
Come elaboriamo i messaggi sulla salute correlati all'alimentazione? Uno studio online

Valerie Rodríguez-Hernández,¹ Daniela Batallas,¹ Vanesa Hidalgo^{2,1} e Alicia Salvador^{1,3}

Sommario

Il presente studio ha esaminato la persuasività percepita di tre strategie persuasive, Ethos (autorità), Pathos (emozioni) e Logos (logica), in messaggi incentrati sul consumo di carne. Inoltre, è stata valutata la relazione tra le caratteristiche individuali e le strategie persuasive. Trecentodieci partecipanti (età media = 40.80 anni) hanno completato un sondaggio online valutando i messaggi formulati con diverse strategie persuasive e compilando questionari psicologici. I risultati hanno mostrato che Ethos era il più persuasivo, seguito da Logos e Pathos. Sono state rilevate differenze di genere, con le donne, in particolare i gruppi di mezza età e anziani, che hanno trovato Ethos e Pathos più persuasivi degli uomini. Non sono state osservate variazioni significative in base all'età, all'istruzione o allo stato lavorativo. Tuttavia, alcuni tratti di personalità e stili di coping sono risultati associati alle strategie. Estroversione e Coscienziosità hanno dato un contributo alla persuasività percepita di Ethos, mentre Apertura Mentale era associata a Logos. Il coping di evitamento ha dato un contributo alla persuasività di Pathos, mentre il coping di supporto cognitivo e sociale era associato a tutte e tre le strategie. Questi risultati sottolineano l'importanza di adattare messaggi persuasivi che promuovano comportamenti più sostenibili alle caratteristiche demografiche e psicologiche del pubblico di riferimento. Un tale approccio aumenta l'efficacia persuasiva e il coinvolgimento delle persone, per essere più informate e convinte della rilevanza di un futuro e di un pianeta più sostenibili.

Parole chiave

Messaggi sulla salute relativi all'alimentazione, Strategie persuasive, Tratti di personalità, Stili di coping.

¹ Laboratory of Social Cognitive Neuroscience, Department of Psychobiology, IDOCAL, University of Valencia, Valencia, Spain.

² Department of Psychology and Sociology, Area of Psychobiology, University of Zaragoza, Teruel, Spain.

³ Spanish National Network for Research in Mental Health CIBERSAM, Madrid, Spain.

How Do We Process Nutrition-Related Health Messages? An Online Study

Valerie Rodríguez-Hernández,¹ Daniela Batallas,¹ Vanesa Hidalgo,^{2,1} and Alicia Salvador^{1,3}

Abstract

The present study investigated the perceived persuasiveness of three persuasive strategies —Ethos (authority), Pathos (emotions), and Logos (logic) — in messages focusing on meat consumption. In addition, the relationship between individual characteristics and the persuasive strategies were evaluated. Three hundred and ten participants (mean age = 40.80) completed an online survey assessing messages framed with different persuasive strategies and completing psychological questionnaires. Results showed that Ethos was the most persuasive, followed by Logos and Pathos. Gender differences were revealed, with women, particularly middle-aged and older groups, finding Ethos and Pathos more persuasive than men. No significant variations were observed across age, education, or work status. However, some of the personality traits and coping styles were associated with the strategies. Extraversion and Conscientiousness predicted the perceived persuasiveness of Ethos, while Openness was associated to Logos. Avoidance coping predicted the persuasiveness of Pathos, while Cognitive and Social Support coping were associated with all three strategies. These findings underscore the importance of tailoring persuasive messages that promote more sustainable behaviours to the demographic and psychological characteristics of the target audience. Such an approach increases persuasive efficacy and the involvement of people, to be more informed and convinced of the relevance of a more sustainable future and planet.

Keywords

Nutrition-related health messages, Persuasive strategies, Personality traits, Coping styles.

¹ Laboratory of Social Cognitive Neuroscience, Department of Psychobiology, IDOCAL, University of Valencia, Valencia, Spain.

² Department of Psychology and Sociology, Area of Psychobiology, University of Zaragoza, Teruel, Spain.

³ Spanish National Network for Research in Mental Health CIBERSAM, Madrid, Spain.

Introduction

Persuasion, a key form of social influence, aims to shift people's attitudes or behaviours and is widely relevant across many social contexts. In health communication, for example, persuasive messaging is crucial for encouraging healthier food choices and more sustainable eating habits, which can have a big impact on both public health and the environment. Unhealthy diets have become a major public health concern due to their links to chronic diseases and the environmental toll of high-impact food industries. Yet, designing health messages that truly motivate more sustainable behaviours remains a major challenge.

