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Title

Community-Based Participatory Research in the News: A Qualitative Case Study of the Online Media Characterization of a French Health Study

Permalink

<https://escholarship.org/uc/item/9hv3m7n0>

Journal

Knowledge, 42(2)

ISSN

1075-5470

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Publication Date

2020-04-01

DOI

10.1177/1075547020909463

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Peer reviewed

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2 online media characterization of a French health study

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4 Accepted version; published as: Duarte CdP, Cohen AK, Allen BL. “Community-based
5 participatory research in the news: A qualitative case study of the online media characterization
6 of a French health study.” *Science Communication*. 2020; 42(2): 172-194.
7 doi:10.1177/1075547020909463
8
9

10 **Acknowledgments:** We thank Yolaine Ferrier and Johanna Lees for helping catalog the media
11 articles analyzed in this paper. We thank David Francfort for his work in identifying additional
12 media articles covering the health studies that were conducted by the state in the region. We also
13 thank Carl Olton, Jr. for his contribution in developing and formatting the table of analyzed
14 publications, which is available upon request from the corresponding author. Finally, we would
15 like to thank Rachel Berkowitz, Science Communication Editor Susanna Priest, and our
16 reviewers for their critical feedback on this manuscript. We thank the following funding sources:
17 Duarte was funded in part by the Robert Wood Johnson Foundation Health Policy Research
18 Scholars program, and Cohen and Allen were funded in part by the Agence Nationale de Sécurité
19 Sanitaire de l’alimentation, de l’environnement et du travail (award numbers: PNREST Anses,
20 Cancer ITMO AVIESAN, 2014/1/023 and EST/2017/1/035).
21

22 **Abstract**

23 Since online media can be key in the widespread, symmetrical dissemination of science, we
24 performed a media content analysis of 44 online articles to assess coverage of a French
25 community-based participatory research (CBPR) epidemiologic study. Most articles highlighted
26 methodological rigor and the research topic’s salience to residents. Approximately half reported
27 findings, with the remaining focusing on action steps. This study is the first to explore how
28 online media communicate a novel approach, CBPR, to the public. Though there were some gaps
29 in the media’s portrayal of the novel approach, CBPR may facilitate online media uptake of
30 findings. We provide recommendations for future research on this topic.
31

32 **Keywords**

33 Community-based participatory research, epidemiology, health, online media
34

35 **Introduction**

36 37 *Representation of participatory public health research in the media* 38

39 Understanding the media’s portrayal of scientific research is important as it is one of the primary
40 avenues for the widespread dissemination of study findings. For example, even as scholarly
41 publishing has moved to electronic databases, it remains largely inaccessible to interested publics
42 (Trench 2008) behind both discipline-specific language intended for a particular academic
43 audience and/or financially-infeasible paywalls. Alternatively, per *diffusion of innovation* theory,
44 the media are a channel through which the diffusion of new ideas, such as scientific findings, can
45 be communicated across multiple interested publics in a network over time (VanCour 2017).
46 This is not without its challenges though, often requiring journalists to take up the interpretive

1 role of science communicators (Trench 2008). Together, this precipitates an interest in assessing
2 the effectiveness of the media in communicating a given scientific finding—in terms of both
3 accuracy and reach—as an indicator of the range of information to which interested publics may
4 be exposed.

5
6 With the emergence of new media, particularly online media, capacities to communicate
7 scientific findings beyond researchers, and to do so symmetrically, have dramatically expanded
8 (Borchelt 2008, Priest 2016). In contrast to vertical approaches to information dissemination,
9 online media, ranging from converted print publications to user-generated blog posts, make
10 simpler the horizontal transmission of information (VanCour 2017). As summarized in the
11 *participatory model of science communication*, which “acknowledges various publics as being
12 equal with scientists and policymakers in reflecting upon, sharing knowledge about, creating new
13 knowledge, and making decisions about science that affect society,” this serves to democratize
14 the science communication process (Metcalf 2019). However, this plurality of science
15 communicators can create new challenges, such as the difficulty an interested readership may
16 face in discerning legitimate claims from illegitimate ones (Priest 2016, VanCour 2017).
17 Importantly, these online communication channels can also be subject to analysis, facilitating the
18 study of how innovative ideas may be diffused via emergent media technologies.

19
20 Studying both innovation in dissemination and the democratization of science communication
21 via online media becomes especially salient in the context of community-based participatory
22 research (CBPR). CBPR is an approach to scientific inquiry in the field of public health that aims
23 to facilitate collaborative and equitable partnership among community, academic, and other
24 stakeholders so as to leverage the strengths and center the priorities of the community in
25 improving population health (Israel, Schulz et al. 2018). CBPR seeks to dismantle traditional
26 approaches to identifying what research questions are pursued and notions of who can
27 meaningfully participate in the scientific enterprise by following several principles: emphasizing
28 public health problems of local relevance; prioritizing the strengths, resources, and relationships
29 within the community; equally privileging research and action; and committing to sustainability
30 beyond a single research project or grant (Israel, Schulz et al. 2018). CBPR’s tenets also stipulate
31 community member engagement in the dissemination of findings (Israel, Schulz et al. 2018),
32 making the analysis of how a CBPR study is presented in online media of particular interest.

