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(Un)Certainly Positive

The Portrayal of Complementary and Alternative Medicine
in German Cancer Patient Magazines

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Abstract

Objective: Cancer patients frequently use media to search for information on Complementary and Alternative Medicine (CAM). Media coverage may influence their perception and decision making. Against the background of the framing concept, we analyze the portrayal of CAM in magazines that specifically address cancer patients.

Methods: We conducted a quantitative content analysis of four highly circulated German cancer patient magazines (*Befund Krebs*, *K-Journal Mensch & Krebs*, *Krebsmagazin*, *Leben? Leben!*) that were available from November 2012 to April 2013.

Results: In the sample of 39 articles, 137 CAM treatments were portrayed. Results show that the portrayal of CAM focuses on nutritional and metabolic approaches, exercise therapies and psychological approaches. It primarily takes a scientific perspective. CAM is mostly described in curative contexts and in a predominantly positive light. Explicit recommendations are rarely given.

Conclusion: Patient education and informed decision-making may be advanced by increasing journalists' and medical professionals' awareness for media coverage on CAM. Providers of mediated health information need to pay attention to a balanced and reflected portrayal of CAM. For health care and counselling professionals, pro-active communication on media information is essential. Health communication research should address the interaction between patients, media information and medical experts.

Keywords: complementary and alternative medicine; cancer; patient magazines; patient information; framing; quantitative content analysis

1. Introduction

For cancer patients, their information behavior is often a coping strategy to handle the uncertainties triggered by their disease (Johnson, Meischke, Grau, & Johnson, 1992) while at the same time it is a necessary endeavor if they are to gain an adequate understanding of their illness and treatment options. It may help them to make informed decisions that may result in better treatment, higher compliance and more effective outcomes (Rimer, Briss, Zeller, Chan, & Woolf, 2004). Finding adequate



information, however, can pose big challenges, especially in areas that are characterized by medical uncertainty such as *Complementary and Alternative Medicine (CAM)*. The field comprises “medical products and practices that are not part of standard medical care”, but are “used along with” or “instead of standard medical treatments” (National Cancer Institute, 2015), e.g. acupuncture or certain diet regimes. Diverse definitions of CAM and different classifications of CAM treatments (e.g. CAM-Cancer, n.d.; National Center for Complementary and Integrative Health, 2016; Office of Cancer Complementary and Alternative Medicine, 2012) illustrate its divergent nature (Horneber, Büschel, Denert, & Wilhelm, 2010).

While many cancer patients are interested in CAM (Horneber et al., 2010) and the field is expected to grow (Walach, 2018), it is also characterized by limited scientific knowledge on the effectiveness of particular treatments (Mercurio & Elliott, 2011). Therefore, even though cancer patients consider medical experts an important source of information (Finney Rutten et al., 2016; Gschwendtner, Holmberg, & Weis, 2016; Verhoef, Trojan, & Armitage, 2009), it is often difficult for those experts to guide patients due to the lack of evidence-based information and education programs on CAM (Blödt et al., 2016; Dooley, Lee, & Marriott, 2004; Güthlin, Holmberg, & Klein, 2016; Klein & Guethlin, 2016; Mercurio & Elliott, 2011). Media, then, play a key role in the CAM-related information behavior of cancer patients (Mercurio & Elliott, 2011; Molassiotis et al., 2005). *Cancer patient magazines* provide a “significant opportunity to deliver specific messages to a particular audience” (Phillips, Sohn, & Sohn, 2011, p. 417). About 40 percent of cancer patients frequently use printed material to come to treatment decisions and another 45 percent do so at least occasionally (Maddock, Lewis, Ahmad, & Sullivan, 2011). While cancer patients are often dissatisfied with the quantity and reliability of CAM-related information in media (Verhoef, Mulkins, Carlson, Hilsden, & Kania, 2007), cancer patient magazines are associated with a particular quality and accuracy – even though their quality can vary (Hübner, Münstedt, Senf, & Micke, 2013).

The way media address cancer-related issues may increase awareness and influence knowledge, attitudes and behavior (Clarke & Everest, 2006; Niederdeppe, Frosch, & Hornik, 2008). Media coverage is considered most influential when there is no predominant stance in public discourse on an issue (cf. establishing effects on cognitive patterns: Scheufele & Scheufele, 2010) and when people have only little experience of it (Schiavo, 2014). It can draw patients’ attention to CAM in general or specific CAM categories and may also influence patients’ perception of “which issues are important and how they are understood” (Weeks, Verhoef, & Scott, 2007, p. 936). This means that the way cancer patient magazines cover CAM may be crucial to patients’ information behavior and decision making. We therefore ask:

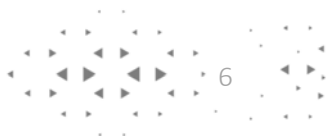


RQ: How is Complementary and Alternative Medicine portrayed in cancer patient magazines?