Research on persuasion has grown toward personalized and tailored persuasive attempts, considering individual characteristics such as personality (Wall et al., 2019), affective (Maio & Esses, 2001) and cognitive orientations (Cacioppo & Petty, 1982), and personal relevance (Petty & Cacioppo, 1986), among other factors (Rodríguez-Hernández et al., 2024). In addition, different persuasive strategies may be employed in a persuasive attempt. In this way, the efficacy of a persuasive attempt may be enhanced if people's characteristics and the chosen strategies match.

To examine the effectiveness of different framings, we focused on three persuasive strategies: Ethos, Pathos, and Logos. Each strategy uses a unique approach to shape information. Ethos emphasizes the credibility, expertise, and trustworthiness of the source, enhancing the message's reliability. Pathos engages the audience's emotions and empathy, aiming to influence their judgment through emotional appeal. Finally, Logos focuses on the logical structure of the argument, appealing primarily to rational thinking and critical evaluation (Berlenga et al., 2013; Stucki & Sager, 2018). Based on the above, for this study, an online survey was conducted to explore through a self-reported assessment which persuasive strategy (i.e., Ethos, Pathos, and Logos) seemed more convincing to a general population. To study persuasion through a somehow controversial topic, we chose the limit of meat consumption. The messages were drafted based on scientific evidence, with different frames based on the strategy. The survey was carried out during the COVID-19 lockdown, between April and June 2020.

The main objectives were first to explore which of the three persuasive strategies was considered more persuasive to a diverse population. Secondly, to examine how the perceived persuasiveness of the strategies differs based on certain individual differences (e.g., age, gender, educational level, and work status), in addition to exploring gender differences by dividing the sample by age group (i.e., younger, middle-aged, and older adults). Lastly, to explore the

relationship between psychological characteristics (i.e., perceived stress, personality, and coping styles) and persuasive strategies.

The main hypothesis is that Ethos (because of the peripheral cue of source expertise) or Pathos (Benlamine et al., 2017) will be perceived as more persuasive than Logos. Also, this hypothesis holds to the notion that the study was conducted during the COVID-19 confinement period when most of the news appealed to authority (Ethos) and to the empathy (Pathos) of people.

Methods

Participants and Procedure

The total sample that participated in the online survey was 422 volunteers. However, 112 entries were incomplete, so the final sample was composed of 310 volunteers (227 women, 83 men, mean age: 40.80; SD = 15.90). Participants were recruited through a call to known people, family members, students, and colleagues, among others. No exclusion criteria concerning age, sex, or country of residence were applied. The characteristics of the sample are shown in Table 1.

The survey was composed of demographic questions, psychological questionnaires, and a persuasion task. The questionnaires presented were the *Perceived Stress Scale* (PSS-4), *NEO Five-Factor Inventory* (NEO-FFI-60), and the *Brief-Coping Orientation to Problems Experienced Inventory* (Brief-COPE-28), all of them in their Spanish-validated versions. The persuasion task consisted of 30 messages: 10 messages per each of the three persuasive strategies. The entire survey had a duration of between 15-20 minutes and was presented through the online survey tool LimeSurvey.

Measurements

Persuasion task

Persuasion was assessed through the presentation of messages about meat consumption framed in one of three strategies: Ethos, Pathos, or Logos. Each strategy was presented in a block of 10 messages, for a total of three blocks in the native language of the participants (Spanish). Each message appeared with the question: «How convincing is this message?» with a range from 0 (*Not at all convincing*) to 4 (*Very convincing*). Block and message order were counterbalanced by LimeSurvey.