33
34 Importantly, how the media present science can be affected by the positionality of the science
35 and the researchers with respect to “epistemic cultures” (Cetina 2009). Knowledge produced in
36 more autonomous, tightly bounded disciplinary arenas that are socially segregated from society,
37 is often treated differently than knowledge produced in more heterogeneous, culturally resonant,
38 or politically sensitive sciences, like participatory public health research. In the latter case, the
39 science can often be “medialized,” or extensively discussed in the media in a way that is “plural
40 in its participants and in the arguments used” and often with some degree of controversy
41 (Schäfer 2009). In other words, science, the media, and social contexts become tangibly and
42 intricately interwoven. For the dissemination of participatory public health research, this can be
43 positive, by increasing coverage, generating public discussion, and potentially influencing
44 policy.

1 Since, to our knowledge, coverage of participatory public health research by the online media
2 has not been empirically explored, we ground our study in the literature on public health research
3 and the media more broadly. While this literature suggests that the media play a key role in
4 communicating public health findings, the particular foci of the studies and their respective
5 findings vary (Wilson, Code et al. 2004, Covolo, Croce et al. 2019, Linas 2019). Some studies
6 comprise content analyses to explore sources of information used by journalists to explain a
7 finding. For example, while one study found that media cited experts in the field more often than
8 peer-reviewed studies (Wilson, Code et al. 2004), another found that the media prioritized
9 perceptions of health risks over scientific quantification of risks (Claassen, Smid et al. 2012).
10 Other studies looked at how media coverage changes over time. For example, in a longitudinal
11 analysis of German print media, researchers found that while initial coverage overstated health
12 risks associated with a particular exposure, later coverage acknowledged scientific uncertainty on
13 this topic and provided more comprehensive information (Elvers, Jandrig et al. 2009). Still other
14 research focused on the broader implications of media coverage for public opinion (Covolo,
15 Croce et al. 2019) and policy change (Barnes, Hanson et al. 2008). For example, a study on the
16 media coverage of US community water fluoridation (CWF) referenda brought to public vote
17 found that a false balance of the scientific evidence was presented and that negative
18 representations in the media were associated with CWF rejection. Authors attributed the latter
19 finding to media's influence on public sentiment (Curiel, Sanders et al. 2018). False balances in
20 media representation such as this have also been linked to public perceptions that the scientific
21 community is divided where it may not be, suggesting that the media's coverage of a particular
22 topic may influence the understanding of interested publics (Dixon and Clarke 2013). However,
23 media scholars caution against strong conclusions regarding media "power" over public
24 perception (Couldry 2017).

25

26 Given the importance of public engagement for participatory science, better understanding how
27 the online media covered a public health study that used an innovative CBPR approach is
28 informative. To our knowledge, there have been no other content analyses on the online media
29 coverage of participatory studies, a gap this article aims to fill.

30

31 *Community-based participatory research in France: The Fos EPSEAL study*

32

33 Participatory research methods have a history of implementation in US-based environmental
34 health justice studies (Farquhar and Wing 2003, Gonzalez, Minkler et al. 2011, Cohen, Lopez et
35 al. 2012, Garzón, Beveridge et al. 2013); however, to the best of our knowledge, the first CBPR
36 health study in France – Fos EPSEAL – occurred in 2016 (Allen, Cohen et al. 2016). Fos
37 EPSEAL, the study at the center of our media analysis, implemented a cross-sectional design to
38 capture the prevalence of health outcomes in two port towns in the Étang de Berre region of
39 southern France: Fos-sur-Mer and Port-Saint-Louis-du-Rhône (Allen 2018). This industrial port
40 area is a hub for chemical facilities, oil refineries, gas depots, and steel installations, including
41 approximately fifty Seveso high-hazard threshold facilities (Allen 2018).

42

43 The Fos EPSEAL study was developed in response to concerns among residents regarding
44 previous research in the region (Allen, Cohen et al. 2016). Specifically, residents perceived that
45 prior studies had not assessed their health-related questions. Further, residents and local doctors
46 expressed concern over findings that suggested there were few health problems present in the

1 region (which they perceived as inconsistent with their own observations and experiences) and/or
2 inconclusive results (Allen, Cohen et al. 2016, Allen 2018).

