Physicians‘ defence mechanisms during communication with advanced cancer patients

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CHAPTER **1**

General introduction

This thesis revolves around a search to enlarge and deepen our understanding of the defensive functioning of physicians, as a form of affect regulation [1], during healthcare communication with their patients suffering from cancer, and how this defensive functioning might be linked with the context (physician, patient and consultation characteristics) and with the outcome of this communication. The search began by performing two systematic literature reviews summarizing the existing scientific knowledge with regard to (1) the impact of physicians' characteristics on both patient-physician communication and patient outcome in oncology and (2) the relationship between a patient's characteristic – alexithymia, a form of emotional detachment that serves a global defensive function – and any of the included variables in healthcare communication. This was followed by the main study, consisting of a naturalistic multi-centred observational study in three different hospitals in the French-speaking part of Switzerland. This first chapter provides a general introduction to the contents of this thesis.

COMMUNICATION IN ONCOLOGY

Communication between physicians and patients is a key element in cancer care and can involve several challenges such as maintaining hope while discussing poor prognosis, handling uncertainty, explaining and managing treatment effects and side effects, addressing end of life issues, and facing emotional distress or reactions in both patients and physicians.

The way physicians and patients communicate may have an impact on several aspects of the physician's and the patient's well-being, including on the patient's side on his/her psychological functioning [2-5], quality of life and satisfaction [2, 5-8], feelings of confusion [3, 9], feelings of hopelessness [10], physiological arousal [11], psychological distress, difficulty asking questions, expressing feelings and understanding information [3, 5, 12], adherence to screening, treatment and pain control [4, 13-15], and on information recall and decision quality [2, 11, 16].

On the physician's side very few aspects of the physician's well-being or functioning have been investigated in relation with healthcare communication, although communication might influence physicians' stress, job satisfaction and feelings of burnout [17-19] and be related to physicians' locus of control [20]. However communication performance might for instance not directly affect physicians' satisfaction with their management of uncertainty, since this seems to be better predicted by their anxiety due to uncertainty [21].

Theories and protocols related to physician-patient communication have been developed, and numerous communication skills trainings (CST) and workshops have been proposed to physicians worldwide [22]. In cancer care, CST has even been implemented on a mandatory basis [22] as communication in cancer care is recognised as "too important to be left to personal habits and prejudices" [23]. However, a paradigm shift has occurred in which the initial enthusiasm for the acquisition of *standardised* communication skills by physicians is tempered by critical comments. For example, one third to one half of cancer survivors still report suboptimal patient-centred communication, particularly with regard to physicians responding to emotions (49%) and helping to manage uncertainty (48 %), both core functions of patient-centred communication [24, 25]. The criticisms on current healthcare communication research and on standardized CST include a lack of consideration for the subjectivity and context-dependent nature of communication, for the importance of physicians' flexibility and internal motivation, and for the lived experiences and resources of physicians themselves [26-28].

In this thesis, more information will be gathered on the context of physician-patient communication, on the characteristics of the physician and of the consultation that might be related to patient satisfaction and to physician-patient working alliance, and on the physicians' experiences and resources operationalised by their defensive functioning.

EMOTION IN COMMUNICATION

Communicational difficulties may be related to a lack of technique, but more often arise in the context of strong affective load during an interview (e.g., anxiety, guilt, sadness): these affects lead to a modification of the communication, illustrated for example by abrupt transitions, an unbalanced focus on medical topics, increase of closed questions, early comforting, denial of patients' distress or detachment [29, 30]. Such modifications of communication - mainly triggered by nonverbal or verbal expression of emotions by the patient or discussion of sensitive issues, such as the limited life expectancy – can be conceptualized as a consequence of the affect regulation of the physician trying to protect him/herself. Research has shown that in about half of the consultations patients present negative emotions, most often expressions of fear, followed by sadness and anger [31-33]. It seems that physicians respond with empathic statements or continuers (e.g., naming the emotion or exploring it) 29 to 35% of the time, choosing to not respond or close the subject on the remaining occasions [31, 33]. Healthcare providers were found

to experience emotions of anxiety, sadness, empathy, frustration, and insecurity when having difficult conversations with patients and families. They also reported that their emotional states during these conversations affected the quality of the healthcare they provided [34], and that their feelings of upset when seeing their patients in emotional distress increased their own feelings of stress [19].