Table 1
Sample characteristics by age group, and for men and women

	Young adults (18-35 years old)		Middle-aged adults (36-55 years old)		Older adults (56-75 years old)				
	Total sample (n = 140)	Men (n = 33)	Women (n = 107)	Total sample (n = 92)	Men (n = 20)	Women (n = 72)	Total sample (n = 77)	Men (n = 29)	Women (n = 48)
Age M (SD)	25.80 (4.80)	28.00 (4.20)	25.10 (4.70)	45.10 (5.70)	44.30 (5.50)	45.30 (5.80)	62.90 (3.90)	63.30 (4.00)	62.50 (3.90)
Residency N									
Europe	100	24	76	64	17	47	56	23	33
America	37	9	28	28	3	25	21	6	15
Other	3	0	3	0	0	0	0	0	0
Educational level N									
Basic studies	2	1	1	3	0	3	3	0	3
High school	17	2	15	7	1	5	12	6	6
University or Higher educ.	63	13	50	49	12	37	45	16	29
Postgraduate (Master, PhD)	58	17	41	33	6	27	17	7	10
Work status N									
Unemployed	18	6	12	5	1	4	4	0	4
Employed	61	16	45	84	18	66	29	10	19
Retired or pensioner	0	0	0	2	1	1	41	18	23

Unpaid domestic work	2	0	2	0	0	0	0	0	2	0	2
Student	59	11	48	1	0	1	0	1	1	1	0
PSS-4	6.10 (2.90)	5.60 (2.80)	6.30 (3.00)	5.00 (2.60)	5.30 (3.00)	5.00 (2.40)	4.10 (2.90)	4.10 (2.80)	4.20 (2.90)	4.10 (2.80)	4.20 (2.90)
COPE-28											
Cognitive coping	5.00 (0.90)	5.00 (0.90)	5.00 (0.90)	5.00 (0.80)	4.80 (0.90)	5.10 (0.80)	4.70 (0.90)	4.70 (0.90)	4.90 (1.20)	4.70 (0.90)	4.90 (1.20)
Avoidance coping	2.60 (0.80)	2.70 (0.90)	2.60 (0.80)	2.40 (0.70)	2.20 (0.70)	2.50 (0.80)	2.20 (0.70)	2.20 (0.70)	2.10 (0.70)	2.20 (0.70)	2.10 (0.70)
Emotional coping	5.80 (1.60)	5.30 (1.50)	5.90 (1.70)	5.10 (1.80)	4.30 (1.80)	5.30 (1.80)	4.40 (1.30)	4.40 (1.30)	5.00 (1.40)	4.40 (1.30)	5.00 (1.40)
Spiritual coping	1.70 (2.00)	2.00 (2.10)	1.50 (2.0)	2.70 (2.20)	1.40 (1.90)	3.10 (2.10)	2.20 (2.30)	2.20 (2.30)	3.00 (2.20)	2.20 (2.30)	3.00 (2.20)
Personality											
Neuroticism M (SD)	34.00 (9.30)	31.60 (8.90)	34.70 (9.30)	31.80 (7.90)	28.50 (6.50)	32.70 (8.00)	29.10 (6.90)	29.10 (6.90)	27.70 (7.40)	29.10 (6.90)	27.70 (7.40)
Extraversion M (SD)	42.20 (8.00)	41.50 (7.70)	42.50 (8.10)	41.30 (6.80)	40.50 (8.50)	41.50 (6.30)	41.40 (5.60)	41.40 (5.60)	41.90 (6.00)	41.40 (5.60)	41.90 (6.00)
Openness M (SD)	43.60 (7.00)	44.30 (7.30)	43.30 (6.90)	42.00 (6.40)	42.60 (8.30)	41.90 (5.90)	39.70 (6.10)	39.70 (6.10)	41.50 (7.10)	39.70 (6.10)	41.50 (7.10)
Agreeableness M (SD)	41.60 (4.80)	40.40 (4.70)	41.90 (4.80)	43.90 (5.00)	42.40 (4.90)	44.40 (5.00)	42.60 (5.40)	42.60 (5.40)	45.50 (4.90)	42.60 (5.40)	45.50 (4.90)
Conscientiousness M (SD)	43.10 (6.80)	39.90 (5.60)	44.10 (6.80)	43.90 (6.00)	44.80 (6.40)	43.60 (5.90)	43.90 (4.40)	43.90 (4.40)	45.10 (6.10)	43.90 (4.40)	45.10 (6.10)

Note: M (mean); SD (standard deviation).

Perceived Stress Scale (PSS)

For this research, we used the validated Spanish version (Remor, 2006) of the PSS (Cohen et al., 1983; Cohen & Williamson, 1988). Participants respond on a 5-point Likert scale from 0 (*Never*) to 4 (*Very often*) to the PSS-4 (items 2, 6, 7, and 14 from the original PSS-14). Items 6 and 7 were reverse-scored. Higher scores indicate higher levels of perceived psychological stress during the last month. The Cronbach's α was .74.

