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Long-term Persuasive Effects in Narrative Communication Research: A Meta-Analysis

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This meta-analysis builds on the broad and diverse research on the persuasive effects of narrative communication. Researchers have found that narratives are a particularly effective type of message that often has greater persuasive effects than non-narratives immediately after exposure. The present study meta-analyzes whether this greater persuasive power persists over time. Results are based on $k_1 = 14$ *studies with* $k_2 = 51$ *effect sizes for immediate measurement* ($N = 2{,}834$) *and* $k_2 = 66$ *effect sizes for delayed measurement* ($N = 2{,}459$). *They show that a single narrative message has a stronger persuasive impact than a non-narrative message on attitudes and intentions at immediate as well as on attitudes, intentions, and behaviors at delayed measurement. Both message types did not differently affect the participants' beliefs. Meta-analytic structural equation modeling confirms transportation as a mediator of immediate persuasive effects.*

Keywords: Narrative Persuasion, Narrative versus Non-narrative Messages, Transportation, Long-term Effects, Meta-Analysis

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Over the past two decades, narrative persuasion research has emerged as a fast-growing field in communication science (Früh & Frey, 2014; Green, Strange, & Brock, 2002). A narrative is a medially transmitted story "with an identifiable beginning, middle, and end that provides information about scene, characters, and conflict; raises unanswered questions or unresolved conflict; and provides resolution" (Hinyard & Kreuter, 2007, p. 778). Narratives can be found in great diversity in entertainment formats such as films or series (Wang & Singhal, 2016), in journalistic storytelling (Shaffer et al., 2018), public campaigns (Sabido, 2004), and also in populist propaganda of politically motivated groups (Rieger, Frischlich, & Bente,

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2019). In contrast, non-narrative communication includes "expository and didactic styles of communication that present propositions in the form of reasons and evidencesupporting a claim" (Kreuter et al., 2007, p. 222), such as brochures (e.g., in a doctor's office) or educational material (e.g., for anti-drug programs in schools).

With its ever-increasing research interest in narrative persuasion, science is reacting to the noteworthy finding that many people are affected in their beliefs, attitudes, and behaviors by the manifold forms of narrative messages (e.g., Bilandzic & Sukalla, 2019; Borum Chattoo & Feldman, 2017; Van Koops 't Jagt et al., 2018). Most research on narrative persuasion examines short-term persuasive effects immediately after exposure, and many studies find that narrative messages have a greater persuasive impact than non-narrative messages in the short-term. For example, experimental studies in the field of health communication found that narratives foster more positive attitudes and behavioral intentions toward cancer screening (Martínez Martínez, Cuesta Cambra, Serrano Villalobos, & Niño González, 2018; Occa & Suggs, 2016). Narrative media messages have also proven to be a promising strategy in political communication. For example, they promote more positive attitudes and intentions toward stigmatized groups of society, such as immigrants and people with a mental illness, than non-narrative messages (Oliver, Dillard, Bae, & Tamul, 2012; Wong, Lookadoo, & Nisbett, 2017). Moreover, a meta-analysis examining the effects of narrative compared to non-narrative health messages found that narratives had a stronger persuasive impact on the recipients immediately after exposure (Shen, Sheer, & Li, 2015).

For more than a decade, scholars have also increasingly been dedicating effort to examining the long-term persuasive effectiveness of narrative compared to non-narrative messages (Greene & Brinn, 2003; Kennedy et al., 2018; Kreuter et al., 2010; Love, Mouttapa, & Tanjasiri, 2009; Volk et al., 2008). Whether the greater persuasive power persists over time is of great interest, because, for example, health-related communicative interventions can only have a sustainable impact if positive attitudes and intentions toward cancer screening persist over a longer period and lead to actual screening behavior. Likewise, communicative socio-political campaigns can only achieve desired effects for society if stigmatized groups are accepted and integrated into society in the end.

However, it remains an open question whether the greater immediate persuasive power of narrative compared to non-narrative messages persists over time. This meta-analysis aims to answer this research question and compares the mean effect size of narrative messages to non-narrative messages at immediate and at delayed measurement. The present study differs in three ways from previous meta-analyses on the persuasive impact of narrative messages. Most importantly, this meta-analysis focuses on long-term in addition to immediate persuasive effects (e.g., Braddock & Dillard, 2016; Shen et al., 2015). Second, this study examines the impact of narrative in comparison to non-narrative messages and does not consider other experimental controls, such as no-message or unrelated-message conditions or pretest-posttest designs (e.g., Braddock & Dillard, 2016; Shen & Han, 2014;

Tukachinsky & Tokunaga, 2013). Finally, the study focuses on the effects of a single exposure (e.g., Shen & Han, 2014; Tukachinsky & Tokunaga, 2013).

Mechanisms of persuasive power at immediate measurement

The greater persuasive impact of narrative compared to non-narrative messages at immediate measurement is attributed to unique characteristics of narrative messages that distinguish their processing fundamentally from non-narrative messages (Moyer-Gusé, 2008; Slater & Rouner, 2002). Narratives have the unique ability to capture their audiences mentally and emotionally. This "interest with which viewers follow the events as they unfold in the story" is termed narrative involvement (Moyer-Gusé, 2008, p. 409) and functions as a mechanism or "route" to persuasion. Usually, people react defensively to persuasive attempts in overtly persuasive, non-narrative messages (e.g., *for these reasons smoking is bad for you*). If the recipients feel external pressure to change their attitudes or behaviors, they have a tendency toward reactance (Brehm, 1966), "a reaction against change" (Knowles & Linn, 2004, p. 4). The typical way to defend against persuasive arguments is the mental development of counterarguments. However, strong narrative involvement is—so the assumption—likely to minimize counter-arguing and thus to enable attitudinal or behavioral effects of the narrative message (Dal Cin, Zanna, & Fong, 2004; Green & Brock, 2000; Knowles & Linn, 2004; Kreuter et al., 2007; Moyer-Gusé, 2008).

