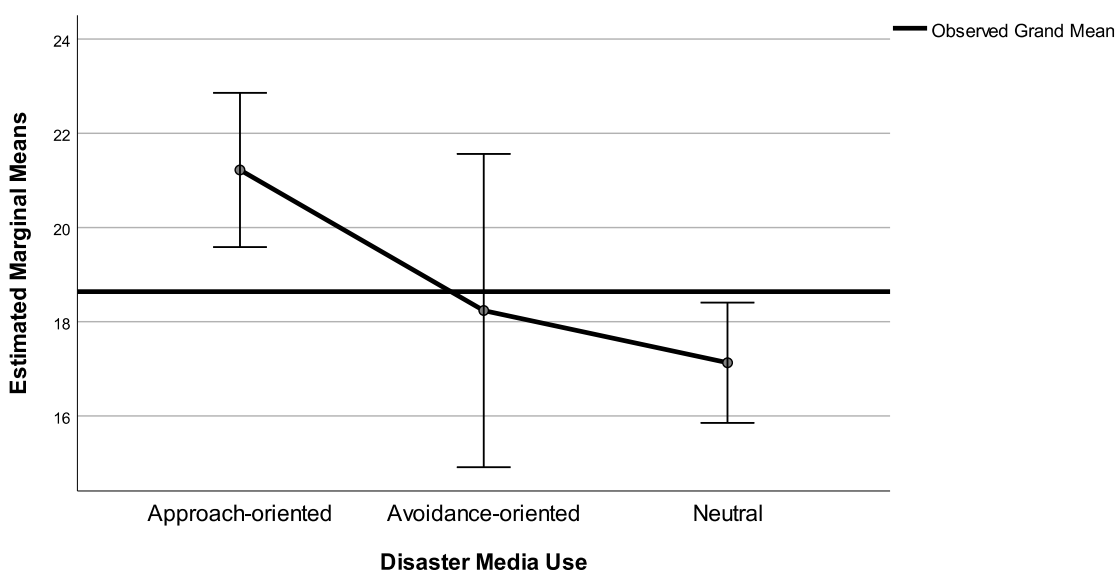
Error bars: 95% CI

Chart 1. Comparison of estimated marginal means for posttraumatic distress depending on coping styles in disaster media use. Note. PD scores were normalized with square-root transformations. Covariates were evaluated at the following values: EDSD (Elapsed Days Since the Disaster) = 65.68, Dummy Sex = .60. Error bars: 95% CI.

avoidance-oriented coping and neutral groups ($p < .001$). The neutral group ($EMM = 2.728$, $SE = .098$) reported a significantly lower score than the avoidance-oriented coping group ($EMM = 3.773$, $SE = .255$) and the approach-oriented coping group ($EMM = 3.169$, $SE = .128$). The trend that the neutral group reported the lowest EMM was replicated for all four subscales of PD. The avoidance-oriented coping group reported significantly higher EMM scores for the *avoidance* subscale than the other two groups.

However, the avoidance-oriented coping group did not significantly differ from the other two groups in EMM scores for the *hyperarousal* and *intrusion* subscales, showing relatively higher SEs .

We conducted ANCOVAs to compare the PG levels of the approach-oriented coping, avoidance-oriented coping, and neutral groups while controlling for age (Table 3, Chart 2). The PG levels differed significantly between these groups, $F(2, 782) = 7.514$, $p < .01$, $\eta_p^2 = .019$. Pairwise comparisons using the



Covariates appearing in the model are evaluated at the following values: age = 31.37

Error bars: 95% CI

Chart 2. Comparison of estimated marginal means for perceived growth depending on coping styles in disaster media use. Note. A covariate was evaluated at the following value: age = 31.37. Error bars: 95% CI.

Šidák correction indicated a significant difference between the approach-oriented coping and neutral groups ($p < .001$). The neutral group ($EMM = 17.130$, $SE = .650$) reported a significantly lower score than the approach-oriented coping group ($EMM = 21.221$, $SE = .834$). The trend of the neutral group reporting the lowest EMM was replicated for the *mature thinking* and *affective growth* subscales. For the *religious growth* subscale, no significant difference was found between the three groups. In addition, the avoidance-oriented coping group, showing relatively higher SEs , did not significantly differ from the other two groups in EMM scores for the *mature thinking* and *affective growth* subscales as well as for PG.

4. Discussion

The present study aimed to explore potential associations between coping styles in disaster media use and the psychological impact of the Sewol ferry disaster among the South Korean general public. The nationwide survey, conducted from three weeks to five months after the Sewol ferry disaster, showed that people tend to employ approach rather than avoidance in relation to disaster media use. During this period of intense and extensive media focus on the event, actively seeking out disaster news ($n = 282$; 34.2%) was four times more prevalent than avoiding event-related news ($n = 69$; 8.4%) among the South Korean general public. A large proportion of the general public had voluntarily exposed themselves to the coverage of the traumatic event, despite the fact that disaster media could cause emotional pain and psychiatric symptoms. This finding aligns with Bowman's (1999) assertion that people are not merely passive recipients of events but active agents who seek them out, initiate interactions, and construct meaning.