3
4 Funded by the French Agency for Food, Environmental and Occupational Health and Safety
5 (Agence Nationale de Sécurité Sanitaire de l'Alimentation, de l'Environnement, et du Travail;
6 ANSES),¹ a French-American collaborative research team designed and implemented the Fos
7 EPSEAL study. The study was co-designed with residents and aimed to collect prevalence data
8 on health outcomes of local interest (Allen 2018), both defining features of CBPR. Residents
9 informed the research questions and data collection survey tool through an in-depth interview
10 process, analyzed the preliminary data during a series of community workshops, and proposed
11 intervention recommendations based on the findings (Allen 2018).

12
13 Since the dissemination of the final health report in French (Allen, Cohen et al. 2017) and a peer-
14 reviewed academic journal article in English (Cohen, Richards et al. 2018), residents and local
15 organizations have used the Fos EPSEAL study's findings to (1) challenge industry re-permitting
16 and expansion applications and include consideration for cumulative impacts of environmental
17 exposures in these decisions; (2) advocate for expanded health clinics and access to medical
18 specialists; (3) advocate for improved air quality warning systems, improved public
19 transportation to reduce car traffic, indoor play facilities for schools, and more stringent
20 regulations for cleaner industrial processes; and (4) encourage more comprehensive patient
21 exams in healthcare settings based on the symptoms and illnesses documented in the study
22 (Allen 2018). Beyond the initial study, the original French-American research team has
23 maintained local partnerships by consulting with a local research group that screened for
24 environmental toxicants in residents' blood and urine (Goix, Periot et al. 2018). Further, given
25 that novel implementation of CBPR may be cost-prohibitive due to the need to involve outside
26 researchers familiar with the approach, the French-American collaborative team also held a
27 workshop in the summer of 2018 for researchers and community members to build local capacity
28 for future CBPR work with reduced consultation costs.

29 30 *The present study*

31
32 With the novelty of the CBPR approach in this context, as well as its application to a topic of
33 great public interest, the Fos EPSEAL study garnered the online media's attention, providing a
34 unique opportunity for assessment. Thus, the present analysis sought to answer the following
35 research question: how was the Fos EPSEAL study taken up and framed by the French online
36 media? Specifically, how did online media (1) communicate and reflect the CBPR approach and
37 (2) disseminate the findings generated in the Fos EPSEAL study?

38
39 We ground this analysis in *diffusion of innovations* theory and the *participatory model of science*
40 *communication*. Given its application to both the transmission of new ideas across interested

¹ ANSES's missions, set by Ordinance No. 2010-18 of 7 January 2010, cover risk assessment in the field of food, environment and labor, with a view to informing public authorities in their health policy. It was founded with a commitment to transparency and openness to public input. As an administrative public institution, the Agency is placed under the supervision of the ministers responsible for Health, Agriculture, Environment, Labor and Consumer Affairs. Accessible at <https://www.anses.fr/fr/content/les-missions-de-lagence>.

1 publics and the proliferation of new media (VanCour 2017), *diffusion of innovations* theory helps
2 us to frame the dissemination of (1) the novel CBPR approach in this context and (2) the
3 scientific findings from the Fos EPSEAL study - both via a still expanding new media
4 technology. To this, the *participatory model of science communication* adds a centering of
5 various interested publics as science communicators and therefore knowledge co-creators
6 (Metcalf 2019). Taken together, these theories help to frame the aforementioned literature and
7 scaffold considerations of the online media as an essential outlet to comprehensively and
8 symmetrically report findings and circulate data that is consistent with the tenets of CBPR.
9

10 **Methods**

11
12 Media content analysis is useful for assessing how online media appraise and communicate a
13 CBPR approach, as well as how online media present the data generated in a CBPR study.
14 Assessing these characteristics is of interest, given both CBPR's novelty in the French context
15 and the role online media may play in engaging interested publics and informing public
16 perception. Specifically, online media may shape and be shaped by readership awareness,
17 legitimate new concepts, address knowledge gaps, and potentially impact policy development
18 and implementation (Couldry 2017, Morgan, Crooks et al. 2017). As such, we conducted a
19 qualitative media content analysis to descriptively characterize how the CBPR approach and the
20 resulting Fos EPSEAL report were received by the online media and communicated to their
21 readership. For the purposes of this analysis, we define 'online media' as both web-based
22 "versions of science news services already provided via print and broadcast, and 'net-native'
23 services with their origins and only manifestations in the internet environment" (Trench 2008).
24