The literature distinguishes two forms of narrative involvement: involvement in the story and involvement with characters (Moyer-Gusé, 2008; Slater & Rouner, 2002). Narrative involvement in the story has been conceptualized as transportation (Green & Brock, 2000), narrative engagement (Busselle & Bilandzic, 2008), absorption (Slater & Rouner, 2002), immersion (Lu, Thompson, Baranowski, Buday, & Baranowski, 2012), and presence (Biocca, 2002). These concepts share the common notion that recipients focus more on the story than on their surrounding environment. For example, a deep involvement in the story inhibits the development of reactance because the recipients are not aware of the persuasion attempt and thus do not begin to develop counterarguments (Dal Cin et al., 2004; Knowles & Linn, 2004; Moyer-Gusé, 2008).

Narrative involvement with characters describes "how viewers interact with characters" (Moyer-Gusé, 2008, p. 409). Various concepts such as identification (Cohen, 2001), parasocial interaction (Dibble, Hartmann, & Rosaen, 2016), and perceived similarity (Eyal & Rubin, 2003) belong to this overarching category. For example, a deep involvement with characters inhibits the development of reactance by creating a sense of connectedness and trust, and thus recipients are more willing to accept inconsistent messages and to refrain from generating counterarguments (Moyer-Gusé, 2008; Slater & Rouner, 2002).

Experiments comparing the persuasive impact of narrative messages with that of non-narrative messages at immediate measurement show that narrative messages trigger a stronger narrative involvement than non-narrative messages, which in turn

leads to a stronger message-consistent persuasive impact (Barbour, Doshi, & Hernández, 2016; Borum Chattoo & Feldman, 2017; Oschatz, Emde-Lachmund, & Klimmt, 2019; Wojcieszak & Kim, 2016). Therefore, we derive the following two hypotheses on the persuasive effects of narrative compared to non-narrative messages at immediate measurement:

> ***H1*:**Narrative messages have a stronger persuasive impact than non-narrative messages at immediate measurement.
> ***H2***:Narrative involvement mediates the persuasive impact at immediate measurement.

Persistence of persuasive power over time

The question arises as to whether the greater persuasive power of narratives compared to non-narratives persists over time. Three options are theoretically justifiable. (a) The effects of narrative and non-narrative messages might simultaneously erode over time in a saturated media environment (Sherry, 2002). Media use is an individual behavior repeatedly exercised every day, during which numerous narrative and non-narrative messages compete for the attention of the audience. New message effects superimpose previous persuasive effects and, thus, the persuasive effects of narrative and non-narrative messages equally decay over time. In this case, the effect size of narrative compared to non-narrative messages remains at the same level for delayed as well as immediate measurement ($ES_{immediate} = ES_{delayed}$).

(b) The persuasive effects of narrative messages might be less persistent than the effects of non-narrative messages and decay at a faster rate. The elaboration likelihood model (ELM, Petty & Cacioppo, 1986) describes and predicts the processing and impact of overtly persuasive non-narrative messages on recipients' attitudes and behaviors. One of the model's core statements is that long-term persuasive effects are a function of the message's elaboration. When the recipients are motivated and cognitively capable of intensive message elaboration, they critically evaluate and carefully compare the message's arguments with existing knowledge. Such an intensive state of issue-relevant thinking can result in long-term effects that are less susceptible to renewed persuasion attempts. In contrast, the processing mechanism by which narratives gain their initial persuasive advantage over non-narratives is narrative involvement. However, when narrative involvement is high, the recipients might be less likely to engage in intensive message elaboration. Their motivation for intensive elaboration of the information embedded in a narrative media message might be low because the recipients do not want to disturb the pleasure of entertainment (Kreuter et al., 2007). The capacity for intensive elaboration might also be limited, because the recipients are less focused on specific arguments than on the plot of the story and its characters. Consequently, fewer cognitive resources are available for intense information processing (Kreuter et al., 2007). Due to the lower level of elaboration during message reception, it might therefore be

expected that the persuasive effects of narrative messages are more short-lived than the persuasive effects of non-narrative messages. The effect size of narrative compared to non-narrative messages would then be smaller with delayed measurement than directly after reception ($ES_{immediate} > ES_{delayed}$).

(c) The persuasive power of narrative over non-narrative messages might increase over time (Appel & Richter, 2007). This would be the case if the persuasive effects of narrative messages decay at a slower rate than the effects of non-narrative messages or are even reinforced over time. The recipients' narrative involvement during message reception may not only function as a mediator for immediate but also for delayed persuasive effects. The constructs of narrative involvement conceptualize the recipients' experience as a strong mental connection with the unfolding events and protagonists, as an intense feeling of being emotionally swept away by sympathizing or empathizing with the characters, or vividly imagining scenes and characters (Appel, Gnambs, Richter, & Green, 2015; Busselle & Bilandzic, 2009; Cohen, 2001; Green & Brock, 2000). Such an intense feeling of deep involvement may not vanish immediately after reception but remain for hours, even days, and foster post-receptive engagement, such as continuing thinking about the story, reflecting upon one's own and the characters' attitudes and behaviors, and being attentive to related information. Such issue-related thinking might slow down the decay or even reinforce narrative short-term persuasive effects ($ES_{immediate} < ES_{delayed}$).

