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ORIGINAL ARTICLE

COVID-19 Cover Pages May Cause Nocebo Effects on Public Health: First Observations on the Connection between Media and Health Data across Cultures

Joachim Grzega*

Universität Eichstätt-Ingolstadt, Germany

***Corresponding author:** *Joachim Grzega, Universität Eichstätt-Ingolstadt, Germany*

Abstract

Based on the observation that language use can harm health, the paper looks at the public health situation in late 2020 as compared to the situation in spring 2020 - the health situation is mainly defined via A) The weekly deaths 2020; B) The weekly deaths 2020 compared to the 2016-2019 average; C), The death rates measured as weekly z-scores at the national level, and as additional indicators; D) The death rates attributed to COVID-19; E) The intensive care unit days attributed to COVID-19; and F) The hospitalized COVID-19 patients. The figures are then related to 1) The 2020 covers of one or, if existent, two weekly, nationally circulating political news magazines from Austria, France, Germany, Italy, Poland, Sweden and the UK; 2) The 2020 front-page headlines of one daily newspaper from Austria, France, Germany, Italy, the Netherlands, Spain and the UK. As a result, the worst public health situations in the selection of countries match with the highest number of weeks with prominent negative coronavirus magazine covers, with Germany, Poland and Austria at the negative ends. Fewer non-positive covers are mostly related with better figures. It is suggested that further studies should take into account the potential effect of public language on public health.

Keywords

Effect of media language on health, Framing, Newspaper headlines, Magazine covers, Cover pages headlines, COVID-19, Nocebo effect, Eurolinguistic approach, Cross-cultural approach, Empirical approach

Introduction

Looking at the death rates and hospitalization figures of EU countries in 2020, one can see two waves that are currently related to the spread of a coronavirus termed SARS-CoV-2. In how far the prominent causes of these deaths can really be attributed to the same type of virus cannot be answered here. It can be noted, though, that in some countries the late 2020 wave is stronger than the 2020 spring wave. This may surprise since there had been the summer months during which societies could have learned how to best handle the spread of life-terminating diseases attributed to SARS-CoV-2. Obviously, the perfect measures had not been found. Sweden had refrained from drastic compulsory measures such as lockdowns, while other EU countries put their faiths in varying kinds of physical distancing. However, models of extreme distancing policies only calculated how much lives or life-time could be saved from the assumed limited spread of SARS-CoV-2, but never how much life-time they cost due to the distancing measures. That lockdowns did not lead to a statistically significant better result in avoiding deaths attributed to SARS-CoV-2, or the related disease COVID-19, was shown in several studies e.g. [1,2]. Similarly, the wearing of community masks of fewer than 6 layers has been scientifically doubted [3,4]; what seemed to trigger a higher death rate was related to (high) age, prior (bad) health condition, inequality (poverty) and (bad) health system. In addition, studies show how important a strong immune system is for dealing with diseases and how stress or a lack of contact with nature can weaken the immune system e.g. [5-11]. What has not been taken into account is whether the media exposure to the COVID-19 topic has any effect on health. This paper will add a few linguistic observations that may help to explain the different state of public health of late 2020 in contrast to spring 2020:

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RQ: Is a worse late 2020 public health situation of a country in comparison to the spring 2020 situation paralleled or preceded by a higher intensity of negative prominent media language?

Theoretical Background and Methodology

The analyses here rest on two empirically based theorems:

1. Language can harm individual health. Several studies have demonstrated the nocebo effects of language in individuals e.g. [12-14].
2. Language can harm public health. Linguists and psychologists have been theorizing under the terms *propaganda* how special techniques can influence people's thought and feelings e.g. [15-17]. Today, the shaping of thoughts through networks of words and phrases is also termed framing e.g. [18,19].

Based on this, has the public language used in 2020 had effect on the development of public health related with COVID-19? Since, given the figures available, it is impossible to do this with the usual statistical methods, an approximate approach needs to be elaborated.