25 *Inclusion Methodology*

26
27 The present analysis included online media articles that were publicly accessible via the internet.
28 To identify the final yield for this analysis, we began with an initial pool consisting of all articles
29 published in the French media between January 2017 and January 2018 on the topic of the Fos
30 EPSEAL CBPR study (N=80) (Allen, Cohen et al. 2017). To our knowledge, no articles were
31 published outside of France on this study. This study period sought to capture initial media
32 coverage after the Fos EPSEAL report was first released to the public, accompanied by a press
33 release disseminated to the media (January 2017), as well as coverage following a press event
34 organized by the research team to formally share the report findings with the media (March 10,
35 2017).
36

37 These publications were then screened for media type, and any coverage that was not available in
38 written form online was excluded (e.g., video only, print only; N=23). Additionally, web
39 addresses that were no longer operational (N=2), yielded error messages stating, "content has
40 moved" (N=2), or required a subscription for access (N=2) were excluded. Exclusion of
41 publications for which written online analogs were unavailable, content had moved, or
42 subscriptions were required was justified by these materials being less likely to have been
43 accessed by the general publics; this also facilitated a uniform analytic approach. Finally,
44 publications that were reposted from other online media outlets were excluded as duplicates
45 (N=7). This led to a final yield of 44 unique online publications for this analysis which consisted
46 of traditional news writing, feature articles, editorials, blog posts, interviews, and other opinion

1 pieces (Figure 1). Online articles came from a diverse array of media outlets, including some
2 of France's national daily newspapers (e.g., Le Figaro, Le Parisien), the two regional daily
3 newspapers (e.g., La Marseillaise, La Provence), weekly newspapers (e.g., Le Point), websites
4 for radio and TV outlets (e.g., Radio Bleue, FranceTVInfo), online-only independent news
5 outlets (e.g., Marsactu), and other outlets engaging in mass communication efforts (e.g.,
6 Secrétariat Permanent pour la Prévention des Pollution, blogs). A complete list of these
7 publications is available upon request from the corresponding author.

8
9 [insert Figure 1]

10 11 *Analysis*

12
13 Our analysis focused on identifying what features of CBPR were discussed and to what extent
14 online media coverage reflected CBPR's tenets, as well as the Fos EPSEAL study's findings.
15 We reviewed the 44 online publications using *a priori* specified codes that reflected the major
16 principles of CBPR (Israel, Schulz et al. 2018), including whether the news media: (1)
17 highlighted that the research was guided by problems of local relevance; (2) reported on research
18 and/or action steps; (3) demonstrated the project's commitment to sustainability; (4) emphasized
19 how the study built on community strengths and resources; and (5) attempted to portray all
20 partners involved in the research and its dissemination. Additional codes assessed (6) whether
21 comparisons were made to prior "traditional" research studies and the nature of those
22 comparisons; (7) if CBPR was described and, if so, the description's accuracy; (8) how the
23 methodological rigor of the study was appraised; and (9) if study findings were accurately
24 portrayed.

25
26 Guided by these codes, we then performed a two-stage qualitative content analysis. Stage 1
27 comprised the main analysis, in which we extracted evidence of the codes from articles
28 published between January 2017 and January 2018. In Stage 2, we implemented a stratified
29 analysis to descriptively assess how a unique event that occurred during the study period may
30 have impacted online media coverage. On March 10, 2017 the research team hosted a press
31 conference during which the Fos EPSEAL report was formally released to the media. Local
32 residents were also invited, and those in attendance during the event were engaged by
33 representatives of the press, including the Agence France-Presse (French Associated Press). This
34 stratified analysis descriptively assessed if and how publications prior to the press event in
35 March 2017 (N=32) differed from those published post-press event (N=12). Author 1 led the
36 qualitative coding, which entailed completing a grid of the above nine items for each publication.
37 Author 2 then reviewed all coding decisions. In the instance of discordance in coding decisions,
38 all three authors convened to discuss until consensus was reached. Once data were extracted,
39 Author 3 reviewed codes and advised regarding their broader interpretation. Quotes from the
40 articles included in the present manuscript were translated into English by Author 1, and
41 translations were reviewed by Author 2 (Authors 1 and 2 are proficient in both French and
42 English). A table of the original French language quotes and their English language translations
43 is available upon request from the corresponding author.

44 45 **Results**

46 Over the study period, there were 44 publicly accessible online media articles across 30 unique

1 media outlets that covered the Fos EPSEAL study and met the inclusion criteria. To illustrate the
2 data extracted from this analysis, we incorporate English translations of direct quotes from the
3 publications below. We first present our main findings from an analysis of all publications
4 throughout the study period (January 2017 through January 2018; N=44), and then present a
5 stratified analysis descriptively comparing publications prior to the press event on March 10,
6 2017 (n=32) to those post-press event (n=12). These results highlight what features of the Fos
7 EPSEAL study appear to have been prioritized by the media, as well as initial and evolving
8 perceptions and understandings of the CBPR approach.