To address this question, we conducted a quantitative content analysis of cancer patient magazines against the theoretical background of the *framing concept* (Entman, 1993). According to this concept, media always select and accentuate certain aspects of reality and at the same time omit others, thereby suggesting certain patterns of interpretation for the covered issue and potentially influencing cancer-related attitudes and behavior (Williams, Clarke, & Borland, 2001). While there are no studies on the framing of CAM in patient magazines (for a quality assessment of respective magazines: Hübner et al., 2013; for an analysis of photographic content in cancer magazines: Phillips et al., 2011), our analysis is informed by research on the portrayal of cancer and CAM in other media (Atkin, Smith, McFeters, & Ferguson, 2008; Mercurio & Elliott, 2011; Phillips et al., 2011; Weeks & Strudsholm, 2008; Weeks et al., 2007). The framing concept specifies different elements (Entman, 1993) that help to structure media's portrayal of issues and are applied here to the portrayal of CAM treatments:

Description of CAM treatment. In a *“problem definition”* (Entman, 1993, p. 52), media reports determine what an issue is about. In the current study, this refers to the *description of a CAM treatment*. Through their selection and accentuation, articles provide an overarching *perspective* (Clarke & Everest, 2006). They further contribute to the description of a treatment by using a certain *denomination*, e.g. labels or adjectives such as *“alternative”*, *“complementary”*, *“holistic”* or *“natural”* (Mercurio & Elliott, 2011; Weeks et al., 2007). Treatments are also defined by different *stages of application* within the cancer care continuum (Mercurio & Elliott, 2011; Milazzo & Ernst, 2006) and associated with different *cancer sites* (Mercurio & Elliott, 2011; Weeks et al., 2007). Furthermore, media coverage employs personalization strategies (Hurley, Riles, & Sangalang, 2014; Jensen, Moriarty, Hurley, & Stryker, 2010) and exemplars (Atkin et al., 2008) to relate to the *gender of patients* portrayed (Phillips et al., 2011).

Evaluation of CAM treatment. In a *(moral) “evaluation”* (Entman, 1993, p. 52), media reports appraise the problem. With regard to CAM, this refers to the *evaluation of a CAM treatment*. Articles typically make judgments on reported CAM treatments by highlighting their *advantages* and *disadvantages* (Mercurio & Elliott, 2011; Weeks et al., 2007). These evaluations may be supported by references to an underlying *evidence base* such as personal anecdotes, information from practitioners or researchers, or published research (Mercurio & Elliott, 2011; Weeks et al., 2007). Scientific articles also typically highlight *research desiderata* (Mercurio & Elliott, 2011).



Recommendation with respect to CAM treatment. In a “*treatment recommendation*” (Entman, 1993, p. 52), media reports may then suggest remedies for the problem. This may relate to a *recommendation with respect to CAM treatments* as articles may provide patients with suggestions regarding their *application* (Mercurio & Elliott, 2011; Weeks et al., 2007) and advise them to *consult a doctor* before or when using CAM therapies (Mercurio & Elliott, 2011; Weeks et al., 2007).¹

To examine its potential to influence patients’ interpretations, we analyze the portrayal of CAM in German cancer patient magazines with respect to the outlined framing categories and discuss it against the backdrop of the general portrayal of CAM in print media.

2. Methods

2.1 Data Collection

Data was gathered within a Germany-wide interdisciplinary research network on complementary medicine in oncology. Four highly circulated German magazines were selected: *Befund Krebs* (Indication Cancer), *K-Journal Mensch & Krebs* (K-Journal Human & Cancer), *Krebsmagazin* (Cancer Magazine), and *Leben? Leben!* (Live? Live!). These titles target cancer patients in general, other interested persons and non-medical readers (Hübner et al., 2013). *Leben? Leben!* additionally addresses women with breast cancer (Hübner et al., 2013). We manually screened all articles ($n = 225$) that were published in all nine issues available from 1 November 2012 to 30 April 2013 for keyword combinations (e.g. “cancer” + “treatment” and respective synonyms) and identified 76 articles that dealt with cancer-related treatments (Table 1). Assisted by oncologists, we then verified which treatments were CAM treatments and included all articles that mentioned at least one CAM treatment.