1. Nation-wide high-circulation and high-quality weekly political magazines (Study 1) and daily newspapers (Study 2) are analyzed for their covers, since these are messages that people of a country perceive even if they do not buy the magazine or newspaper - they at least subconsciously look at them as passers-by due to their wide presence in supermarkets, corner stores and kiosks (even though sometimes not seeing the entire front page). Such sources may be considered typical representatives of the national media language or media discourse. In contrast, although news on social media will certainly have impact on viewers, they are selected more autonomously by viewers or are fabricated more individually by algorithms e.g. [20]. Also TV news programs, like social media, can be avoided, while magazine and newspaper covers are, as already said, widely present on one's way to buying things needed every day. Viewing the cross-cultural question and the lack of data of concrete individual media habits in connection with individual health histories, newspaper and magazine covers are thus methodologically better than news in the social media and TV programs.
2. To level out other culture differences to the best degree possible. For Study 1, the idea of Eurolinguistics supports the selection of countries and languages from a rather homogeneous cultural group. The selection of Germany, Austria, France, Italy, Poland, Sweden, and the United Kingdom respects a principle of Eurolinguistics stricto sensu, namely a selection from all cardinal directions or geocultural subregions [21]. Mostly, two weekly magazines per country are chosen. In the case of Austria and Sweden, there is only one political magazine that can be considered nation-wide and of high circulation. The magazines are: Austria's *Falter*, France's *L'Express* and *Le Point*, Germany's *Der Spiegel* and *Stern*, Italy's *Espresso* and *Panorama*, Poland's *Polityka* and *Wprost*, Sweden's *Fokus*, Britain's *The Economist* and *The Spectator*. Since potential effects will appear with delay and with growing repetition, health figures will not be related to concurrent media. Rather, it is analyzed in how many weeks of 2020 people could see a cover that was related to the (almost personified) coronavirus through words (in letter sizes even visible if the magazine is not directly taken into one's hands) or through the cover picture or through both words and picture. It will also be checked how many covers transported a scaring, fear-producing message and how many an encouraging, hope-producing one. *Fokus* has no new issues during a few summer weeks, with the last cover before summer break visible in kiosks, corner shops and supermarkets for a longer time; for this study, this will have no importance, because the last issue before the summer break was not a "coronavirus" cover.
3. Since some may argue that Poland is culturally too different from western European countries (some may claim this especially for media culture) and Sweden is culturally different in COVID-19 times because it had no lockdowns, Study 2 will exclude these countries. As a compensation, so that both studies show seven countries, it will include Spain and the Netherlands, which lack a culture of political weekly magazines, though. Study 2 will therefore deal with another type of media sources: the front pages of daily newspapers. For each country, there will be one high-circulation newspaper considered a quality paper (not "yellow press"): Austria's *Der Standard*, France's *Le Figaro*, Germany's *Die Welt*, Italy's *Corriere della sera*, the Netherlands' *De Telegraaf*, Spain's *El mundo*, Britain's *The Times*.
4. The number of weeks with "coronavirus" covers will then be compared to the difference between the public health situation during the respective ten worst calendar weeks of spring and the public health situation during the respective ten worst weeks from October through December. The public health situations will not be expressed in the widely quoted positive PCR test results; they are often misinterpreted or wrongly termed *infection cases* or *infection rate* - at least if the classical definition of *infection* is applied, which

Table 1: Public health late 2020 (in comparison to spring 2020).