From these contrasting theoretical expectations about the persistence of persuasive effectiveness, we derive a final research question for the comparison of narrative and non-narrative effect sizes at delayed measurement:

> ***RQ1***: Does the presumed greater persuasive power of narrative compared to non-narrative messages at immediate measurement persist over time?

Method

The meta-analysis includes experimental studies examining immediate and delayed persuasive effects on beliefs, attitudes, intentions, and/or behaviors of a single exposure to a narrative message compared to a non-narrative control condition. Our planning and procedure was based on the *PRISMA-P* guidelines, a protocol intended to facilitate the preparation and reporting of systematic reviews and meta-analyses (Moher et al., 2015; Shamseer et al., 2015).

Literature search and eligibility criteria

Studies were obtained in four steps (Card, 2012). First, we conducted a systematic literature search in the databases *Communication & Mass Media Complete, PsychARTICLES, PsycINFO, Web of Science/Social Science Citation Index, ProQuest Dissertations & Theses* as well as *Google Scholar* to cover a broad range of journals in social sciences as well as published and unpublished qualification work. For the

database search, we created a search string that used key terms related to (a) the independent variable (*narrative*, story, stories, storytelling, anecdote*, exemplar*, testimonial*, entertainment education)* and paired them with (b) terms related to long-term effects (*long-term, longitudinal, over time, follow-up, time point*, wave, day* after, week* after, month* after)*. The search string was finalized with (c) terms related to the examined persuasive outcomes *(persuas*, belief*, attitude*, intention*, behavior*)*. At least one of the search terms had to appear in the title or abstract of the experimental studies to be retrieved in the database search which resulted in $k_1 = 1.943$ potential studies. In addition, we contacted researchers active in the field of narrative communication to obtain unpublished work and received one additional study.[1] Next, we turned to the abstracts of the selected studies. We eliminated duplicates and irrelevant studies (e.g., studies in which "narrative" refers to personal stories obtained in qualitative interviews, studies applying "narrative therapy" [a type of psychotherapy] or "social stories" [a treatment for autistic people]). This resulted in a preliminary sample of $k_1 = 32$ studies. Step three of our literature search was a backward search and step four a forward search. The backward search checked the reference lists of the preliminary sample, and the forward search conducted a cited reference search of these studies in the *Web of Science (SSCI)*. Two additional studies were obtained.

Next, we examined the $k_1 = 34$ studies on a full text basis using five eligibility criteria. The following eligibility criteria were required for inclusion: (a) the intervention was a narrative message as per the definition above; (b) the control was a non-narrative message as per the definition above; (c) the effects of a single exposure were examined; (d) the effect on at least one persuasive outcome was measured (beliefs, attitudes, intentions, or behaviors); and (e) persuasive effects were measured immediately and at least once in a follow-up after stimulus reception. In total, $k_1 = 20$ studies had to be excluded from the preliminary sample because, for example, they did not include a non-narrative control group or examined only immediate or only delayed effects (Figure 1). The literature search was completed in September 2018 and resulted in a final sample of $k_1 = 14$ studies for our meta-analysis.

Coding of study characteristics

Dependent variable

The unit of analysis was an experimental pair examining the persuasive effects of a narrative compared to a non-narrative message on the participant's beliefs, attitudes, intentions, and behaviors. Reported effects for every examined persuasive outcome were retrieved from the studies on a zero-order level (e.g., means and standard deviations, results from *t*-tests, chi-squared tests). All studies investigated the persuasive effects on multiple persuasive outcome variables (e.g., intentions and behaviors, various attitudes, an attitude in different subgroups). Each persuasive outcome was coded at each point of measurement. For example, if a study reported the effects of narrative and non-narrative messages on attitudes and behaviors toward smoking, the persuasive effect was coded for both attitudes and behaviors. If a study reported