In this thesis we are interested in the physicians' use of defence mechanisms in reaction to their patients' and to their own emotions during the consultations, this seemed virtually not researched at the time of these research protocol.

DEFINING DEFENCE MECHANISMS OF THE PHYSICIAN

Defined as part of a person's affect regulation [1] , defences – self-protective psychological mechanisms triggered by an affective load – are supposed to help the physician to adapt to and/or protect him/herself from stress. Moreover, defences have been proposed as a way to conceptualize the emotional distance or connection which the physician establishes with his patient [30]. Various types of defence mechanisms have been identified [35] and can be classified depending on their degree of adaptation to or distortion of reality (see Table 1). These range from "immature or low defences" (i.e., distorting reality and/or emotions) to "mature or high defence" (i.e., staying closer to reality and to emotions).

According to Vaillant, defences may be ranged from immature (keeping more and more distance, exploring less and less, or distorting reality) to mature (keeping in touch with own and others feelings, being open to explore further, not distorting reality). An example of an immature (less adaptive) defence is hypochondriasis. Here, the term hypochondriasis refers to complaining about the patient's behaviour or attitude to the patient him/herself in a way that gives no opportunity to explore feelings or the relationship further. An example of a mature (adaptive) defence is affiliation which is the acknowledgement of the patients' difficulties and showing the readiness to share the difficulties in order to create an opportunity to strengthen the relation or explore the feelings further.

Between those two endpoints (mature and immature) defences are ranging from creating little to more distance to the emotions or from changing little to more of the reality of the emotion. For example, by using jargon (intellectualization) a physician does not change the reality of the emotion, but he or she creates a little bit of distance with the emotion of the situation. In contrast, by exaggerating one's own powers (idealisation of self) a person does change a little of the reality of the emotion (for instance from feelings of insecurity or worry

towards feelings of confidence) and thus reduces the chance to fully understand the situation or to fully be in contact with the other person. A single Overall Defensive Functioning score (ODF) can be calculated for each consultation, positioning the defensive functioning of the physician during that consultation on the mature/immature scale with a score of 7 being completely mature and a score of 1 being completely immature.

Lastly, in order to understand the function of defence mechanisms it is important to take into account the context of the defence. In some contexts, an immature defence might be the best way to go in order not to lose one's head or to become exhausted. Therefore, it is important to have a flexible use of several defence mechanisms during a life-time.

Using "low" defence mechanisms might protect physicians from professional distress and burnout but might hamper their awareness of the patient's distress and thus create patient dissatisfaction. Thus, the defensive functioning of oncology physicians may hamper or broaden the physician's perception of the patient's needs and improve the physician's capacity to attune his communication behaviour.

In previous studies, it was demonstrated that physicians' defence mechanisms can be measured, that a high prevalence and wide variety of defences can be observed during a 15-minutes CST-interview with simulated patients and that, in subgroups of physicians, defences may be modified by CST [37-40]. To our knowledge, no study has investigated the possible association between the physicians' defence mechanisms during communication, the physicians' and patients' characteristics, the context of the consultation, the patients' satisfaction with communication and the physician-patient working alliance in oncology.

Table 1. DMRS-C levels

	Vaillant's distribution[35]	**Perry's defence levels**[36]	**Defence mechanisms**
Mature/ More adaptive	High	Mature	Affiliation, altruism, anticipation, humour, self-assertion, self-observation, sublimation, suppression
	Intermediate	Obsessional	Isolation, intellectualisation, undoing
		Neurotic	Repression, dissociation, reaction formation, displacement
	Low	Narcissistic	Omnipotence, idealisation (self, object), devaluation (self, object)
		Disavowal	Denial, projection, rationalisation, autistic fantasy
		Borderline	Splitting (self, other), projective identification
Immature /Less adaptive		Action	Acting out, passive aggression, help-rejecting complaining

PATIENT SATISFACTION AND WORKING ALLIANCE

Patient satisfaction reflects the extent to which the needs, expectations or preferences of a patient are met. It is a widely used outcome, as it has a "logical and intuitive appeal" [41] and has been mentioned as a dimension of outcome of healthcare quality assurance programs by the World Health Organization [42]. Higher patient satisfaction has been linked with a higher level of self-efficacy, and a lower level of patient distress [5, 8, 43-45]. Some communication factors have been found to correlate with patient satisfaction, such as the affective quality of the consultation [46], the physician's expressions of uncertainty [22], and the physician's response to emotional cues [47]. It has been suggested that practical factors such as reducing waiting time and spending enough time with the patient increase satisfaction [48-50], but that skills such as communicating empathically about the patient's experiences may have the largest effect on patient satisfaction [49]. Some authors have emphasized that there is a need for a better understanding of which qualities and characteristics of the physician induce patient satisfaction with communication [27, 51, 52].