2.2 Sample

Our sample consists of 39 articles that mention a total of 137 CAM treatments. *Leben? Leben!* contained the largest amount of CAM treatments ($n = 66$; 48.2%), followed by *K-Journal Mensch & Krebs*

¹ While the framing concept also suggests a ‘causal interpretation’ (Entman, 1993, p. 52) to identify the causes of a problem, an attribution of responsibility for a treatment is hardly applicable. Therefore, this aspect of framing is not considered in the presented study.



($n = 40$; 29.2%). *Befund Krebs* ($n = 19$; 13.9%) and *Krebsmagazin* ($n = 12$; 8.8%) addressed a smaller share of CAM treatments (Table 1).

Table 1: Overview on analyzed cancer patient magazines

Patient magazine	<i>Befund Krebs</i> (Indication Cancer)	<i>K-Journal Mensch & Krebs</i> (<i>K-Journal Human & Cancer</i>)	<i>Krebsmagazin</i> (Cancer Magazine)	<i>Leben? Leben!</i> (<i>Live? Live!</i>)
Publisher	GFMK GmbH & Co. KG Verlagsgesellschaft	Humanis Verlag GmbH	maconet GmbH	GFMK GmbH & Co. KG Verlagsgesellschaft
Publication frequency	five times per year	four times per year	four times per year	four times per year
Circulation (at time of data collection)	approx. 30,000	approx. 15,000	approx. 50,000	approx. 30,000
Target group	oncological patients	oncological patients	oncological patients, relatives, general practitioners, oncological caregivers, therapeutic professionals	women after a cancer disease
Analyzed issues	05/2012, 01/2013	04/2012, 01/2013	issue 29, issue 30	03/2012, 04/2012, 01/2013
Number of articles	54	59	40	72
Number of articles mentioning cancer-related treatments	17	21	16	22
Number of articles mentioning CAM treatments	5	13	6	15
Number of mentioned CAM treatments	19	40	12	66

2.3 Data Analysis

We conducted a quantitative content analysis (Krippendorff, 2013). The unit of analysis is a semantic unit that is constituted by the mention of a CAM treatment and comprises all information in an article on this respective treatment. We coded each semantic unit with respect to its CAM category, description, evaluation and recommendation. Coding categories were deductively identified from literature

on media portrayals of CAM (Atkin et al., 2008; Mercurio & Elliott, 2011; Phillips et al., 2011; Weeks & Strudsholm, 2008; Weeks et al., 2007) and inductively differentiated based on an exploratory qualitative analysis of a subsample of the material (Mayring, 2000).

CAM categories were derived from the categorization by the National Cancer Institute (Office of Cancer Complementary and Alternative Medicine, 2012) in cooperation with oncologists from the research network. With regard to the *description* of CAM treatments, we coded for perspective on the treatment, denomination of the treatment in adjectives, stage of application, cancer site, and gender of patients applying the treatment. To assess the *evaluation* of CAM treatments, we coded for advantages and disadvantages associated with the treatment, the referenced evidence base as well as any research desiderata that were mentioned. With respect to the *recommendation* regarding CAM treatments, we coded suggestions referring to whether or not the treatment should be applied and whether or not to consult a doctor concerning the treatment.

Three coders who underwent extensive coding training were involved in coding the material. In team meetings we discussed difficult coding decisions and reassessed disagreements between coders. Average intercoder reliability for all analyzed categories is very good (Holsti coefficient: 0.93).² For data analysis, we only included categories with an intercoder reliability of 0.75 or higher. We also only report results for categories that were applied in at least 5 percent of all cases.

3. Results

We report the frequencies of CAM categories in cancer patient magazines and describe the overall portrayal of CAM treatments as well as the portrayal of the three most mentioned CAM categories.

3.1 Frequencies of CAM categories

Overall, nutritional and metabolic approaches (e.g. diets, supplements; $n = 56$; 40.9%) are the most frequently mentioned CAM treatments in the analyzed cancer patient magazines, followed by exercise therapies (e.g. sports; $n = 28$; 20.4%), and psychological approaches (e.g. spiritual therapies, mind-

² Holsti coefficients for particular groups of categories are: Perspective: 0.80, Denomination: 0.96, Stage of application: 0.89, Cancer site: 0.97, Gender of patients: 0.80, Advantages: 0.93, Disadvantages: 0.93, Evidence base: 0.88, Research desiderata: 0.93, Recommendation regarding application: 0.87, Recommendation regarding doctor consultation: 0.93.



body interventions; $n = 21$; 15.3%). Analyzed magazines focus on different CAM categories: Nutritional and metabolic approaches clearly dominate the coverage on CAM in *Befund Krebs* ($n = 12$; 63.2%), *Leben? Leben!* ($n = 27$; 40.9%) and *K-Journal Mensch & Krebs* ($n = 14$; 35.0%), whereas *Krebsmagazin* places a strong emphasis on exercise therapies ($n = 7$; 58.3%) (Table 2).