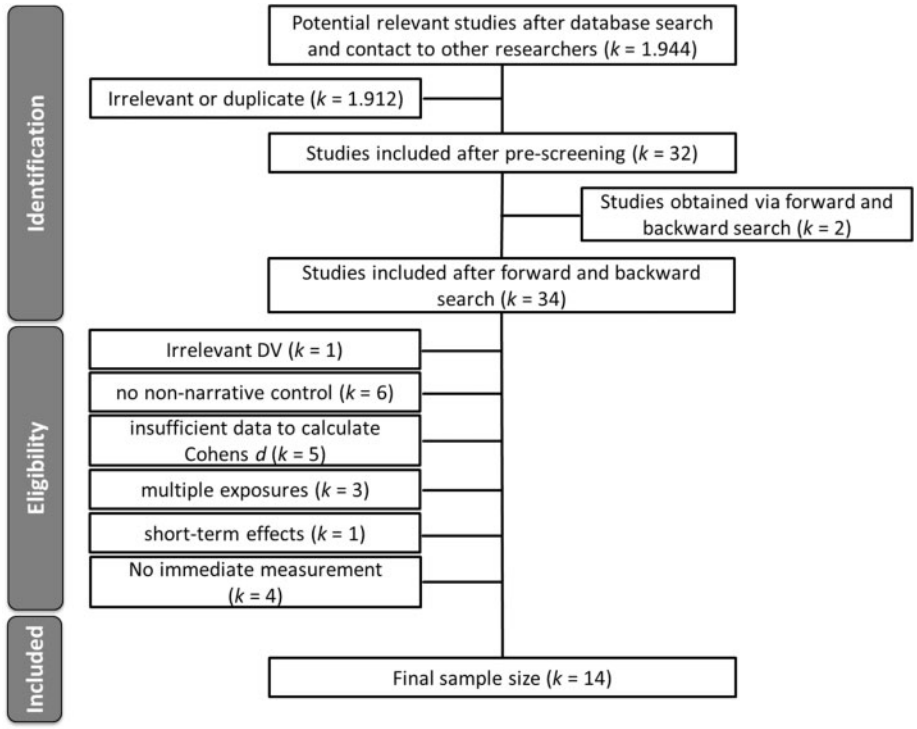

Figure 1 Float chart of literature search.

attitudes toward cancer screening immediately after the reception as well as 2 weeks after and 6 months after the initial lab session, the persuasive effect was coded for each point of observation creating an individual experimental pair in the data set (Krippensdorff's $\alpha = 0.95$). The final sample of studies with immediate measurement consisted of a total of $k_2 = 51$ experimental pairs comparing the effects of a narrative and non-narrative messages on the participant's beliefs ($k_2 = 16$), attitudes ($k_2 = 26$), and intentions ($k_2 = 8$). An additional pair represented a mixed outcome composed of items that reflect beliefs as well as attitudes. The final sample of studies with delayed measurement consisted of a total of $k_2 = 66$ experimental pairs comparing the effects of a narrative and a non-narrative message on the participant's beliefs ($k_2 = 19$), attitudes ($k_2 = 29$), and intentions ($k_2 = 8$). Moreover, $k_2 = 7$ pairs compare the effects of narrative and non-narrative messages on actual behaviors, and an additional three pairs represent mixed outcomes. An overview of the coded study characteristics and effect sizes is provided in the Supplementary Appendix (Table S1).[2]

Narrative involvement

We coded all concepts that were used to measure narrative involvement in the story, such as transportation or narrative engagement, as well as involvement with characters such as identification or parasocial interaction. For each concept, the

designation (e.g., transportation), the measurement (e.g., Green & Brock (2000), or three items from Green & Brock (2000)), the degree of narrative involvement in the narrative and non-narrative condition, and the correlation with the respective outcome variables were coded (overall $\alpha = .89$).

Long-term effect

The investigation period from stimulus reception to follow-up measurement was coded in days (e.g., 1 week = 7 days, 1 month = 30 days). If a time interval was documented in the study (e.g., follow-up interviews were completed 1–3 weeks later), authors were contacted and asked for a mean value. We calculated the mean ourselves (e.g., 14 days in the example above) if no mean was provided ($\alpha = 1$).

Additional variables

We also coded additional variables related to the narrative stimulus (medium, fictionality, topic) as well as to the experimental design (sample population, type of experiment) to examine the robustness of our findings. *Medium* captures which channel presented the narrative stimulus (1 = "print", 2 = "audio/audio-visual"). *Fictionality* captures whether the narrative stimulus was fictional or non-fictional. Fictionality was coded if the information was explicitly stated in the manuscript. If the information was not available, fictionality was coded as unspecified and not considered in the analysis ($\alpha = 1$). *Topic* captures whether the overall context of the narrative stimulus was related to health (e.g., medical treatments, risky behavior, illnesses), to politics (e.g., attitudes toward minority groups), or to social aspects (e.g., problems of an unexpected teen pregnancy) ($\alpha = 1$). Moreover, we coded whether studies used convenience samples in high-schools or universities or samples recruited outside of these settings (*sample population*) and whether the experiments were conducted in a laboratory or a field setting (*type of experiment*).

Procedure and reliability

The coding of the study characteristics was conducted in September and October 2018 by the authors and a student assistant after an intensive training ensuring the reliability of the coding. If relevant information was not available in the publications (e.g., effects on a zero-order level, sample sizes, etc.), we contacted the authors and requested the respective information. If authors did not respond or were not able to provide sufficient information to calculate a mean effect size, the study was excluded from the sample ($k = 5$, see Figure 1).

Effect size computation and analysis

We calculated the standardized mean difference (Cohen's *d*) for each experimental pair using the Campbell Collaboration effect size calculator (Wilson, 2019). Positive values represent greater persuasiveness of the narrative than the non-narrative media message. Negative values express greater persuasiveness of the non-narrative message (see Supplementary Table S1). The MA models were estimated in *RStudio*

(Version 1.2.1335, based on R version 3.4.4) using the *metafor* package (Version 2.0-0) (Viechtbauer, 2010). We estimated the overall effect size (Cohen's *d*) using a random effects model with a restricted maximum likelihood estimator (Viechtbauer, 2005). Effect sizes were weighted by the inverse of their variances to account for sampling error. In all studies, more than one effect size was obtained, which means that the effect sizes are nested and thus not independent from each other. There is some debate in the field about the best analytical approach to account for such dependencies. In our meta-analysis, we follow recommendations by Cheung and Hong (2017) and most recently by Pigott and Polanin (2019) and Cheung (2019). They advocate for multi-level modeling (MLM) as the preferred option to reflect the structure of such meta-analytic data. In contrast, Moeyaert et al. (2017) recommend using robust variance estimation (RVE) when less than 25 studies are included in the meta-analysis, because MLM can underestimate variances of the study and the effect size level. This restriction is relevant when the researcher interprets these variances. However, our meta-analysis is interested in the estimates of the pooled effect sizes and not the variances.