Working alliance refers to a collaborative relationship, characterized by a patient-physician agreement on tasks and goals, and by a positive personal bond [53]. In healthcare, the importance of the relational factor – described as the ''connectional dimension of medical care'' – has been widely recognized and seen as one of the dimensions of patient-centred medical care and communication in different theoretical conceptualizations[25, 54]. Other dimensions of patient-centred communication include exchanging clinical information and understanding patients' representations of that information; responding to patients' emotional needs; helping patients manage uncertainty; involving patients in the decision-making process; and enabling patient self-management through supporting patient autonomy and providing appropriate resources [25]. To build and strengthen working alliance, communication behaviors that enable physicians to reinforce cooperation, like checking for the patient's understanding, asking for his/her opinion, approving his/her point of view or reflecting his/her feelings are important. However, depending on patients' and physicians' characteristics, alliance might be differently built. Patients' and physicians' personality, history, cultural beliefs, but also current state of fatigue or stress might all influence the quality of the encounter. For instance, therapists were found to vary in their abilities to maintain alliances [55] and the surgeons' expertise and character were found to influence their capacity to build an authentic caring relationship [56]. Working alliance between physicians and patients suffering from chronic and serious medical illnesses has also been linked with patient's perceived utility or

value of treatment, self-efficacy, treatment adherence, satisfaction with community care, and with health outcomes such as blood pressure and pain scores [57-60]. In psychotherapy, alliance is a robust predictor of outcome in a wide range of treatment modalities and with different types of patients [61]. It has been noted that alliance is at the core of professionalism and competence across medical and psychological practice and that it is one of the most important common factors influencing patient outcome [62-64]. We believe it might also be a predictor of healthcare communication quality. Thus working alliance was included in this study as a patient outcome measure (i.e. as perceived by the patient) to further strengthen the clinical implications of the investigation.

AIMS AND OUTLINE OF THIS THESIS

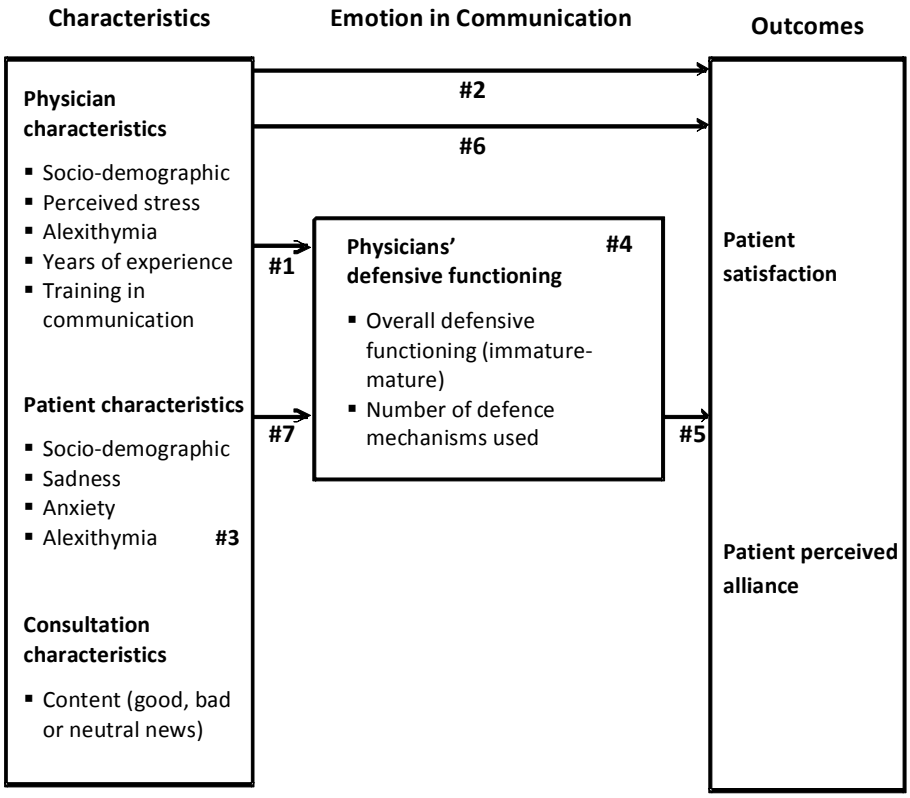
The overall aim of this study is to investigate physicians' defensive functioning with real patients suffering from cancer and how the physicians' defensive functioning might relate to physicians' and patients' characteristics and to patient satisfaction with outcome and perceived working alliance in oncology. To investigate this, a naturalistic multi-centred observational study is performed among physicians meeting patients with advanced cancer to discuss test results in the French-speaking part of Switzerland. Consultations between physicians and patients are audiotaped, transcribed and coded with the Defence Mechanism Rating Scale for physicians (DMRS-C), and data on physicians' and patients' characteristics and on patients' outcomes are gathered through questionnaires. A framework of our study is presented in Figure 1.