We compared the PD and PG levels between the approach-oriented, avoidance-oriented, and neutral groups and discovered significant associations between the psychological impact of the Sewol ferry disaster and the different coping styles in disaster media use. The avoidance-oriented group reported elevated PD levels exceeding the cutoff score for partial PTSD, while the approach-oriented group also reported high levels of PD, with no statistically significant difference from the avoidance-oriented group. While both groups demonstrated significantly elevated PD levels, only the approach-oriented group reported significantly elevated levels of PG.

The results of this cross-sectional study did not demonstrate that approach-oriented disaster media use resulted in elevated PG levels, as pre-existing PD and/or PG levels likely play a significant role in shaping individual's disaster media use. People respond differently to the same adverse event depending on their current psychological functioning. For example,

individuals with mental health conditions, such as PTSD, may avoid disaster media in an attempt to minimize triggers and distressing reminders. Conversely, individuals with high levels of pre-existing PG perceive themselves as stronger and capable of dealing with problems, place a higher value on social connections, and are motivated to restore a sense of meaning (Updegraff & Taylor, 2021). Hence, they may engage with disaster media more proactively to construct meaning, empathize with those affected, or find ways to contribute positively. PD/PG levels and approach-/avoidance-oriented disaster media use can even influence each other. Still, it is noteworthy that PG rather than PD was the distinguishing factor between the approach-oriented and avoidance-oriented groups.

The observed heightened PG levels in the approach-oriented group are consistent with prior studies that have found that posttraumatic growth is positively associated with approach-oriented coping such as problem-solving focused coping (Choi et al., 2023) or active coping (Ogińska-Bulik & Zadworna-Cieślak, 2018). To date, the literature on stress and coping has generally viewed coping strategies that involve acceptance and direct attempts to solve problems as functional, whereas those characterized by denial and disengagement are dysfunctional (Frydenberg, 2014). Then, the questions to ask are: why did the approach-oriented group report elevated PD levels as high as the avoidance-oriented group when approach-oriented coping is generally deemed to be adaptive (Généreux et al., 2022; Joseph, 2011; Roth & Cohen, 1986); which aspects of disaster media use could contribute to the presence or absence of PG; and if the high levels of PG in the individuals with approach-oriented disaster media use would make any difference in the prognosis of traumatization.

It is important to acknowledge that experiencing multiple symptoms in the aftermath of a potentially traumatic event such as the Sewol ferry disaster is more a normal process of adjusting to a new reality than an indication of pathology because the biopsychological symptoms in response to a traumatic stimulus do have adaptive functions (Buss, 2015; Christopher, 2004; Eberly et al., 1991; Lee, 2016). Most individuals who have symptoms of PTSD following a potentially traumatic experience recover naturally over time (Layne et al., 2007). Therefore, the high levels of PD observed among the individuals with approach-oriented disaster media use in this cross-sectional study are not indicative of adverse health outcomes or poor adaptability over a longer period of time. Littleton et al. (2007) found an important implication in their meta-analysis: the associations between approach-oriented coping and less distress became stronger as the assessment period of trauma impact increased, implying that approach-oriented coping

potentially reduces distress over time. Accordingly, the observed high levels of PD in the approach-oriented group may still fall within a healthy range, and it may simply indicate that the Sewol ferry disaster instigated their coping processes since the event was perceived as a threat that challenged their ‘basic assumptions about the world (Janoff-Bulman, 1992).’

Further evidence supporting that not all symptoms following trauma exposure are pathologic offers insight into the specific aspects of disaster media use that may influence the PG level. Engaging with disaster media coverage involves highly cognitive processes to deal with audiovisual and textual information, which are linked to rumination types that have significant associations with posttraumatic psychological outcomes. Michael et al. suggested that not all forms of ruminative thinking are equally maladaptive, in cross-sectional and longitudinal analyses of a sample of assault survivors, by revealing that rumination was not exclusive to participants with PTSD but that those without PTSD also reported engaging in rumination (Michael et al., 2007). Numerous studies have since delved into different forms of rumination. According to the literature, intrusive rumination is positively associated with PD, and deliberate rumination is positively associated with PG (García et al., 2017; Kieflb et al., 2019; Morris & Shakespeare-Finch, 2011; Ramos & Leal, 2013; Wu et al., 2015; Zięba et al., 2019). Both PD and PG might be products and/or byproducts of the cognitive processing of the disaster through rumination, with coping strategies potentially influencing them (Bussell & Naus, 2010; Zięba et al., 2022). In terms of coping, Henson et al. (2022) concluded in their systematic review that the use of avoidant coping strategies impedes the cognitive processing of trauma, including both intrusive and deliberate ruminations, thereby exacerbating PTSD symptoms and hindering posttraumatic growth.