9
10 *Emphasis placed on problems of local relevance*

11
12 From January 2017 through January 2018, most (73%) publications emphasized the salience of
13 the research topic to residents. Specifically, articles highlighted residents' concern over the
14 health impacts of the environmental quality. This was, in part, facilitated by several publications
15 (N=8) directly quoting from the Fos EPSEAL report when characterizing the relevance of this
16 work to local residents:

17
18 "Residents are worried about the quality of their environment, the local sources
19 of pollution, and their links to their health. They chronicle a pollution that has
20 become ordinary, industrial overflows that accumulate with other forms of
21 local exposure to pollution" (Ulmer 2017)

22
23 Other publications further emphasized that these concerns were longstanding and suggested that
24 residents had previously requested that action be taken to better understand and address them.
25 Several publications quoted the official statement made by Fos-sur-Mer Mayor René Raimondi
26 upon his review of the final Fos EPSEAL report, while others quoted interviews with members
27 of the Fos EPSEAL French-American collaborative research team:

28
29 "For many years, some of the residents of this particularly polluted zone have
30 been asking the public authorities to evaluate the health impact of neighboring
31 factories" (Vaysse 2017)

32
33 "We have asked the state for the last ten years, in vain... to see if there are
34 indeed more diseases [here] than elsewhere" -Mayor René Raimondi, Fos-Sur-
35 Mer (Leras 2017)

36
37 "[Prior to this study, many residents] had expended a crazy amount of energy
38 to get health information [from the state] without any of their demands being
39 met" -Yolaine Ferrier, member of Fos EPSEAL research team (Arnichand
40 2017)

1 These excerpts illustrate a prevailing emphasis across publications on the Fos EPSEAL study’s
2 relevance to local residents’ concerns.

3
4 *Similar emphasis placed on research and action steps*

5
6 The Fos EPSEAL study found an elevated prevalence of asthma, cancer, endocrine disease, and
7 Type I diabetes in Fos-sur-Mer and Port-Saint-Louis-du-Rhône compared to France overall.
8 Approximately half of the articles focused primarily on these findings (N=23), while the other
9 half alluded to action steps, though generally using nonspecific language (N=21). For example,
10 several quoted Mayor Raimondi as he “demanded” that government respond to the Fos EPSEAL
11 findings (N=8):

12
13 “The mayor of Fos-sur-Mer, René Raimondi, in an official statement,
14 demanded that ‘the State services react.’ ‘If, today, there is a serious problem
15 that threatens the health of our residents, it must be named and it must be
16 resolved’” (Santé 2017)

17
18 Since this analysis is restricted to articles published in the year following the initial release of the
19 Fos EPSEAL report, the use of non-specific, action-oriented language might be expected, as
20 developing clear action steps can take time. Still, several articles briefly discussed how these
21 findings may be used to encourage action among policymakers (N=3) or described action steps
22 taken by residents prior to the start of the EPSEAL study (N=1):

23
24 “From now on, the residents of the industrialized zones of the Étang de Berre
25 region will be able to brandish this study like a weapon in order to defend their
26 interests and to weigh in on the local discussions.” (Labaune 2017)

27 “The study... followed a movement against the construction of the incinerator
28 in Fos-Sur-Mer that marked the 2000s.” (Arnichand 2017)

29
30 Overall, this analysis suggests that while similar emphasis was placed on research and action
31 steps, the publications provided more detailed accounts of the study findings than they did
32 actionable next steps.

33
34 *Characterizations of the CBPR approach and the portrayal of community involvement in the*
35 *research process*

36
37 Fewer than half of the publications in this analysis mentioned that a CBPR approach was
38 implemented in the Fos EPSEAL study (N=19). Of those, the extent to which the CBPR
39 approach was described varied widely. Several articles stated that a participatory study had been
40 conducted, often inadvertently, when defining the EPSEAL acronym (Étude Participative de
41 Santé Environnementelle Ancrée Localement, or Participatory Study in Environmental Health
42 Anchored Locally). Further explanation of what a participatory study entails was limited (N=12):
43

1 “A participatory study was launched, using a health-environment research
2 methodology developed in the United States” (Jobert 2017)

3 “[This participatory study] is based on a method of testimonials from the
4 population” (Bargiacchi 2017)

5
6 Other articles appeared to misidentify the participatory characteristics of the study. Specifically,
7 the data collection methods (key informant interviews, survey) were perceived as the
8 participatory elements of the research process (N=10). As such, the publications largely
9 presented the community-researcher partnership as the research team conducting the study and
10 residents contributing by completing the survey.
11

12 “[The method] consists of directly involving residents who are randomly
13 sampled to complete a survey/questionnaire” (Labaune 2017)

14
15 While several articles directly quoted various partners in the research process, including
16 members of the research team, other scientific experts, and the mayor, few quoted self-identified
17 community members (N=8).
18