At the start of the framework are the physicians', the patients' and the consultations' characteristics. Our first aim is to summarize the existing scientific knowledge with regard to the impact of physicians' characteristics on both patient-physician communication (#1) and patient outcome (#2) in oncology, which is described in ***Chapter 2***. A systematic literature review is performed including articles that reported an association (or lack of association) between physicians' characteristics and quality of communication or patient outcome. A broad range of physicians' characteristics are included, ranging from age and gender to experience, fatigue, locus of control or defensive functioning.

Alexithymia might be considered a form of emotional detachment that serves a global defensive function. It is suggested to play a role in the onset or development of psychiatric and physical health problems, such as stress-related disorders and cancer. It is also suspected to have an impact on patient outcome. Since physicians' alexithymia was not found to be studied in the oncology setting,

in ***Chapter 3*** we review the scientific literature on alexithymia in patients suffering from cancer (#3), and include all articles on cancer patients' alexithymia regardless of with what they related patients' alexithymia (e.g., with other background characteristics, quality of communication, emotion regulation, patient outcome, or pathologies).

Figure 1. Framework of the study



At the centre of the model in this thesis is the physicians' regulation of his emotions by the use of defence mechanisms. Chapter 4 and 5 cover the main objectives of our study. In ***Chapter 4*** we investigate how the physicians defend themselves when communicating with real patients suffering from advanced

cancer (#4) and whether the physicians' defence mechanisms (#5), perceived stress or the content of the consultation (#6) are related to the patient's satisfaction with communication and working alliance. We hypothesize that a higher level of patient satisfaction and working alliance would be associated with less use of defence mechanisms by the physician and the defence mechanisms that would be used would be of a higher level, as well as with lower physician's perceived stress, and with the content of the consultation (bad news negatively associated to patient satisfaction and alliance). In ***Chapter 5*** we address whether physician and/or patient variables are related to physicians' defence mechanisms (#7). We focus on physicians' and patients' alexithymia, physicians' perceived stress, years of experience in oncology, and communication training experience, and patients' state of sadness and anxiety and socio-demographics. The aim of this chapter is to generate hypotheses around the physicians' defensive functioning and its context (physicians' and patients' variables).

Finally, a summary and a general discussion of the research results are given in ***Chapter 6***. We choose to respect the initial publication of the chapter articles; however, as the articles were written at different points in time and for different scientific journals words as for instance defence/defense or clinician/physician might be interchangeably used throughout the manuscript.

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CHAPTER **2**

Clinician characteristics, communication and patient outcome in oncology: a systematic review

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ABSTRACT

Objective. The aim of this study was to review the literature on clinician characteristics influencing patient–clinician communication or patient outcome in oncology.

Methods. Studies investigating the association of clinician characteristics with quality of communication and with outcome for adult cancer patients were systematically searched in MEDLINE, PSYINFO, PUBMED, EMBASE, CINHAL, Web of Science and The Cochrane Library up to November 2012. We used the preferred reporting items for systematic reviews and meta-analyses statement to guide our review. Articles were extracted independently by two of the authors using predefined criteria.