Table 2: Frequency of CAM categories in cancer patient magazines

CAM category	Patient magazine									
	<i>Befund Krebs</i>		<i>K-Journal Mensch & Krebs</i>		<i>Krebsmagazin</i>		<i>Leben? Leben!</i>		total	
	$n = 19$		$n = 40$		$n = 12$		$n = 66$		$n = 137$	
	f	%	f	%	f	%	f	%	f	%
Nutritional and metabolic approaches (e.g. regimen, food, vitamins)	12	63.2	14	35.0	3	25.0	27	40.9	56	40.9
Exercise therapies (e.g. sport)	1	5.3	10	25.0	7	58.3	10	15.2	28	20.4
Psychological approaches (e.g. spiritual therapies, mind-body interventions)	1	5.3	6	15.0	2	16.7	12	18.2	21	15.3
General terms (CAM as range of approaches)	/	/	2	5.0	/	/	8	12.1	10	7.3
Pharmacological and biological treatments (e.g. mistletoe)	3	15.8	3	7.5	/	/	3	4.5	9	6.6
Complex medical systems (e.g. Traditional Chinese Medicine)	/	/	4	10.0	/	/	1	1.5	5	3.6
Technical approaches (e.g. hyperthermia, electromagnetic-based therapies)	2	10.5	/	/	/	/	2	3.0	4	2.9
Manual approaches (e.g. massages)	/	/	/	/	/	/	2	3.0	2	1.5
Other approaches (e.g. oxygen-based or detoxicating methods)	/	/	1	2.5	/	/	1	1.5	2	1.5

Note. Categories derived with reference to the categorization by the Office of Cancer Complementary and Alternative Medicine (OCCAM) of the National Cancer Institute (Office of Cancer Complementary and Alternative Medicine, 2012), sorted by total frequency.

3.2 Overall portrayal of CAM treatments

We summarize results on the overall portrayal of CAM treatments from the entire sample. Reported percentages therefore relate to all 137 mentioned CAM treatments in the analyzed patient magazines. See Table 3 for the differences between them.



Table 3: Portrayal of CAM treatments in different cancer patient magazines

Description	Patient magazine									
	<i>Befund Krebs</i>		<i>K-Journal Mensch & Krebs</i>		<i>Krebs- magazin</i>		<i>Leben? Leben!</i>		total	
	<i>n = 19</i>		<i>n = 40</i>		<i>n = 12</i>		<i>n = 66</i>		<i>n = 137</i>	
	f	%	f	%	f	%	f	%	f	%
Perspective										
scientific	6	31.6	33	82.5	7	58.3	63	95.5	109	79.6
Denomination										
alternative	/	/	1	2.5	/	/	22	33.3	23	16.8
complementary	/	/	1	2.5	/	/	20	30.3	21	15.3
supplementary	/	/	1	2.5	1	8.3	13	19.7	15	10.9
supportive	/	/	11	27.5	/	/	/	/	11	8.0
Stage of application										
curative	17	89.5	27	67.5	4	33.3	23	34.8	71	51.8
rehabilitation	/	/	8	20.0	5	41.7	16	24.2	29	21.2
aftercare	/	/	6	15.0	1	8.3	2	3.0	9	6.6
Cancer site										
not specified	19	100	22	55.0	11	91.7	43	65.2	95	69.3
breast	2	10.5	19	47.5	/	/	17	25.8	38	27.7
uterus	/	/	1	2.5	/	/	13	19.7	14	10.2
Gender of patients										
not specified	16	84.2	14	35.0	8	66.7	21	31.8	59	43.1
female	/	/	17	42.5	/	/	32	48.5	49	35.8
Evaluation	f	%	f	%	f	%	f	%	f	%
Advantages										
alleviates side effects of standard therapies	12	63.2	14	35.0	1	8.3	18	27.3	45	32.8
improves mental health	1	5.3	14	35.0	3	25.0	26	39.4	44	32.1
improves physical health	6	31.6	12	30.0	2	16.7	14	21.2	34	24.8
increases chances to cure cancer	2	10.5	12	30.0	1	8.3	2	3.0	17	12.4
improves effect of standard therapies	/	/	1	2.5	/	/	11	16.7	12	8.8
Disadvantages										
impairs physical health	1	5.3	/	/	/	/	7	10.6	8	5.8