Country	A	B	C	D	E	F	Sum
AT	–	–	–	–	–	–	–
DE	–	–	(–)	–	–	/	–
ES	+	+	+	+	/	/	+
FR	o	o	+	o	+	o	o+
IT	/	/	o	o	o	–	o
NL	+	+	+	+	+	o	+
PL	–	–	/	–	/	–	–
SE	o+	+	+	+	+	o	+
UK	+	–	+	+	o	–	*

+: Better; –: Worse; o: Similar; o+: Slightly better; *: Ambiguous; /: Unknown; (): Regional; A: Deaths; B: Deaths compared to 2016-2019; C: EUROMOMO death rates; D: Assumed COVID-19 death rates; E: COVID-19 ICU days; F: COVID-19 hospitalizations.

would require a certain interaction between a critical amount of virus and the body, which a PCR test result does not automatically reveal. More meaningfully, the comparison will predominantly resort to:

A. The weekly deaths 2020 [22-24];

B. The weekly deaths 2020 compared to the 2016-2019 average (2016-2019 average = 100) [22,25,26];

C. The death rates measured as weekly z-scores at the national level in the EuroMOMO participating countries from Week 1 until Week 53, 2020 (z-scores are used to standardize series and enable comparison patterns between different populations or between different time periods; the standard deviation is the unit of measurement of the z-score) [27].

Additionally, the analysis will resort to the following "COVID-19 figures":

D. The death rates attributed to COVID-19 [28,29];

E. The intensive care unit days attributed to COVID-19 (for all countries except Poland, for lack of data) [30,31];

F. The hospitalized COVID-19 patients [30,32].

The figures under D to F must be interpreted with utter care, since definitions of COVID-19 attributions may have changed over time even within one and the same country ([33] for England); in other words, since patients and deceased people were commonly labeled as "COVID-19 cases" even without symptoms of a respiratory disease, without confirmation of PCR and antigen tests through more precise tests and without cross-checking against other viruses (such as influenza viruses). Figures D to F can therefore not be seen as good indicators of public health, only of mixed indicators blending health and language (health classifications). As just mentioned, this lack of validity holds even more true for SARS-CoV-2-related figures that encompass even asymptomatic cases (especially if it is not known - not even by the official bodies - whether a second test was immediately proceeded on a positive PCR or antigen and/or how many test results were corrected and/or how the test was executed and/or whether the practice has changed over the course of the period studied).

Furthermore, since the degree to what the dead or hospitalized people had perceived the cover pages cannot be determined individually, comparisons are not made in a statistical sense, but in the sense of general societal observations.

Results

Public health

Table 1 summarizes the observations on public health in late 2020 in contrast to spring 2020. As mentioned above, death figures (A to C) are given the most important weight, as they are the most neutral (incontestable), bare figures. However, the inclusion of the figures assumed to be linked to a SARS-CoV-2 infection (D to F) do not change the overall picture.

Study 1

Study 1 analyzes the selected magazines, more precisely: the number of weeks of coronavirus-related covers (either through words such as for "coronavirus", "COVID-19", "masks" and "lockdown" or through corresponding pictures). The counting includes those covers where the coronavirus-relation is big enough so that it can be considered visible for many passers-by or clients without having to hold the magazine in one's hand (although this is, viewing differing eye-sights, a vague approach, of course). The counting will include insinuations of coronavirus with other topics: *The Economist* 06/13, where the top topic of Black Live Matters is combined with the drawing of a black person wearing a mask; *Espresso* 25 on the same matter; *Falter* 52, where former Finance Minister Grasser, who faces a trial, is pictured with a mask; *Polityka* 51 on the topic of the president's connection with Hungary's prime minister, with a masked president. In Austria, Germany, France and Poland there are some weeks just with covers whose perception as coronavirus-related may depend on the distance and knowledge background of the viewer (*Falter* 32, *Der Spiegel* 42, *L'Express* 05/07, *L'Express*

05/14, *L'Express* 05/28, *Polityka* 17, *Wprost* 28, *Wprost* 36). Therefore, a range of numbers will be given.

From the intermediate sum subtracted will be those weeks where only positive covers are seen, all with respect to vaccines: *The Spectator* 09/12 (Title: "Winning shot", picturing injections), *Stern* 50 (Title: "Geschafft!" 'We've made it!', picturing a vaccine). In addition, there are some covers which express a merely potential positive future; they may be perceived as positive or not. This, too, will lead to ranges of negative coronavirus covers.