Results. Twenty seven articles met the inclusion criteria. Clinician characteristics included a variety of sociodemographic, relational, and personal characteristics. A positive impact on quality of communication and/or patient outcome was reported for communication skills training, an external locus of control, empathy, a socioemotional approach, shared decision-making style, higher anxiety, and defensiveness. A negative impact was reported for increased level of fatigue and burnout and expression of worry. Professional experience of clinicians was not related to communication and/or to patient outcome, and divergent results were reported for clinician gender, age, stress, posture, and confidence or self-efficacy.

Conclusions. Various clinician characteristics have different effects on quality of communication and/or patient outcome. Research is needed to investigate the pathways leading to effective communication between clinicians and patients.

INTRODUCTION

Effective communication allows the clinician to assess [1, 2], inform [3], and support [4] the patient and has been associated with positive patient outcomes such as physical and emotional wellbeing, pain control, adherence to treatment, accuracy and completeness of assessment of symptoms and side-effects, patient satisfaction, information recall, and psychological adjustment [5-9].

Studies investigating factors that influence patient–clinician communication and patient outcome can be categorized as follows: (i) theoretical models and approaches used by clinicians, such as patient-centered communication and shared decision-making [7]; (ii) relational aspects between patient and clinician, such as working alliance and affect regulation [9-11]; (iii) patient characteristics, such as psychiatric comorbidity, coping, social support, C-prone personality, or alexithymia [12-16]; and (iv) clinician characteristics [17-19].

Despite their crucial role with regard to communication and patient outcome in oncology, clinician characteristics have rarely been investigated. The objective of this review is to summarize the existing knowledge with regard to the impact of clinician characteristics (aspects that distinguish one clinician from another, such as experience, training, burnout, model preference, or approach), on communication and patient outcome. That knowledge may help ameliorate communication in cancer care and may guide communication skills training.

METHODS

SEARCH STRATEGIES

This systematic review is based on the guidelines of the preferred reporting items for systematic reviews and meta-analyses statement [20-22].

Studies investigating an association between clinician characteristics and quality of communication with adult cancer patients or outcomes for adult cancer patients were eligible. Case reports and studies not published in English were excluded. The study subjects were clinicians working in an adult oncology service.

A first search of MEDLINE, PSYINFO, PUBMED, EMBASE, CINHAL, the Cochrane Library, and Web of Science for eligible articles was performed (for keywords, see Table 1); following this first search, other possible keywords were found in the retrieved articles and a second search of MEDLINE, PSYINFO, EMBASE, and the Cochrane Library was conducted (Table 1). A third search, (run in November 2012), replicated the second to update this review with articles published since that second search.

Table 1. Keywords MeSH of the first and second literature search

First search
1) oncologist*.mp or medical oncology or clinician*.mp or clinician*.mp or clinician*.mp
2) (neoplasms or medical oncology or oncology.mp) or (cancer.mp or neoplasms) or (neoplasms or neoplasms.mp)
3) (communication or communication.mp) or clinician–patient relations or communication skills.mp, or doctor–patient interaction.mp
4) (defense mechanisms.mp or defense mechanisms) or affect regulation.mp or emotional regulation.mp or (empathy.mp or empathy) or (locus of control.mp or internalexternal control) or defensive functioning.mp or (emotional stress.mp or psychological stress)
5) #1 AND #2 AND #3 AND #4
Second search
All above listed keywords and
6) (patient outcome.mp or treatment outcome) or patient evaluation.mp or (anxiety disorders or comorbidity or mental disorders or mood disorders or patient psychiatric comorbidity.mp or depressive disorder) or (mental recall or patient information recall.mp) or (patient satisfaction.mp or patient satisfaction)
7) all words were introduced four times each time coupled with either oncologist, clinician, doctor, or clinician: fatigue*.mp, perceived stress*.mp, psychological distress*.mp, stress*.mp, attitude*.mp (burnout, professional, or burnout*.mp), experience*.mp, warmth*.mp, patience*.mp, perception of barrier*.mp, years of practice*.mp, training*.mp, perceived responsibility*.mp, preference*.mp, personal control*.mp, empathy*.mp, confidence*.mp, self-efficacy*.mp, locus of control*.mp (job satisfaction, or job satisfaction*.mp), coping*.mp, motivation*.mp, conscientiousness*.mp, cognitive ability*.mp, anxiety*.mp, depression*.mp, emotional involvement*.mp, belief*.mp, competence*.mp, attentiveness*.mp, orientation*.mp, role*.mp or knowledge*.mp
8) #1 and #2
9) #3 or #4
10) #5, #6, #7 and #8

SELECTION CRITERIA

Eligibility assessment of titles and abstracts from the first search was performed independently by two of the authors (MdV, CM). If it was not possible to reach a

decision, the full text was studied. Disagreements between reviewers were resolved by consensus. In case of persistent disagreement, a consensus with the last author was planned (but was never necessary). All titles and abstracts of the second and of the third search were evaluated by the first author based on the criteria used for the first search. In case of doubt, a consensus with the last author was arranged (which was necessary once).