Table 3 (continued)

	Patient magazine									
	<i>Befund Krebs</i>		<i>K-Journal Mensch & Krebs</i>		<i>Krebs- magazin</i>		<i>Leben? Leben!</i>		total	
	<i>n = 19</i>		<i>n = 40</i>		<i>n = 12</i>		<i>n = 66</i>		<i>n = 137</i>	
Evidence base										
studies/statistics	4	21.1	4	10.0	3	25.0	3	4.5	14	10.2
research	1	5.3	2	5.0	1	8.3	4	6.1	8	5.8
experience of medical experts	1	5.3	6	15.0	/	/	1	1.5	8	5.8
experience of cancer patients	/	/	1	2.5	4	33.3	2	3.0	7	5.1
Research desiderata										
need for research mentioned	2	10.5	3	7.5	1	8.3	1	1.5	7	5.1
Recommendation	f	%	f	%	f	%	f	%	f	%
Recommendation regarding applica- tion										
CAM should be used	12	63.2	1	2.5	/	/	7	10.6	20	14.6
CAM should not be used	1	5.3	/	/	/	/	10	15.2	11	8.0
Recommendation regarding doctor consultation										
doctor should be consulted	/	/	2	5.0	/	/	7	10.6	9	6.6

Note. *n* = 137 CAM treatments mentioned in all articles. Multiple codings per semantic unit and category possible. Table only displays categories that have an intercoder reliability of 0.75 or higher (Holsti coefficient) and that were applied in at least 5.0 percent of cases.

Description of CAM treatments. CAM treatments are primarily portrayed from a scientific perspective (79.6%). Denomination of CAM is ambiguous: Respective treatments are referred to as “alternative” (16.8%), suggesting its stand-alone application, but also as “complementary” (15.3%), “supplementary” (10.9%) and “supportive” (8.0%), recommending its combined use with standard therapies. CAM treatments are mostly described as being applied in a curative context (51.8%), followed by rehabilitation (21.2%) and aftercare (6.6%). For most of the treatments represented, no particular cancer site is specified (69.3%) but breast (27.7%) and uterus (10.2%) are the cancer sites most frequently mentioned. Accordingly, the gender of patients applying CAM treatments is mostly not specified (43.1%), but a noteworthy percentage of treatments is mentioned with reference to female patients (35.8%).

Evaluation of CAM treatments. The evaluation of CAM treatments is mostly positive: CAM treatments are described as alleviating the side effects of standard therapies (32.8%), improving mental (32.1%) or physical health (24.8%), increasing the chances of curing cancer (12.4%) or improving the effect of standard therapies (8.8%). In contrast, the disadvantages of CAM treatments such as the impairment



of physical health (5.8%) are mentioned only occasionally. Evaluations of CAM treatments are based on scientific evidence such as studies or published statistics (10.2%) and research (5.8%) but also on anecdotal evidence such as the experiences of individual medical experts (5.8%) or cancer patients (5.1%). The need for further research on CAM treatments is hardly mentioned (5.1%).

Recommendation regarding CAM treatments. There are in general few explicit recommendations with respect to CAM treatments. However, the use of CAM treatments is recommended more often (14.6%) than not (8.0%). Recommendations to consult doctors (6.6%) are rare.

3.3 Portrayal of three most mentioned CAM categories

For a more detailed picture, we describe the portrayal of the three most regularly mentioned CAM categories: nutritional and metabolic approaches ($n = 56$), exercise therapies ($n = 28$) and psychological approaches ($n = 21$). Reported percentages, therefore, relate to the number of mentioned treatments in each CAM category in all of the patient magazines we analyzed. We focus on the most prominent features of each CAM category. See Table 4 for an overview of the portrayal of the three most regularly mentioned CAM categories.

Table 4: Portrayal of three most mentioned CAM categories in cancer patient magazines

	CAM category					
	Nutritional and metabolic approaches $n = 56$		Exercise therapies $n = 28$		Psychological approaches $n = 21$	
Description	f	%	f	%	f	%
Perspective						
scientific	40	71.4	22	78.6	19	90.5
Denomination						
alternative	4	7.1	3	10.7	3	14.3
complementary	4	7.1	3	10.7	2	9.5
supplementary	2	3.6	1	3.6	4	19.0
supportive	7	12.5	1	3.6	1	4.8
Stage of application						
curative	34	60.7	12	42.9	6	28.6
rehabilitation	9	16.1	11	39.3	6	28.6
aftercare	1	1.8	5	17.9	2	9.5