NEO Five-Factor Inventory (NEO-FFI)

We used the Spanish version (Costa & McCrae, 1999) of the NEO Five-Factor Inventory (Costa & McCrae, 1992), which consists of 60 items that measure the Big Five personality traits, each with 12 items (neuroticism, conscientiousness, extraversion, openness, and agreeableness). With a 5-point Likert scale, participants respond from 0 (*Totally disagree*) to 4 (*Totally agree*). The Cronbach's α was .71.

Brief-Coping Orientation to Problems Experienced Inventory (COPE)

Coping strategies were examined through the validated Spanish version (Morán et al., 2010) of the Brief COPE (Carver, 1997), which consists of 28 items and 14 subscales of 2 items each, omitting two subscales from the original COPE-60 (Carver et al., 1989). With a 4-point Likert scale, participants respond from 0 (*Nothing*) to 3 (*A lot*) to different ways of coping with stress. As in Morán et al. (2010), we did factorial analysis which grouped all the items into 11 subscales (emotional support, active coping, alcohol or drugs, humour, religion, self-distraction, denial, relief, self-incrimination, disengagement, and positive reinterpretation), followed by a second order analysis to regroup to 4 factors: cognitive, avoidance, social support, and spiritual coping. Cronbach's α for all items was .75.

Statistical Analysis

For the first objective (i.e., to explore which of the three persuasive strategies was considered more persuasive to a diverse population), a rm-ANOVA with Strategy (Ethos, Pathos, Logos) as a within-subject factor was employed. To examine the second objective (i.e., to study the differences in the perceived persuasiveness of the strategies based on individual differences in Age, Gender, Educational level, and Work status), a one-way ANOVA was executed with the self-reported scores given to each persuasive strategy as the dependent list and Age, Gender, Educational level, and Work status separately as the between-subject

factors. In addition, for this objective, the sample was split by age group followed by the one-way ANOVA comparing Gender. Finally, for the last objective (i.e., to explore the relationship between psychological characteristics and persuasive strategies), linear regression analyses were performed between the individual characteristics of personality, coping strategies, and perceived stress and each of the persuasive strategies.

Results

Persuasiveness of the strategies

A rm-ANOVA revealed a significant effect of strategy ($F(2, 618) = 92.40, p < .001, \eta_p^2 = .23$). The strategy of Ethos had a significantly higher score on the *How convincing is this message?* question ($M = 3.00, SD = 0.60$) than Logos and Pathos (both $p < .001$). Whereas Logos ($M = 2.70, SD = 0.60$) had a higher score than Pathos ($M = 2.50, SD = 0.80$) ($p < .001$), the latter being considered the least persuasive.

Persuasion and demographics

For the second objective, a one-way ANOVA revealed significant differences in the perceived persuasiveness of Ethos ($p < .001$), Pathos ($p = .002$), and Logos ($p = .024$) strategies between women and men. However, no differences were found in the perceived persuasiveness of the three strategies comparing by age (all $p > .40$), educational level (all $p > .30$) or work status (all $p > .30$).

Furthermore, the differences by gender were constant when the sample was split by age group.

Significant differences in the perceived persuasiveness of the Ethos and Pathos strategies between women and men in middle ($p = .025$; $p = .016$, respectively) and older age ($p = .006$) were found.

Means, SD, and p -values among each persuasive strategy comparing women and men by age group are shown in Table 2.

Persuasion and psychological characteristics

To verify our third hypothesis, linear regression analyses were performed. Results revealed that PSS does not predict the perceived persuasiveness of any of the three persuasive strategies; however, some personality traits and coping styles do.

The personality traits of Extraversion ($R^2 = .04$, $B = .02$, $p < .001$) and Conscientiousness ($R^2 = .03$, $B = .02$, $p = .002$) are significantly associated with the Ethos strategy, while the trait of Openness ($R^2 = .02$, $B = .01$, $p = .008$) is associated with the Logos strategy.

As for coping styles, cognitive coping, and social support had a significant relationship with the three strategies (all $p < .025$), while avoidance coping is related to the Pathos strategy ($R^2 = .03$, $B = .16$, $p = .005$).

No relationship was found between PSS, Neuroticism, Agreeableness, or Spiritual coping with any of the strategies (all $p > .05$) (see Table 3).