Articles were excluded if they did not include patients with cancer or if they did not focus on clinician characteristics, communication, or patient outcome. Articles were also excluded if they were not written in English or if they did not use valid measurements. Additionally, articles were excluded if they measured all variables by self-reported questionnaire filled in by the clinicians, because that jeopardized the interpretation of results. For example, a clinician with inflated self-esteem might rate themselves as highly empathic, their communication as positive, and their patient as satisfied. Such a result would not provide meaningful data. Articles were included if they reported an association (or lack of association) between clinician characteristics and quality of communication or patient outcome.

DATA EXTRACTION

Full texts of articles were evaluated by the first author as follows: (i) general information (authors, year, and country); (ii) aims of the study; (iii) study sample (number and demographics of clinicians and patients, including type of cancers); (iv) study design and assessments; (v) clinician characteristics; and (vi) main findings. The primary patterns examined were associations (or lack of association) between clinician characteristics (aspects that distinguish one clinician from another) and 'patient outcome' or 'clinician–patient communication'. The investigation was limited to a systematic review because the results of the studies were too heterogeneous to allow a meta-analysis.

RESULTS

INCLUDED STUDIES

A total of 1055 non-duplicated references were identified. After excluding articles not written in English (*N* = 106), those outside oncology (*N* = 139), those not taking account of communication (*N* = 450) or clinician factors (204), those without measurements (*N* = 61), and those with pediatric patients (*N* = 25), 70 remained. A further 36 were excluded for methodological reasons (such as not being based on

reliable statistics or methods not adequately defined), because they relied only on clinician self-reported assessment or focused on cancer prevention and not treatment (*N* = 4) or did not address cancer patients (*N* = 3). This lead to the inclusion of 27 articles (see flow chart in Figure 1). Study characteristics and results are summarized in Table 2.

Figure 1. Flow chart of the selection procedure

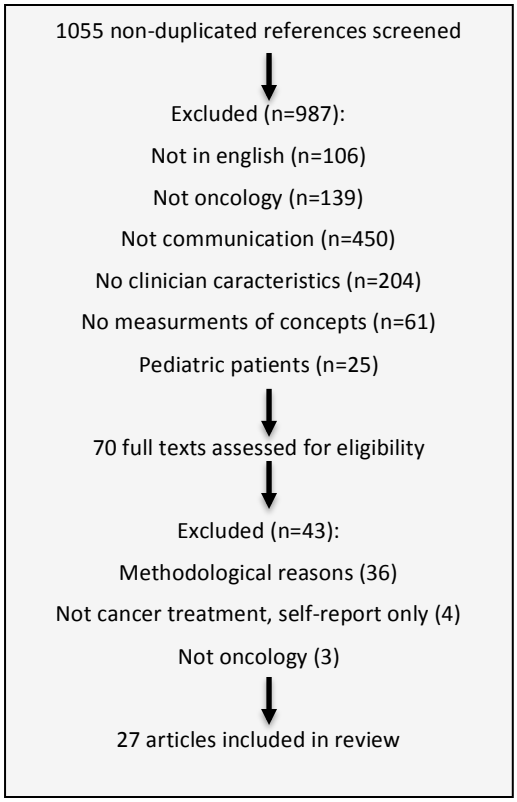

Table 2. Clinician characteristics and their relation with communication or patient outcome (N=27)*