Table 4 (continued)

	CAM category					
	Nutritional and metabolic approaches <i>n</i> = 56		Exercise therapies <i>n</i> = 28		Psychological approaches <i>n</i> = 21	
Cancer site						
not specified	44	78.6	16	57.1	14	66.7
breast	7	12.5	9	32.1	8	38.1
uterus	8	14.3	5	17.9	/	/
Gender of patients						
not specified	22	39.3	13	46.4	8	38.1
female	20	35.7	9	32.1	9	42.9
Evaluation						
	f	%	f	%	f	%
Advantages						
alleviates side effects of standard therapies	18	32.1	9	32.1	4	19.0
improves mental health	6	10.7	10	35.7	13	61.9
improves physical health	8	14.3	10	35.7	8	38.1
increases chances to cure cancer	4	7.1	6	21.4	1	4.8
improves effect of standard therapies	4	7.1	1	3.6	2	9.5
Disadvantages						
impairs physical health	6	10.7	/	/	/	/
Evidence base						
studies/statistics	3	5.4	3	10.7	3	14.3
research	1	1.8	1	3.6	1	4.8
experience of medical experts	1	1.8	2	7.1	1	4.8
experience of cancer patients	/	/	5	17.9	2	9.5
Research desiderata						
need for research mentioned	1	1.8	2	7.1	1	4.8
Recommendation						
	f	%	f	%	f	%
Recommendation regarding application						
CAM should be used	18	32.1	1	3.6	1	4.8
CAM should not be used	10	17.9	/	/	/	/
Recommendation regarding doctor consultation						
doctor should be consulted	4	7.1	4	14.3	/	/

Note. *n* = 137 CAM treatments mentioned in all articles. Multiple codings per semantic unit and category possible. Table only displays categories that have an intercoder reliability of 0.75 or higher (Holsti coefficient) and that were applied in at least 5.0 percent of cases.



Portrayal of nutritional and metabolic approaches. Nutritional and metabolic approaches ($n = 56$) are mainly portrayed from a scientific perspective (71.4%). Linguistically, they are mostly referred to as “supportive” (12.5%) and it is primarily suggested that they are applied in curative contexts (60.7%). Most articles do not highlight the cancer site (78.6%). The gender of patients is either not specified (39.3%) or female (35.7%). The alleviation of side effects of standard therapies is the main advantage of nutritional and metabolic approaches mentioned (32.1%), but some articles also refer to how these approaches may impair physical health (10.7%). Hardly any evidence base and research desiderata are mentioned. Recommendations vary when it comes to whether the approaches should be applied (32.1%) or not (17.9%). Few articles advise consulting a doctor (7.1%).

Portrayal of exercise therapies. Exercise therapies ($n = 28$) are also mostly depicted from a scientific perspective (78.6%). They are labeled as either “alternative” (10.7%) or “complementary” (10.7%). Their application is focused in a curative (42.9%) or rehabilitation context (39.3%). While the cancer site is, in general, not specified (57.1%), larger shares of treatments are described in the context of breast (32.1%) and uterine cancer (17.9%). The gender of patients using exercise therapies is mostly not highlighted (46.4%), although a large share is specified as female (32.1%). Exercise therapies are merely associated with advantages, such as improving mental (35.7%) or physical health (35.7%), alleviating the side effects of standard therapies (32.1%) or increasing the chances of curing cancer (21.4%). No disadvantages are mentioned. Articles rely primarily on the experiences of cancer patients (17.9%) as their evidence base. Research desiderata are rarely mentioned (7.1%) and recommendations to apply these therapies are hardly given (3.6%). For several treatments (14.3%), however, it is suggested that readers consult a doctor.

Portrayal of psychological therapies. Psychological therapies ($n = 21$) are most distinctly portrayed from a scientific perspective (90.5%). They are mostly referred to as “supplementary” (19.0%). Their application is often described in a curative (28.6%) or rehabilitation context (28.6%). Cancer sites are again not specified for most treatments (66.7%), but when they are they primarily relate to breast cancer (38.1%). Treatments are mostly described as being used by female patients (42.9%), though the gender of patients is often not specified (38.1%). The primary advantages of applying psychological therapies are reported in terms of their potential to improve mental (61.9%) and physical health (38.1%), while no disadvantages are mentioned. Articles do not refer to a broad evidence base, but for some treatments studies or statistics are cited (14.3%). The need for further research (4.8%) as well as recommendations for their application (4.8%) or to consult a doctor are barely mentioned.