19 Seven articles reported that the participatory approach was “an innovative method” or “a novel
20 methodology in the French context that had been imported from the United States.” Others went
21 on to define the participatory approach as a combination of “sociology, epidemiology, and
22 anthropology” (N=2). Nine articles described how residents were integral to the research process
23 from problem definition, to survey tool development, to data collection and analysis:

24 “The study was conducted in two stages. From June to December 2015,
25 researchers went door-to-door in both cities to 816 residents. After
26 communicating the preliminary [survey] results, analysis workshops took place
27 through December 2016. This methodology, which is being used for the first
28 time in Europe and was imported from the US, integrates residents [into the
29 research]” (Descours 2017)

30 31 *Evaluation of methodological rigor* 32

33 A majority of the publications commented on the Fos EPSEAL study’s methodological rigor
34 (N=29). These articles primarily reported on study design characteristics that supported drawing
35 inference from the survey sample to the Fos-sur-Mer and Port-Saint-Louis-du-Rhône source
36 populations. There was consistent use of language, such as “randomly selected sample,” across
37 publications to indicate representativeness of the study subjects to the source population. One
38 publication contrasted the probability sampling approach in the EPSEAL study with non-
39 probability sampling approaches used in other similar studies:
40

41 “The scientists therefore chose to analyze a sample representative of the
42 population of the two cities... randomly selected by random sampling to

1 ensure the representativeness of the population... the scientists compared their
2 sample data with the complete demographic data from the last general census
3 of the population in the two cities (Docbuzz 2017)

4 “Many studies of this type are based on snowball or volunteer samples which
5 do not give the same strength to the results.” (Vaysse 2017)

6
7 Additionally, several articles described the French-American research team as “independent
8 researchers.” Seven articles made reference to this and an eighth article detailed one of the
9 researcher’s prior experience with implementing this methodology.
10

11 “This study, carried out by independent researchers and financed by ...
12 [ANSES], drew its conclusions from questionnaires answered by 816 people
13 from the area of the Étang de Berre.” (Ceilles 2017)

14
15 Three articles suggested that the rigor of the Fos EPSEAL study was drawn, in part, from the
16 incorporation of residents throughout the research process. They suggested that by doing so, the
17 CBPR approach likely reduced the potential for misclassification of measured variables:
18

19 “Studies had already addressed the health issue in this area, but ‘no one
20 answered precisely or completely the questions of the residents, from their
21 context and their point of view....’ The Fos EPSEAL study was careful to
22 ‘take seriously the knowledge of the residents in regard to their own health.’
23 From this emerged a set of symptoms and health conditions that are usually not
24 documented, ‘either because they are not detectable or not detected by the
25 existing health monitoring system, or because they are not considered serious
26 enough to be well documented by those who are conducting the studies.’”
27 (Jobert 2017)

28 “This method allows us to obtain more relevant and rigorous results. It has
29 been tried and institutionalized across the Atlantic.” – Yolaine Ferrier, member
30 of Fos EPSEAL research team (Descours 2017)
31

32 *Pre- and Post-Press Event* 33

34 We now present findings from a stratified qualitative analysis highlighting how articles
35 published prior to the press event on March 10, 2017 (N=32) may have differed from those post-
36 press event (N=12). While we use proportions to facilitate these comparisons, we do not perform
37 formal statistical analyses.
38

39 While articles published both pre- and post-press event emphasized the salience of the research
40 topic to residents, pre-press event publications did so using direct quotes from the Fos EPSEAL
41 report while post-press event publications provided narratives summarizing residents’ concerns

1 regarding prior research in the region and highlighting the health experiences of specific
2 residents.

4 “The Fos EPSEAL study aimed to document and describe in a systematic,
5 representative, and participatory way the health of the inhabitants of two cities
6 of the Gulf of Fos, in relation to their environment, in order to answer their
7 initial questions concerning their state of health”(EPSEAL 2017)

8 “From her garden in Fos-sur-Mer (Bouches-du-Rhone), near Marseille, Sylvie
9 Anane looked at huge oil vats and wonders about the role of pollution in her
10 repeated illnesses.” (Fos-sur-Mer 2017)

11 A greater proportion of the post-press event publications (N=8, 67% of post-press event
12 publications) mentioned action steps compared to pre-press event publications (N=15, 47% of
13 pre-press event publications). Further, the post-press event publications provided greater detail
14 regarding what those action steps might entail:

15 "In Fos, all the actors involved in this very sensitive issue are calling for
16 increased health surveillance around Fos to take preventive measures. And for
17 new standards for the industry: no one here is asking for the closure of the
18 factories which employ 40,000 people. 'We must emphasize innovation
19 because... this issue questions our ways of producing and consuming.'” –
20 Philippe Chamaret, Director at L’Institut écocitoyen pour la connaissance des
21 pollutions (Tanguy 2017)