In addition to the direct overall persuasive effect, we estimated a meta-analytic structural equation model (MASEM, Cheung & Hong, 2017) to examine narrative involvement as a potential mechanism of the persuasive impact. Power analyses were conducted for a small ($d = .10$) and a moderate ($d = .20$) effect matching average effect sizes in psychological studies (Bosco, Aguinis, Singh, Field, & Pierce, 2015; Gignac & Szodorai, 2016). We calculated the power for each meta-analytic model adapting a script by Quintana (2017). We further tested for heterogeneity between the studies and effect sizes using χ^2-distributed *Q*-statistic (Cochran, 1954) and I^2 (Higgins, Thompson, Deeks, & Altman, 2003) and conducted sensitivity analysis to examine the robustness of the findings.

We also tested for the existence of a publication bias for delayed effects in the field of research. For meta-analytic methods, a publication bias is one of the main problems. Studies with small sample sizes or non-significant effects are less likely to be published. However, their systematic absence may lead to false conclusions at the meta-analytical level. There are a number of methods to test for publication bias, all of which have their strengths and weaknesses (Carter, Schönbrodt, Gervais, & Hilgard, 2019; Fernández-Castilla et al., 2019). In this study, we followed the recommendations of the Cochrane Handbook (Higgins et al., 2019) as well as Lin et al. (2018) and tested for publication bias by plotting the observed effect sizes against their standard error (Sterne, Egger, & Smith, 2001). Egger's regression test was used to check for significant funnel plot asymmetry (Sterne & Egger, 2005).

Results

Persuasiveness at immediate measurement

Hypothesis *H*1 assumed that narrative messages have a stronger persuasive impact than non-narrative messages at immediate measurement. Hypothesis *H*1 is supported by the data as the average effect size of narrative messages exceeds the effect

size of non-narrative messages by $d = 0.14$, 95% CI [.048, .239] (Table 1).[3] The effect was significant, as the 95% confidence interval did not include zero. The estimated size of the immediate effect is also in line with the results of a previous meta-analysis. Shen et al. (2015) show that narrative health messages have a by $d = .13$ ($r = .063$, $p < .01$) stronger effect on recipients immediately after exposure than non-narrative health messages. We also examined the impact on beliefs, attitudes, and intentions separately with an individual meta-analysis for each outcome variable (Table 1). Results showed that narratives had a significantly stronger persuasive impact than non-narratives on the recipients' attitudes $d = .17$, 95% CI [.043, .302], and intentions $d = 0.16$, 95% CI [.065, .263]. Contrary to our expectations, both message types did not differently affect the recipients' beliefs, $d = .02$, 95% CI [−.124, .169].

Hypothesis *H*2 asserted that the greater persuasive impact of narrative compared to non-narrative messages at immediate measurement is mediated by narrative involvement. In total, seven studies in our sample considered narrative involvement through identification ($n = 4$), parasocial interaction ($n = 1$), liking ($n = 2$), empathy ($n = 1$), narrative engagement ($n = 2$), imagery ($n = 1$), and transportation ($n = 6$) as mediating mechanisms of the persuasive effect (see Supplementary Table S1). Although the mediators are reflected by a great variety of concepts and applied measures, transportation provided sufficient overlap among the studies for estimating a meta-analytic structural equation model (MASEM, Cheung & Hong, 2017). The MASEM included all studies that used items of the transportation scale suggested by Green and Brock (2000) regardless of the designation of the construct (including one study that only considers the imagery dimension). Message type (narrative, non-narrative) was introduced as the independent variable, the persuasive outcomes as dependent variable, and transportation as a mediator. As predicted, participants in the studies' narrative condition experienced greater transportation in the story ($a = .21$, 95% CI [.167, .258]), which in turn resulted in a slightly greater impact on the persuasive outcomes ($b = .05$, 95% CI [.006, .100]). The *b*-path completed a small significant indirect effect of message type on the persuasive outcomes ($a^*b = .01$, 95% CI [.001, .022]) supporting hypothesis *H*2. However, the statistical power is limited, so the results need to be interpreted with care (Table 2).

Persuasiveness at delayed measurement

Research question *RQ*1 asked whether the greater persuasive power of narrative compared to non-narrative messages at immediate measurement persists over time. A series of analyses were conducted to answer the research question. First, we conducted meta-analyses of the difference between the narrative and non-narrative message effect sizes at the overall as well as individual outcome level. As with immediate measurement, narrative messages had a greater impact on persuasive outcomes than non-narrative messages on the overall level ($d = .16$, 95% CI [.062,

Table 1 Meta-analyses of the long-term persuasive effects of narrative versus non-narrative media messages at immediate assessments

Dependent variables				Average Effect					Power			Heterogeneity			
	k_1	k_2	N	d	SE	95% *CI*	Z	p	P_{small}	P_{mod}	Q	df (Q)	p	I^2_{studies}	I^2_{ES}
Difference in Persuasiveness*	14	51	2,834	0.14	.049	[.048, .239]	2.95	.003	1	1	131.95	50	<.001	44.64	19.32
Beliefs	5	16	1,788	0.02	.075	[−.124, .169]	0.30	.765	1	1	31.99	15	.007	43.95	19.80
Attitudes	10	26	2,663	0.17	.066	[.043 .302]	2.61	.009	.99	1	80.27	25	<.001	62.44	7.28
Intentions	7	8	1,639	0.16	.051	[.065, .263]	3.24	.001	.76	1	5.35	7	.617	9.4	0

Notes: *Difference of the persuasive impact of narrative and non-narrative messages, k_1 = individual studies, k_2 = experimental pairs included in the analysis; P_{small} = Power to detect a small effect of .10, P_{mod} = Power to detect a moderate effect of .20; I^2_{studies} = heterogeneity between studies, I^2_{ES} = heterogeneity between effect sizes.