4. Discussion and Conclusion

4.1 Discussion

Overall, nutritional and metabolic approaches dominate the coverage of CAM treatments in cancer patient magazines. Indeed, these are also the treatments most commonly used by cancer patients (Horneber et al., 2010) and mentioned most frequently in general print coverage (Mercurio & Elliott, 2011; Milazzo & Ernst, 2006; Weeks et al., 2007). This makes a relationship between the provided information and patients' decision-making all the more plausible (Weeks et al., 2007). However, dominant CAM categories vary between different patient magazines (comp.: Hübner et al., 2013). Therefore, the selection of a particular magazine may determine the treatments patients are exposed to.

In its portrayal in the magazines we studied, a scientific perspective on CAM dominates, suggesting that the coverage is trustworthy. This reflects the medical perspective that is generally most prominent in cancer-related media coverage and outweighs other angles such as a lifestyle or a political economy perspective (Clarke & Everest, 2006).

Similar to general print coverage, patient magazines most frequently use the term “alternative” to describe treatments (Mercurio & Elliott, 2011; Weeks et al., 2007). This may suggest that such treatments may substitute conventional cancer care, even though their greatest potential actually resides in their ability to compliment conventional treatments (Weeks et al., 2007). Other labels such as “complementary”, “supplementary” or “supportive” more precisely indicate this notion.

Descriptions of CAM treatments in patient magazines focus on curative contexts and rehabilitation, supporting the notion that CAM may help patients in the healing process. It is therefore more positive than in general print coverage, where — besides the context of cancer treatment — CAM is frequently referred to in reference to palliative care (Mercurio & Elliott, 2011; Milazzo & Ernst, 2006), which implies a perspective that does not focus on healing.

As in general print coverage (Mercurio & Elliott, 2011; Weeks et al., 2007), the use of CAM in patient magazines is often not specified in relation to a particular cancer site or gender suggesting that CAM treatments have a broad potential for all cancer patients. A noteworthy share of treatments, however, is reported in the context of breast cancer and female patients. This matches findings on general print coverage (Mercurio & Elliott, 2011; Phillips et al., 2011; Weeks et al., 2007). And may be explained by



the high incident rates of breast cancer and a tailoring of CAM coverage to women who use CAM more often than men (Mercurio & Elliott, 2011).

As in general print coverage (Mercurio & Elliott, 2011; Weeks et al., 2007), CAM treatments in patient magazines are mostly depicted in a positive way, emphasizing their advantages over their disadvantages. However, while general print coverage often portrays CAM as a potential cure for cancer (Mercurio & Elliott, 2011; Weeks et al., 2007), patient magazines are more likely to stress CAM's potential to alleviate the side effects of standard therapies and to improve mental or physical health, which, in turn, underscores its complementary character. This generally positive portrayal still has to be critically reflected on against the background of its potential to attract the attention of hopeful cancer patients and to influence their decision-making: "Positive reporting" argue Weeks et al. "is warranted if adequate scientific evidence exists to support printed claims but, for many CAM treatments, such evidence is lacking." (Weeks et al., 2007, p. 936)

This resonates with our finding that the evidence base for evaluations of CAM treatments as well as the need for further research are rarely mentioned in patient magazines. While in general print media anecdotal evidence dominates (Mercurio & Elliott, 2011; Weeks et al., 2007), cited evidence in patient magazines tends to be more oriented towards scientific evidence (e.g. studies/statistics or research) adding to the overall scientific and trustworthy perspective on CAM that patient magazines imply.

Patient magazines rarely mention specific recommendations on the use of CAM or advise patients to consult a medical expert before or when using a treatment, which is in line with others' findings on general print coverage (Mercurio & Elliott, 2011; Weeks et al., 2007). Since it is important to always consider CAM options based on the treatment context, the situation and the characteristics of each individual patient, not providing recommendations on the use of CAM reflects how complex information in this field is. At the same time, however, it also underscores the necessity of highlighting to patients that they should talk to medical experts about CAM treatments.

Beyond this overall portrayal of CAM, results show that the framing of treatments varies between magazines (Table 3) and CAM categories (Table 4). Patient magazines suggest different interpretations of various sub-fields of CAM, underlining the framing potential that media provides. It is crucial to consider which CAM categories dominate in which patient magazines in order to anticipate the image that readers are exposed to.