22 A greater proportion of post-press event publications (N=7; 58%) explicitly stated that a
23 participatory approach had been implemented than did pre-press event publications (N=12 or
24 38%). Similarly, a greater proportion of post-press event publications described the participatory
25 approach (N=7; 58%) than did pre-press event publications (N=15; 44%). Of the post-press
26 event articles that described the participatory approach, two went into notable detail (EPSEAL
27 2017, Gilles 2017). Finally, a greater proportion of post-press event publications (N=3; 25%)
28 quoted self-identified residents than did pre-press event publications (N=5; 16%).
29

30 **Discussion**

31
32 The release of the Fos EPSEAL study findings provided a unique opportunity to assess how
33 online media uptake and frame community-based participatory research (both the approach itself
34 and the study results it generates). To that end, we assessed 44 online publications released by
35 several French online media outlets in the year after the Fos EPSEAL study findings were made
36 public. We analyzed how the CBPR principles that guided the study were communicated to the
37 public, how study findings were described, and how rigor was evaluated. Here, we reference
38 relevant literature to discuss how this analysis may illustrate the way in which CBPR is engaged
39 with by interested publics. We conclude by providing recommendations for future research
40 aimed at further exploring these relationships and testing proposed underlying mechanisms.
41

42 *Gaps in the media characterization of participatory research*
43

1 In portraying the Fos EPSEAL study, the online media generally characterized participatory
2 research in one of two ways: (1) community member participation in, and shaping of, the
3 research process or (2) a representative sample of community members who responded to the
4 survey tool. The latter, which is more akin to traditional, non-participatory research approaches,
5 constitutes a more *passive participation*. This contrasts with CBPR's *active participation*. More
6 specifically, Cornwall and Jewkes (1995) differentiate participatory research from traditional,
7 non-participatory research approaches by describing "a process of sequential reflection and
8 action, carried out *with* and *by* local people rather than *on* them." Thus, what distinguishes
9 participatory research is not the methods used, but rather its approach to the application of those
10 methods: who generates, analyzes, represents, owns, and acts on the data, as well as whose
11 knowledge and perceptions are privileged -- therefore placing greater emphasis on process than
12 more traditional, non-participatory approaches (Cornwall and Jewkes 1995). Put differently,
13 community participation does not necessarily qualify a study as participatory; rather,
14 participatory research must embed community members' knowledge and agency throughout the
15 research process (Buchanan, Miller et al. 2007). In the Fos EPSEAL study, local residents
16 informed the problem definition, survey tool development, data generation, data interpretation,
17 and data dissemination. Notably, while CBPR encourages opportunities for all research partners
18 to engage in dissemination activities as well (Israel, Schulz et al. 2018), few self-identified
19 community members involved with the research were quoted in the pre-press event media
20 coverage, as compared to members of the research team, other scientific experts, and the mayor.
21 Though descriptive in nature, our analysis suggests that this may have begun to shift post-press
22 event. These findings suggest several opportunities for future study. First, in the present analysis
23 we were unable to explore whether quoted residents were only those who had been in attendance
24 at the press event versus other independent sources sought by the online media. Second, we were
25 not able to examine whether inclusion of interviews with residents in the online media coverage
26 of the Fos EPSEAL study differed from that observed in the online media coverage of other,
27 non-CBPR health studies broadly (Ponnou and Gonon 2017, Zanchetta, Cagnet et al. 2018).
28 Analyses of this nature may be of interest to other researchers implementing a CBPR approach in
29 their work.

31 *Evaluating rigor in the Fos EPSEAL study findings*

32
33 Our study found that the online media's reporting on study rigor primarily focused on the extent
34 to which inference could be drawn from the Fos EPSEAL study sample to the broader source
35 population (i.e., the sample's "representativeness"). Additionally, some publications highlighted
36 the novelty of the participatory approach, assuaging anticipated concern by (1) noting the
37 approach's widespread use in the US and (2) emphasizing the research team's experience with its
38 implementation. There were also several references to the French-American research team as
39 "independent researchers," suggesting a perceived objectivity in a matter of great local public
40 interest and controversy. Interestingly, several articles seemed to anticipate, and strive to
41 preempt concerns over bias due to resident involvement by suggesting that the participatory
42 approach instead serves to minimize the presence of bias. In the CBPR literature, researchers
43 have made similar suggestions. For example, Balazs and Morello-Frosch posit that communities
44 engaged in participatory science have augmented the *rigor*, *relevance*, and *reach* of science
45 (Balazs and Morello-Frosch 2013). They state that participatory research (via leveraging local
46 knowledge and agency) (1) improves the practice of good science (i.e., appropriate study design