Table 2

Comparison of means for each persuasive strategy by age group, and for men and women

	Young adults (18-35 years old)			Middle-aged adults (36-55 years old)			Older adults (56-75 years old)		
	Men (n = 33)	Women (n = 107)		Men (n = 20)	Women (n = 72)		Men (n = 29)	Women (n = 48)	
Ethos	2.80 (0.60)	3.00 (0.60)	$p = .133$	2.70 (0.60)	3.00 (0.60)	$p = .025^*$	2.70 (0.60)	3.10 (0.60)	$p = .006^{**}$
Pathos	2.40 (0.90)	2.60 (0.80)	$p = .161$	2.10 (0.80)	2.60 (0.80)	$p = .016^*$	2.20 (0.80)	2.50 (0.90)	$p = .126$
Logos	2.60 (0.70)	2.70 (0.60)	$p = .493$	2.40 (0.60)	2.70 (0.60)	$p = .122$	2.40 (0.60)	2.70 (0.70)	$p = .066$

Note. Means (standard deviations).

Table 3

Predictive value of psychological characteristics on the perceived persuasiveness of each of the three persuasive strategies

	Ethos			Pathos			Logos		
	R^2	B	p	R^2	B	p	R^2	B	p
PSS	.01	-.02	.104	.00	.00	.828	.00	-.01	.402
Neuroticism	.00	-.00	.567	.01	.01	.055	.00	.00	.595
Extraversion	.04	.02	< .001	.00	.00	.957	.00	.00	.395
Openness	.00	.01	.284	.01	.01	.057	.02	.01	.008
Agreeableness	.01	.01	.081	.01	.01	.208	.00	.00	.980

(Continua)

(Continua)

Conscientiousness	.03	.02	.002	.00	-.00	.941	.01	.01	.182
Cognitive coping	.06	.16	< .001	.03	.15	.002	.02	.09	.021
Avoidance coping	.00	.04	.288	.03	.16	.005	.01	.07	.134
Social Support	.03	.06	.004	.03	.08	.004	.02	.06	.006
Spiritual coping	.01	.03	.056	.00	.01	.415	.00	-.01	.702

Discussion

As was mentioned at the beginning, the objectives of this study were, first, to examine which persuasive strategy about a health topic seems more convincing to a diverse population. Overall, we found the strategy of Ethos (appeals to the source’s authority) to be the most persuasive, followed by Logos (appeals to the logic of the argument), ending with the Pathos strategy (appeals to the emotions and empathy of the audience) considered as the least persuasive.

A second objective was to study the differences in the perceived persuasiveness of the strategies based on individual differences (i.e., age, gender, educational level, and work status). Results revealed differences in the perceived persuasiveness between women and men, but no differences by age, educational level, or work status were found. Moreover, when the sample was split by age group, results revealed differences between women and men in the assessment of the Ethos and Pathos strategies, in middle-aged and older adults, being women the ones that considered significantly more persuasive both strategies than men.

Lastly, the third aim was to evaluate the relationships between the strategies’ perceived persuasiveness and the participants’ psychological characteristics (i.e., perceived stress, personality traits, and coping styles). We found that Extraversion and Conscientiousness predicted the perceived persuasiveness of the Ethos strategy, while Openness was associated with the persuasiveness of the Logos strategy. Regarding coping styles, we found an association between Avoidance coping and Pathos strategy. Pathos uses peripheral cues to distract the processing of the argument from more thoughtful thinking, while the Avoidance coping style is characterized by denial or mental disengagement from relevant or stressful issues (Carver et al., 1989).

In addition, cognitive coping and social support were significantly associated with the three strategies. Individuals who employ the social support coping strategy seek advice, assistance, or information, which explains its relationship with the three strategies. Cognitive coping is a type of active coping that may

motivate individuals to be more influenced by the persuasive attempt regardless of the type of strategy used to direct action.

To conclude, the Ethos strategy was considered the most persuasive in health messages, here focused on more sustainable nutrition habits, to a general and diverse population. In addition, middle-aged and older women assessed the Ethos strategy as more persuasive than men of the same age did. It is important to point out that this online survey was shared in 2020 during the COVID-19 lockdown, which was a critical moment of much exposure to health communication delivered especially by authorities, which makes it more understandable that the Ethos strategy was perceived as the more persuasive regardless of the characteristics of the group.

The results highlight the importance of tailoring persuasive messages to increase efficacy. In this context, the objective of informing and convincing people towards more sustainable eating behaviours is a constructive path to developing a more sustainable society and planet.