Authors, year, country	Sample (details reported when provided)	Design and assessment	Clinician characteristics	Main findings with regard to communication or patient outcome
Arora et al. 2011 U.S.A. [22]	623 cancer survivors 43.3% female Bladder and colorectal cancer, leukemia	Cross-sectional Patient self-report questionnaire	gender, information exchange‡, affective behavior‡, and knowledge	Male clinicians' knowledge and overall rating of care rated more positively by patients Clinicians' information exchange, affective behavior, and knowledge associated with patients overall ratings of care; the strongest association with overall ratings observed for information exchange
Arora et al. 2009 U.S.A. [23]	395 cancer survivors 42% female Bladder cancer, colorectal cancer, leukemia	Cross-sectional Patient self-report questionnaire	decision-making style‡ (participatory or not)	No effect on patient's HRQL; weak association on the mental health subscale (HRQL). Associated to higher sense of self-efficacy, trust and personal control of patient and lower uncertainty about health

Bernard et al. 2012 Switzerland [24]	31 clinicians (13 oncologists and 18 nurses) 77% female Simulated patients	Pre-post Observer ratings; clinician self-report questionnaires	Defensive functioning, gender, age, years of professional experience	Higher defensive functioning related to better adherence to CST
Brown et al. 2009 Australia [16]	24 clinicians: 12 novices (58% female), 12 senior staff members (25% female) Simulated patients with diagnosis of degenerative bone disease when the patient feared cancer recurrence and recurrence of cancer	Experimental-correlational Physiological stress measurements ; clinician self-report questionnaires; observer ratings	Clinician professional experience, fatigue, stress, burnout, anxiety, depression	Poor communication performance related to clinicians' high burnout and higher fatigue level, but not to professional experience, perceived stress or psychological distress No differences between novices and senior staff members with regard to perceived stress, psychological distress or burnout but differences of the physiological stress measures during the consultation

Bruera et al., 2007 U.S.A. [25]	Simulated clinician 168 patients (51% women): inpatients and outpatients in palliative care	Randomized blinded controlled crossover Patient self-report questionnaires	Clinician posture	Clinicians who sit during BBN rated more positively with regard to overall impression and compassion, but almost half of the patients indicate no preference for posture or had a preference for the standing clinician Female patients more likely to prefer a sitting clinician (but can't exclude gender effect of clinician) Posture not more important than other clinician attributes and behaviors during consultation, such as: time spent, warmth, patience, caring attitude, respect for patients

Delvaux et al., 2005 Belgium [26]	62 clinicians caring for cancer patients	Randomized controlled trial (RCT) Observer ratings, clinician self-report questionnaires	CST‡, consolidation workshop‡	Significant effects of consolidation workshops with regard to communication skills of the clinician addressing patients and relatives individually or together No significant differences for patients' and relatives' perceptions and satisfaction with clinicians performance Patients' more satisfied with clinicians' who attended the consolidation workshop with regard to performance in the interviews
Detmar et al., 2001 Netherlands [27]	10 oncologists (40% women), 240 patients (73% women) Breast, gynecological, gastrointestinal cancer, lymphoma and other cancers	Correlational Clinician self-report questionnaires, patient self-report questionnaires, observer ratings	Clinician gender, age, professional experience, perceived responsibility to discuss HRQL	Clinicians' attitude (increased sense of responsibility) with significant impact on HRQL communication

Dimoska et al. 2008 Australia [28]	5 medical oncologists, 25% female, 4 radiation oncologists, 2 female. 155 patients, 45% female Breast, colorectal, melanoma, prostate, lymphoma and other cancers	Correlational Structured patient interview, patient self-report questionnaires, observer ratings	Clinician consultation style (e.g. patient-centred versus doctor-centred)	Patient-centered clinicians rated as warmer and less hurried, with greater possible input by the patients
Fallowfield et al., 1990 U.K. [6]	22 clinicians, either favoring mastectomy or breast conservation, or offering the choice to the patient 269 women with early breast cancer	Prospective Clinician self-report questionnaires, patient self-report questionnaires, observer ratings	Clinician with technical preference or patient-centered preference	Incidence of patient anxiety decreasing across groups of clinicians who favor a technique or give choice (patient-centered) Incidence of patient depression decreasing across groups of clinicians who favor a technique or give choice (patient-centered)