Table 2 Meta-Analytic Structural Equation Model (MASEM) with transportation as a mediator of the persuasive impact at immediate and delayed assessments

Independent variables		Transportation (M)								Persuasive Outcomes (Y)						
		D	*SE*	*95% CI*	*Z*	*p*	*Psmall*	*Pmod*		*d*	*SE*	*95% CI*	*Z*	*p*	*Psmall*	*Pmod*
Immediate measurement																
Message type (X)	*a*	0.21	.023	[.167, .258]	9.22	< .000	.12	.34	*c*‘	0.13	.024	[.085, .179]	5.54	< .000	1	1
Transportation (M)		_	_	_	_	_	_	_	*b*	0.05	.024	[.006, .100]	2.23	.026	.15	.47
Delayed measurement																
Message type (X)	*a*	0.21	.022	[.171, .255]	9.88	< .000	.12	.34	*c*‘	0.16	.022	[.112, .199]	6.98	< .000	1	1
Transportation (M)		_	_	_	_	_	_	_	*b*	0.03	.022	[−.015, .073]	1.30	.193	.15	.47

Notes. P_{small} = Power to detect a small effect of .10, P_{mod} = Power to detect a moderate effect of .20. Power has been estimated a-priori for each of the individual meta-analytic effect.

.261]). The same holds true if the outcome variables are meta-analyzed separately. Narratives had a greater impact on attitudes ($d = .19$, 95% CI [.021, .360]) and intentions ($d = .13$, 95% CI [.040, .225]), but not on the recipients' beliefs ($d = .11$, 95% CI [−.111, .340]) (Table 3). In addition, actual behaviors were considered as an outcome variable. The meta-analysis also confirmed that narratives had a stronger persuasive impact on behaviors than non-narrative messages at delayed measurement ($d = .15$, 95% CI [.013, .278]).

We were interested whether transportation during message reception also functions as a mediator for the greater power at delayed measurement. The MASEM was estimated analogous to the model at the immediate level but with delayed effect sizes as dependent variable. Results show that transportation did not function as a mediator of delayed persuasive effects ($a^*b = .01$, 95% CI [−.003, .016], Table 2).

Next, moderator tests with the point in time of the measurement as dummy variable (0 = immediate effects, 1 = delayed effects) were conducted to examine whether the greater persuasive power of narrative over non-narrative messages at immediate measurement differs from that at delayed measurement. No differences were found between the immediate and delayed effect sizes on the overall level ($QM(1) = 2.43$, $p = .119$) and on the individual outcome levels for attitudes ($QM(1) = 1.97$, $p = .160$), and intentions ($QM(1) = 0.33$, $p = .568$). Furthermore, we conducted a meta-regression with the duration of the long-term effect (1–180 days, $M = 62$ days, $SD = 55$ days) as regressor to analyze the impact of time passed after the reception on the persuasive power of narrative compared to non-narrative messages. Results show a small significant beta close to zero ($\beta = -.002$, $p = .037$). Therefore, both the moderator test as well as the meta-regression indicate that the difference in persuasive power of narrative compared to non-narratives at immediate measurement is persistent over time (ES immediate = ES delayed) for the examined time interval.

Sensitivity analysis

To evaluate the robustness of our findings, we conducted additional sensitivity analysis with the *medium* (print, audio-visual) and *fictionality* (fiction, non-fiction) as well as the *sample population* (students, non-students) and *type of experiment* (lab, field). We did not consider *topic* due to a lack of variability across studies. Except for two studies, the long-term persuasive effects were examined in a health context (see Supplementary Table S1).

Results show an interesting pattern for *fictionality* and *type of experiment* at delayed measurement (Table 5). The between-group analysis revealed that narrative messages have a greater persuasive impact than non-narrative messages ($QM(1) = 4.91$, $p = .027$) when a non-fictional narrative stimulus was used ($d = .11$, 95% CI [.031, .181]), while no difference between both message types occurred when a fictional stimulus was used ($d = .08$, 95% CI [−.002, .168]). Moreover, narrative messages showed a greater persuasive impact than non-narrative messages at delayed

Table 3 Meta-analyses of the long-term persuasive effects of narrative versus non-narrative media messages at delayed assessments

Dependent variables	Average Effect								Power		Heterogeneity				
	k_1	k_2	N	d	SE	95% CI	Z	p	P_{small}	P_{mod}	Q	$df\ (Q)$	p	I^2_{studies}	I^2_{ES}
Difference in Persuasiveness*	14	66	2,459	0.16	.051	[.062, .261]	3.19	.001	1	1	151.34	65	<.001	38.23	26.96
Beliefs	6	19	1,526	0.11	.115	[−.111, .340]	0.99	.320	.93	1	43.21	18	.001	71.49	11.11
Attitudes	11	29	1,984	0.19	.086	[.021, .360]	2.21	.027	.95	1	91.96	28	<.001	52.65	27.71
Intentions	7	8	1,562	0.13	.047	[.040, .225]	2.80	.005	.74	1	3.86	7	.795	0	0
Behaviors	4	7	932	0.15	.068	[.013, .278]	2.15	.032	.70	1	4.11	6	.661	26.70	0

Notes:

*Difference of the persuasive impact of narrative and non-narrative messages, k_1 = individual studies, k_2 = experimental pairs included in the analysis; P_{small} = Power to detect a small effect of .10, P_{mod} = Power to detect a moderate effect of .20; I^2_{studies} = heterogeneity between studies, I^2_{ES} = heterogeneity between effect sizes.