This study is limited by some methodological constraints. Firstly, identifying relevant treatments and semantic units is challenging due to the broad and relatively unclear definition of CAM; a definition that may also evolve over time as the status of treatments may be subject to change (e.g. by a stronger



integration into standard medicine in the case that research provides substantial evidence). In our approach, we tried to rely on a broad range of CAM categories to make the selection process transparent. While this differentiated examination of CAM generally proved useful to account for such a fragmented field, splitting our sample into sub-samples for different CAM categories led to a rather small number of cases per category and therefore limited options when trying to make detailed statements on the portrayal of certain CAM categories. A broader sample may allow for a more nuanced picture. Secondly, when comparing the portrayal of CAM in patient magazines we must also consider differences between magazines (e.g. with respect to their target group) that may influence and help explain CAM coverage. Finally, patient magazines only account for one part of a more encompassing information repertoire of cancer patients. Examinations across media and personal information sources are therefore necessary to better understand patients' information repertoires.

4.2 Conclusion and Practice Implications

Media play a crucial role in informing “cancer patients of the many treatment options available to them outside the conventional care system” (Weeks et al., 2007, p. 937). In a field of medical uncertainty such as CAM, patient magazines have to meet particularly high expectations to achieve the overall goal of supporting patients in making informed decisions (Hübner et al., 2013). Based on our findings, we may draw conclusions with respect to three areas of action that can guide us in addressing practice implications and contribute to advancing patient education.

Conclusion 1: Critically reflecting CAM coverage in patient magazines. Media coverage of CAM may “both benefit and hinder patient care” (Mercurio & Elliott, 2011, p. 77). On the one hand, it may sensitize patients to CAM treatments by presenting them as “acceptable tools that can legitimately help to alleviate symptoms and enhance well-being” and by providing patients with respective information (Mercurio & Elliott, 2011, p. 77). On the other hand, the predominantly positive portrayal of CAM (especially as a cure for cancer) along with the omission of disadvantages, scientific evidence, and recommendations to consult medical professionals may create a distorted picture of CAM. It may reinforce the skepticism of experts in the biomedical community and result in a further diminishing of doctor-patient communication on CAM (Mercurio & Elliott, 2011, p. 77). This may lead to even less available sources of reliable information (Weeks et al., 2007, p. 936) — even though doctors are still the most desirable source of information for patients (Finney Rutten et al., 2016; Verhoef et al., 2009) — and may also “hinder movement towards an integrated healthcare system” (Mercurio & Elliott, 2011, p. 77).



The key implication for providers of mediated health information, therefore, is to pay close attention to the labeling of CAM treatments, to provide a differentiated view of its advantages as well as its disadvantages, to highlight the underlying scientific evidence, and to recommend that patients consult medical experts so that interactions and side effects can be prevented. This way, medical professionals can also help patients navigate and evaluate the information they find in the media.

Conclusion 2: Informing medical practice. The results of this study may also help to inform medical practice. Findings show that medical experts need to be aware of media content (Mercurio & Elliott, 2011) and learn about the framing of CAM in cancer patient magazines. This helps medical experts assist patients “in becoming critical consumers of media information” and can encourage them to “direct their patients to evidence-based information sources” (Weeks et al., 2007, p. 937). However, medical experts should bear in mind that patients differ with respect to their “personal belief systems” (Mercurio & Elliott, 2011) as well as with respect to the amount and depth of information they desire and their ability to comprehend it and evaluate its quality (Maddock et al., 2011). Patients may therefore interpret the same media information differently (Weeks et al., 2007). This makes it important to consider the individual understanding, expectations, and needs of a patient when seeking to provide adequate, individual care.

The key implication for health care and counseling professionals, therefore, is an understanding that pro-active communication with patients on CAM is essential so as not to leave them relying on media information alone, but instead to discuss, contextualize and, where necessary, also correct it (Weeks et al., 2007). By communicating with patients on all available treatment options and fostering their competency to find and evaluate adequate information, medical experts “contribute to cancer patients receiving the best possible care” (Mercurio & Elliott, 2011, p. 77).

Conclusion 3: Advising health communication research. Our study shows that health communication research plays a central role in advancing patient-oriented communication and information in areas of medical uncertainty. By reflecting media’s role in the information behavior of patients against the backgrounds of communication-focused theoretical frameworks, research may help to optimize communicative processes. Since patients rarely rely on just one type of media, future studies should focus on cross-media research to account for differences in CAM coverage between media types (Weeks et al., 2007).

The key implication for research practice in health communication is to address the interaction between patients, media information, and medical experts to account for the patients’ complex lifeworlds and to this end to cooperate in transdisciplinary approaches with relevant stakeholders. This



way, health communication research may provide valuable insights into how to improve these communicative processes, optimize communicative measures, and ultimately support patients in reaching informed decisions in this field of medical uncertainty.

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