In addition, some covers use war metaphors which may be perceived as particularly threatening. In contrast, humorous covers may serve as a certain relief from the coronavirus threat. A phenomenon specific to Germany is the use of religious motives connected with the coronavirus (*Der Spiegel* 16, *Der Spiegel* 44, *Stern* 53). Although there were interestingly seven "war metaphors" in the British sources, these as well as humorous covers turned out to be too few in number to be further included in this study.

Table 2 correlates the public health development with the covers. Sweden with the smallest number of negative coronavirus covers of only 5 weeks, or in other words: less than 10 percent of the 2020 cover pages, showed a better public health situation. Germany and Poland with over one third of the 2020 cover pages consisting of negative coronavirus messages showed worse public health than in spring. In between, with a fifth to a third of the covers, there are Austria with worse health figures during autumn/winter and Italy and France with similar figures as in spring. For the UK, as mentioned above, the ambiguous data on public health does not allow for a comparison. Similarly, the amounts of war metaphors and humorous covers in the sources selected do not seem large enough to discuss the influence on the winter public health.

Study 2

Study 2 correlates the public health figures with the number of (days of) coronavirus headlines on the front pages of daily newspapers containing the words "COVID" or "corona*" (as collected from the LexisNexis database [34]. Subtracted are the clearly positive coronavirus messages for a country (Table 3). Subtracted are the clearly positive coronavirus messages for a country (Table 3). Some headlines include both positive and negative aspects and some only relate to a potential positive future, which some may perceive as rather positive, some not. This results in a range of negative or neutral headlines.

The results corroborate Study 1: The two countries with the highest number of non-positive headlines showed worse public health in winter 2020. Spain and the Netherlands with very few non-positive headlines have clearly better data. France and the UK are in between. Italy is exceptional, since its winter public health situation is similar to the spring situation, although it shows a very low number of non-positive headlines.

Conclusion and Outlook

The two studies illustrated that a worse public health situation in late 2020 (general and COVID-related death numbers, COVID-19-related ICU days and COVID-19-related hospitalizations) is accompanied and preceded by a higher number of negative coronavirus front pages in newspapers and magazines. Again, the topic was not, and could not, be approached with strict statistical methods. After all, it is not possible to determine people's precise perception of media messages on COVID-19. The aim in this study was to get a first idea of how media presence could be connected to the public health situation, triggered by prior observations on language and health. The effect of the density of positive front pages could not be studied here, since these were simply too few in number. The focus was therefore on non-positive messages.

Since the best and worst public health situations in the selection of countries match with the lowest and highest number of weeks and days with prominent negative or neutral coronavirus front pages, it may be suggested to mind the effect of (public) language in further studies-taking into account, of course, that a third factor

Table 2: Public health development and negative coronavirus covers.

Country	Winter public health compared to spring	Number of weeks of negative coronavirus covers
AT	–	13-14
DE	–	23-24
FR	o+	11-15
IT	o	16
PL	–	21-24
SE	+	5
UK	*	19-20

+: Better; –: Worse; o: Similar; o+: Slightly better; *: Ambiguous.

Table 3: Public health development and negative coronavirus headlines.

Country	Winter public health compared to spring	Non-positive coronavirus headlines
AT	–	146-152
DE	–	200-211
ES	+	38-39
FR	o+	112-119
IT	o	18-22
NL	+	22-23
UK	*	116-121

+: Better; –: Worse; o: Similar; o+: Slightly better; *: Ambiguous.

may be the common trigger for both the media picture and the public health situation. It should at any rate be examined more closely if better public health could be supported by a reduction of negative messages or even a spread of positive messages. Weekly news magazines and daily newspapers are just two sources and can thus only serve as indicators. Further studies may take into account the impact of other media sources (TV, radio, and social media) - for example, by having people note down their daily (or weekly) media habits and observe the development of their health.

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