Funding

The research reported in this study was supported by the Spanish Ministry of Science, Innovation and Universities (PID2020-119406GB-I00/AEI/10.13039/501100011033, and FPU 18/03422), the Generalitat Valenciana (PROMETEU 2022 (CIPROM/2021/082), and the Spanish Network of Stress Research (MCIN/AEI/10.13039/501100011033). Moreover, the contribution of V. Hidalgo was supported by the Gobierno de Aragón (Group: S31_23R) and the Universities Ministry and European Union (European Union Next Generation EU, grant for the requalification of the Spanish University System).

References

- Benlamine, M. S., Villata, S., Ghali, R., Frasson, C., Gandon, F., & Cabrio, E. (2017). Persuasive Argumentation and Emotions: An Empirical Evaluation with Users. In Kurosu, M. (Ed.), *Human-Computer Interaction. User Interface Design, Development and Multimodality*. LNCS, 10271. https://doi.org/10.1007/978-3-319-58071-5_50
- Berlanga, I., García-García, F., & Victoria, J. S. (2013). Ethos, Pathos and Logos in Facebook. User Networking: New «Rhetor» of the 21st Century. *Comunicar*, 21, 127-135.
- Cacioppo, J. T., & Petty, R. E. (1982). The need for cognition. *Journal of Personality and Social Psychology*, 42(1), 116-131. <https://doi.org/10.1037/0022-3514.42.1.116>
- Carver, C. S. (1997). You want to measure coping but your protocol's too long: consider the brief COPE. *International Journal of Behavioral Medicine*, 4(1), 92-100. https://doi.org/10.1207/s15327558ijbm0401_6

- Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, 56(2), 267-283. <https://doi.org/10.1037/0022-3514.56.2.267>
- Cohen, S., & Williamson, G. (1988). Psychological stress in a probability sample of the United States. In S. Spacapan, & S. Oskamp (Eds.), *The social psychology of health: Claremont Symposium on Applied Social Psychology* (pp. 31-67). Sage.
- Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A Global Measure of Perceived Stress. *Journal of Health and Social Behavior*, 24(4), 385-396.
- Costa, P. T., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) professional manual*. Psychological Assessment Resources.
- Costa, P. T., & McCrae, R. R. (1999). *NEO PI-R, Inventario de Personalidad NEO Revisado. NEO-FFI, Inventario NEO Reducido de Cinco Factores* [Revised NEO Personality Inventory (NEO-PI-R) and NEO Five Factor Inventory (NEO-FFI)]. TEA Ediciones.
- Maio, G. R., & Esses, V. M. (2001). The need for affect: Individual differences in the motivation to approach or avoid emotions. *Journal of Personality*, 69(4), 583-615. <https://doi.org/10.1111/1467-6494.694156>
- Morán, C., Landero, R., & González, M. T. (2010). COPE-28: un análisis psicométrico de la versión en español del Brief COPE. *Universitas Psychologica*, 9(2), 543-552.
- Petty, R. E., & Cacioppo, J. T. (1986). *Communication and persuasion: Central and peripheral routes to attitude change*. Springer. <https://doi.org/10.1007/978-1-4612-4964-1>
- Remor E. (2006). Psychometric properties of a European Spanish version of the Perceived Stress Scale (PSS). *The Spanish journal of psychology*, 9(1), 86-93. <https://doi.org/10.1017/s1138741600006004>
- Rodríguez-Hernández, V., Hidalgo, V., & Salvador, A. (2024). Emotional and Cognitive Processes Underlying Persuasion, Moderating Factors, and Physiological Reactions: A Systematic Review. *Psychological Reports*, 0(0), 1-37. <https://doi.org/10.1177/00332941241291497>
- Stucki, I., & Sager, F. (2018). Aristotelian framing: Logos, ethos, pathos and the use of evidence in policy frames. *Policy Sci*, 51, 373-385. [10.1007/s11077-018-9322-8](https://doi.org/10.1007/s11077-018-9322-8)
- Wall, H. J., Campbell, C. C., Kaye, L. K., Levy, A., & Bhullar, N. (2019). Personality profiles and persuasion: An exploratory study investigating the role of the Big-5, Type D personality and the Dark Triad on susceptibility to persuasion. *Personality and Individual Differences*, 139, 69-76. <https://doi.org/10.1016/j.paid.2018.11.003>