These prior studies (Bussell & Naus, 2010; García et al., 2017; Henson et al., 2022; Kieflb et al., 2019; Michael et al., 2007; Morris & Shakespeare-Finch, 2011; Ramos & Leal, 2013; Wu et al., 2015; Zięba et al., 2019; Zięba et al., 2022) offer a compelling explanation for why, following the Sewol ferry disaster, the individuals who tried to escape from media cues triggering emotional distress or intrusive thoughts about the mass casualty incident did not report significant PG. They presumably failed to properly process the traumatic stimulus effectively, and this failure to process cognitively would have resulted in high PD without significant PG. In contrast, actively seeking out disaster news in individuals with approach-oriented coping styles could have promoted deliberate rumination on the event, leading to successful cognitive processing of trauma and subsequent high PG.

Then, would the high PG observed in the individuals with approach-oriented disaster media use

counteract their high PD? Numerous studies across various potentially traumatic contexts have demonstrated that posttraumatic growth has negative associations with long-term PD and impaired quality of life, suggesting that PG serves as a protective/salutogenic factor (Chen et al., 2015; Henson et al., 2022; Morrill et al., 2008). One prospective study on cancer survivors found that PG has both buffering and direct protective effects on PD, which get stronger particularly in a high-impact context (Wang et al., 2017). Hamby et al. (2022) conducted an interesting study to determine whether high growth or low symptoms are better in the context of trauma. They compared the strengths and well-being of four groups, each distinguished by their levels of symptoms and growth (i.e. low symptoms with high growth, high symptoms with high growth, high symptoms with low growth, and low symptoms with low growth groups), and concluded that high growth is more beneficial than low symptoms because high growth, with or without symptoms, was consistently linked to a wide range of strengths and better functioning, while low symptoms without high growth were generally linked to lower functioning. These previous findings provide insights that allow us to speculate, despite the cross-sectional design of the present research, on a better prognosis for the participants in the approach-oriented group, even though both approach-oriented and avoidance-oriented groups reported elevated PD levels. In addition, the finding that not PD but PG was the distinguishing factor between approach – and avoidance-oriented groups in the present study elucidates why strength – and resource-based evaluation is crucial when investigating disaster media use.

4.1. Study limitations and future suggestions

This study has limitations. The participants recruited by convenient sampling were not representative of the general adult population of South Korea, despite the sample size and age range. Accordingly, the results may not be generalized to an older population, which had a smaller sample size and a lower smartphone usage rate than the younger population. Most critically, this study is limited by its associative and exploratory nature, despite the fact that we controlled for how many days passed between the event and survey participation as a covariate. Besides, the relatively low effect sizes, despite the high statistical significance of the results, imply that other factors not considered in the present study (e.g. the quantity of disaster media use, types of the footage’s content, pre-existing mental health conditions, etc.) were involved in the psychological impact of the disaster on the general public.

Furthermore, while we supposed that distinct coping styles as manifested in disaster media use were

associated with rumination linked to cognitive processing of traumatic stimuli based on the evidence from prior research and inferring that it may have led to different psychological outcomes, this cross-sectional study cannot determine the direction of the association between coping styles and the psychological aftermath of the disaster. In addition, news about the Sewol ferry disaster had been ongoing during the survey period (EDSD $M = 65.71$, $SD = 21.13$), saturating all the media in the country for months. Since the media might have been a key source of stress for the general public, the adverse psychological effects the present study captured were virtually both peritraumatic as well as acute. It should be acknowledged that the role of disaster media use can change over time, just as psychological effects and coping strategies may change over time. Therefore, studies with longitudinal and prospective designs are required to investigate how disaster media use and the positive/negative psychological effects of a mass casualty incident among the general population evolve over time and to determine which style of disaster media use is long-term adaptive.

Despite these limitations and the research's oversimplified design, this study is valuable in providing empirical evidence for disaster media use as a coping mechanism, thereby broadening the traditional view of disaster media as a stressor. We discovered that PG rather than PD is the distinguishing factor between approach-oriented and avoidance-oriented disaster media use, which highlights the importance of a salutogenic approach in future research on disaster media use and coping. The findings of the present study will be useful as a preliminary study, so further research can be planned and designed in more detail.

Author contributions

Aekyeong Wong: Data collection & curation, Investigation, Writing – original & edited drafts. Yun-Kyeong Choi: Funding acquisition, Project administration, Data collection & curation, Resources, Supervision, Writing – review & editing. Jae-Ho Lee: Data collection, Resources, Supervision. Hong-Seock Lee: Conceptualization, Data collection & curation, Resources, Supervision, Writing – review & editing.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Ethics Approval Statement

The study protocol was approved by the review board of Hallym University Kangnam Sacred Heart Hospital (IRB No. 2018-12-001).

Data accessibility statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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