1 and analysis in context), (2) ensures that science is asking the right research questions, and (3)
2 strives for sustainability by collaborating with the local population to co-analyze data,
3 disseminate findings to diverse audiences, and translate them into action (Balazs and Morello-
4 Frosch 2013). CBPR proponents would argue that the research question, which was rooted in
5 local resident’s concerns over their community’s health, ensured a more locally *relevant* study
6 than prior, non-participatory studies in the region. With regard to *rigor*, they may also argue that
7 the Fos EPSEAL study’s successful recruitment of a representative sample of residents was
8 facilitated, in part, by the commitment of community members to a research process in which
9 they had ownership. Finally, that the online media, across a diversity of outlets, covered the Fos
10 EPSEAL study and disseminated its findings may serve as preliminary evidence of the study’s
11 *reach*.

12

13 *Appraising the CBPR approach*

14

15 That several articles did not attempt to communicate either the participatory approach or appraise
16 its rigor, but nonetheless published key findings from the Fos EPSEAL study, is noteworthy.
17 Historically, the CBPR approach has elicited skepticism about study findings and rigor (Kinchy
18 2010, Ottinger 2010). As previously noted, some articles included in this analysis appeared to
19 anticipate a skeptical appraisal of the Fos EPSEAL findings and sought to preempt concerns by
20 suggesting that resident involvement serves to minimize the presence of bias. Rather than being
21 presented as a limitation, the participatory approach was portrayed as a strength in these select
22 pieces. However, most articles simply stated that a participatory approach was used and then
23 focused primarily on the Fos EPSEAL findings. This may be an indication of a movement away
24 from perceptions that use of a participatory approach in research is a limitation and towards a
25 focus on the study findings that participatory research facilitates; further study to test this
26 hypothesis is needed.

27

28 *Implications for research and practice*

29

30 We note several implications for future research. To the best of our knowledge, there have been
31 no other analyses of the online media coverage of CBPR studies. In order to formally test the
32 theories we invoke to frame our analysis, particularly given that studies of “the media occur at a
33 point in time, and all studies are open to revision” (Ouellette and Gray 2017), we encourage
34 future researchers to replicate this work for (1) CBPR health studies in other regions; (2) other
35 non-participatory health studies in the same region; and (3) offline media coverage to compare if
36 and how it differs from online media coverage in its accuracy and reach. Further, given that this
37 analysis focused on how the online media reported on the CBPR approach, future research
38 should also document the impact of this coverage across interested publics. Finally, we
39 encourage researchers to explore if, among CBPR studies, the particular research methods
40 employed matter. Fos EPSEAL was a quantitative epidemiology study informed by socio-
41 anthropological work. Some have argued that “research stemming from interdisciplinary
42 epistemic cultures is more likely to be medialized,” particularly if it “addresses questions of
43 human life and the human condition” and has immediate relevance in the public arena outside of
44 the confines of the scientific research community (Schäfer 2009). Thus, the online media might
45 engage differently with CBPR studies that do not use a multi-disciplinary, quantitative approach
46 (e.g., singular discipline, qualitative study).

1
2 We also offer several recommendations for the implementation of future CBPR studies. First, we
3 note that the Fos EPSEAL research team placed an emphasis on dissemination. In addition to
4 holding local focus groups to analyze the preliminary data, facilitating public meetings to report
5 on the research findings, and distributing press releases summarizing key findings, they also
6 hosted a press event to disseminate findings that featured members of the research team and local
7 residents as speakers. This likely contributed to the study's online media coverage and may have
8 fostered the observed consistency in reporting across articles. We also note that an emphasis on
9 the methods rather than the participatory approach in the online media coverage may signal a
10 a movement towards perceptions of using this approach as a strength in the research process.
11 Alternatively, it may indicate that the online media may have reported on the study elements
12 residents were most interested in discussing. We encourage future research to test these two
13 hypotheses.

14

15 **Conclusion**

16

17 CBPR is an approach to scientific inquiry that aims to facilitate collaborative efforts among
18 community, academic, and other stakeholders to better the rigor, relevance, and reach of research
19 findings. Using the Fos EPSEAL project as a case study, we performed a media content analysis
20 to qualitatively examine the ways in which CBPR, a novel approach in the French context, was
21 understood, framed, and communicated by the online media to interested publics. Our findings
22 suggest that while there may be gaps in the online media characterization of participatory
23 research, the participatory approach may nonetheless facilitate online media uptake of study
24 findings. Given that online media can be a primary avenue for the widespread, symmetrical
25 dissemination of information, further research should explore both the online media's portrayal
26 of scientific findings as well as interested public's understanding of those scientific findings.
27 Researchers using a CBPR approach may also consider using our findings to inform how they
28 engage in dissemination activities and interactions with various media outlets.

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