Table 4 Sensitivity analyses for immediate measurement

Moderators	k_1	%	Between-groups Analysis	Residual Heterogeneity	Subgroup Effect Size
Medium			$QM(1) = 2.24$, $p = .134$	$QE(49) = 120.76$, $p < .001$	
Print	6	43			$d = 0.23$, 95% CI [.082, .374]
Audio-visual	8	57			$d = 0.08$, 95% CI [−.036, .203]
Fictionality			$QM(1) = 3.33$, $p = .068$	$QE(49) = 114.13$, $p < .001$	
Fiction	7	50			$d = 0.07$, 95% CI [−.038, .183]
Non-fiction	4	29			$d = 0.09$, 95% CI [−.004, .192]
Sample Population			$QM(1) = 0.05$, $p = .832$	$QE(49) = 128.14$, $p < .001$	
Students	7	50			$d = 0.16$, 95% CI [.006, .312]
Non-students	7	50			$d = 0.14$, 95% CI [.006, .268]
Type of experiment			$QM(1) = 1.28$, $p = .257$	$QE(49) = 125.31$, $p < .001$	
Lab	4	29			$d = 0.26$, 95% CI [.034, .489]
Field	10	71			$d = 0.12$, 95% CI [.017, .218]

Notes: Effect size calculations are based on the random effects model, k_1 = number of studies out of total sample.

measurement when the experiments were conducted either in laboratory settings ($d = .36$, 95% CI [.149, .576]) or in the field ($d = .11$, 95% CI [.019, .206]), but effect sizes were larger in laboratory settings ($QM(1) = 4.43$, $p = .035$). No such findings occurred for immediate effects (Table 4). However, only four studies in our sample applied non-fictional stimuli or conducted lab experiments (Table 1). More studies are required to validate these findings.

Publication bias

We checked for publication bias among delayed effects by examining a funnel plot (Figure 2). The visual inspection was supported by a non-significant Egger's regression test for funnel plot asymmetry, $z = 1.03$, $p = .302$. However, as noted above, so far there is no consensus on a recommended approach to detect such biases (e.g., Carter et al., 2019; Fernández-Castilla et al., 2019). This test does not suggest any substantial publication bias, but such results need to be interpreted cautiously.

Table 5: Sensitivity analyses for delayed measurement

Moderators	k_1	%	Between-groups Analysis	Residual Heterogeneity	Subgroup Effect Size
Medium			$QM(1) = 0.03$, $p = .872$	$QE(64) = 150.91$, $p < .001$	
Print	6	43			$d = 0.18$, 95% CI [.006, .347]
Audio-visual	8	57			$d = 0.16$, 95% CI [.020, .297]
Fictionality*			$QM(1) = 4.91$, $p = .027$	$QE(64) = 138.73$, $p < .001$	
Fiction	7	50			$d = 0.08$, 95% CI [−.002, .168]
Non-fiction	4	29			$d = 0.11$, 95% CI [.031, .181]
Sample Population			$QM(1) = 0.54$, $p = .462$	$QE(64) = 149.90$, $p < .001$	
Students	7	50			$d = 0.21$, 95% CI [.051, .367]
Non-students	7	50			$d = 0.13$, 95% CI [-.017, .274]
Type of Experiment*			$QM(1) = 4.43$, $p = .035$	$QE(64) = 142.21$, $p < .001$	
Lab	4	29			$d = 0.36$, 95% CI [.149, .576]
Field	10	71			$d = 0.11$, 95% CI [.019, .206]

Notes: Effect size calculations are based on the random effects model, k_1 = number of studies out of total sample.

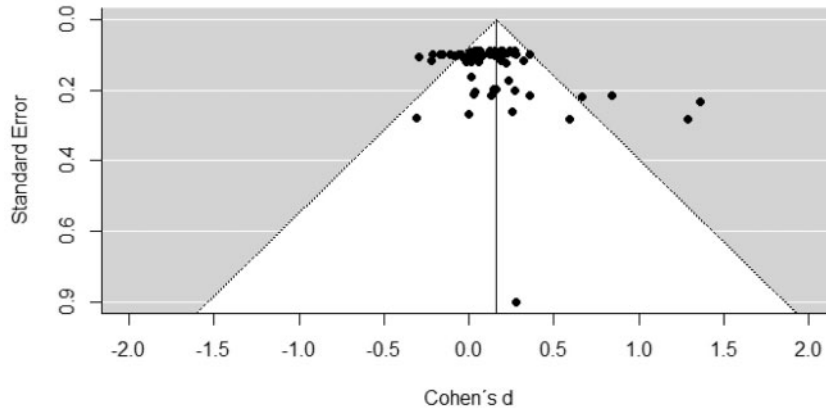

Figure 2 Funnel plot.

Discussion

This study builds on the broad and multifaceted research on the persuasive effects of narrative communication. Researchers have found that narratives are a particularly effective message type that can exceed the persuasive power of non-narratives on a short-term basis. The greater persuasive power of narrative messages has been traced back to their unique capability to create a strong narrative involvement (Moyer-Gusé, 2008). The present study used a meta-analytic approach to examine whether this greater persuasive power of narrative messages persists over time. Based on a sample of $k_1 = 14$ studies with $k_2 = 51$ experimental pairs at immediate measurement ($N = 2{,}834$) and $k_2 = 66$ effect sizes for delayed measurement ($N = 2{,}459$), we have found that narrative messages have a greater overall persuasive impact than non-narrative messages immediately after exposure. This finding is in line with previous results (Huang & Shen, 2016; Martínez Martínez et al., 2018; Oliver et al., 2012). The greater persuasive power was also measurable when we looked separately at attitudes and intentions, but not on the participants' beliefs. Furthermore, we examined whether the greater persuasive impact of narrative compared to non-narrative messages at immediate measurement was mediated by narrative involvement. In line with previous research, results revealed transportation as a relevant mediator of the persuasive effectiveness of narrative versus non-narrative messages (e.g., Borum Chattoo & Feldman, 2017; Oschatz et al., 2019). Participants who received a narrative stimulus were more transported in the story and in turn reported greater message-consistent attitudes and intentions. This finding is also in line with previous meta-analyses identifying transportation as a robust underlying mechanism of narrative persuasion (van Laer, Feiereisen, & Visconti, 2019; van Laer, Ruyter, Visconti, & Wetzels, 2014).

The greater persuasive power of narrative messages on the overall persuasive outcomes and specifically on attitudes and intentions was persistent over time. The difference in persuasiveness at immediate measurement was statistically indistinguishable from the difference at delayed measurement. Moreover, it was also confirmed that narratives have a greater impact on actual behaviors. Sensitivity analyses revealed relevant moderators for the greater persuasive power at delayed measurement. Narrative messages were more persuasive than non-narrative messages when non-fictional stimuli were applied and when the experiments were conducted in a lab.

Theoretical implications

The results support our first theoretical consideration. We assumed that in a saturated media environment (Sherry, 2002), the persuasive impact of a single narrative and non-narrative message erodes simultaneously. We did not find support for the assumptions that the initial narrative involvement would either increase the greater persuasive power of narratives due to prolonged issue-relevant thinking, or decrease the greater persuasiveness due to a lack of message elaboration. In addition, narrative involvement in the form of transportation did not function as a mediator of the greater persuasive impact at delayed measurement.

Limitations

The current meta-analysis has some limitations that also open potential for future studies. Only seven studies considered the mechanisms of narrative involvement as mediators of the persuasive impact. All of these studies included at least some items of the transportation measure (Green & Brock, 2000), which allowed for the estimation of meta-analytic structural equation models. Results came out as expected but need to be interpreted carefully due to the small number of studies they are based on. Future experimental studies on the effects of narrative persuasion should give greater consideration to the mechanisms of the persuasive impact and rely on existing established scales. Future meta-analysis should also consider other forms of narrative involvement in addition to transportation to consolidate findings. Furthermore, our meta-analysis also points to the scarcely researched areas in the field. The results indicated some heterogeneity, which could hardly be explained by the sensitivity analysis. Additional promising moderators at work here could be the strength of the recipients' prior (counter-) attitudes (Wojcieszak & Kim, 2016) and personal experience with the issue addressed. Moreover, studies are needed that systematically test the persuasive impact of narratives and non-narratives over longer time periods and in non-health contexts.

Conclusion

This study found that narrative messages have a stronger persuasive impact than non-narrative messages on participants immediately after exposure and that the greater persuasive power is persistent up to six months after reception. The current meta-analysis underscores the persuasive potential of narrative messages. Further research is needed to shed light on the mechanisms that facilitate the long-term persuasive effects of narrative communication and contribute to our understanding of the development of the persuasive effects over time and their boundary conditions. Experimental studies need to consider the diverse concepts of narrative involvement and, given their great variety, clearly state what concepts were used and which measures were applied. In addition, reporting results (whether they were significant or not) on a zero-order level would support future meta-analysis in this field of research. Such findings are required to develop informed theoretical models to describe, explain and predict long-term persuasive effects of narrative communication, which are still lacking in this field of research.

Supporting Information

The following supporting information is available for this article:

Table S1 in Appendix.

Additional Supporting Information may be found in the online version of this article.

Notes

1. In total, we contacted 125 researchers who participated in at least one of the three pre-conferences on narrative communication held at ICA in Los Angeles and San Diego (2017) as well as Prague (2018).
2. An alternative approach to computing effect sizes is to create a composite average effect size for each individual sample. Additional meta-analyses for such alternative DVs are presented in Supplementary Table S2 in the Supplementary Appendix. In the following, the present study relies on individual experimental pairs as DV as these offer more opportunities to detect heterogeneity between effect sizes.
3. As the debate on the appropriate analytical approach is ongoing, MLM and RVE were applied to meta-analyze the differences in the persuasive impact of narrative and non-narrative messages. The results are summarized in Table S3 in the Supplementary Appendix and show similar results both confirming *H*1. For all subsequent analyses, the MLM analysis approach is applied.
4. References marked with an * are included in the meta-analysis.

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