Fallowfield et al., 2002 U.K. [17]	160 oncologists, 28% female, 2407 patients, 61.1% female, with confirmed or suspected diagnosis of cancer	RCT Clinician self-report questionnaires, patient self-report questionnaires, observer ratings	CST	Nor age or clinical experience but CST significantly improves communication skills; after training, clinicians more focused and open questions, more empathy and appropriate responses to patients 'cues, and lower rates of leading questions No evidence for the effectiveness of written feedback on communication skills An interaction effect between gender and training, but probably a spurious effect
Fallowfield et al., 2003 U.K. [29]	160 oncologists, 28% female, 2407 patients, 61.1% female, with confirmed or suspected diagnosis of cancer	RCT Clinician self-report questionnaires, patient self-report questionnaires, observer ratings	CST	No demonstrable attrition in previously improvements, except for empathy Additional communication skills, not apparent at 3 months, became evident with fewer interruptions and an increase in summarizing of information

Fröjd et al. 2006 Sweden [30]	11 clinicians, 36% female and 69 patients, 51% female with newly diagnosed carcinoid	Correlational study Clinician self-report questionnaires, patient self-report questionnaires	Clinician confidence (in ability to identify patient worry and/or patient wish for information), clinicians' actual ability to do both	Clinicians' ability to identify patient wish for information associated with higher confidence and higher values on seven of nine communication skills No association between ability to identify worry and confidence No association between patient satisfaction or patient hope and clinicians' ability to identify worry or wish for information Patient satisfaction correlated to clinicians' confidence

Libert et al., 2003 Belgium [31]	81clinicians, 44% female One simulated breast cancer patient (same for all clinicians) and 75 real patients, 45% female Diagnosis not known	Correlational study Clinician self-report questionnaires, patient self-report questionnaires, observer ratings	Clinician LOC (internal or external)	Clinicians with external LOC provide more appropriate information in highly emotional simulated interviews and less premature information in the clinical interviews; they also show more burnout but did not perceive stress severity differently than clinicians with internal LOC LOC not associated with assessment and supportive skills, but clinicians with external LOC more efficient in providing information

Libert et al., 2006 Belgium [32]	81clinicians, 44% female Simulated breast cancer patient and simulated husband and 75 real patients, 45% female; 76 relatives, (81.6% spouses)	Correlational study Clinician self-report questionnaires, patient self-report questionnaires, relative self-reported questionnaires, observer ratings	Clinician LOC (internal or external)	Clinicians with external LOC with a higher mean frequency of utterances directed to the relatives, but lower mean frequency directed exclusively to the patients Clinicians with external LOC with a higher mean frequency of utterances with an assessment function In the simulated interviews clinicians with external LOC show a lower mean frequency of utterances providing information and a higher mean frequency of utterances providing support
Libert et al., 2007 Belgium [33]	67 clinicians, 22% female, working with cancer patients Simulated patients and relatives	Randomized pre-post study Clinician self-report questionnaire, observer ratings	Clinician LOC (internal or external)	Clinicians with internal LOC demonstrate communication skills acquisition to a greater degree

Mandelblatt et al., 2012 U.S.A. [34]	212 oncologists, no gender percentage provided and 1174 newly diagnosed elderly patients with breast cancer	Cross-sectional correlational study Clinician self-report questionnaires, patient self-report questionnaires	Clinician gender, age, experience, preference for treatment‡	Patients treated by oncologists with a high preference to prescribe chemotherapy have higher odds of receiving chemotherapy than those seeing oncologists with a low preference The association between preference for treatment and actual treatment was independent from patient decision style‡ and not affected by patient-clinician communication Oncologist gender not associated with chemotherapy, a non-significant trend observed for women treated by younger oncologists who were more likely to receive chemotherapy

Merckaert et al. 2005 Belgium [35]	58 specialists clinicians in two training groups: first group consisted 46% female, second group 43% female oncologists. 116 patients, first group 67% and second group 64% female, with solid tumors or hematologic malignancies	Randomized controlled study Clinician self-report questionnaires, patient self-report questionnaires, observer ratings	Clinician gender, age, CST (with or without consolidation workshop)	Clinician gender or age without effect on clinicians' capacity to detect patient distress Before training clinicians' detection of distress not correlated with patients' self-reported distress or clinicians' assessment skills or supportive skills Five months after training clinicians' detection of distress correlated with patients' distress and partially with clinicians' assessment and supportive skills (only with VAS patient distress), independently of the training group Clinicians who attended the consolidation workshop showed assessment and supportive skills correlated to all patients' distress (VAS and HADS scores), while clinicians on a waiting list did not

Neumann et al., 2007 Germany [12]	323 patients (47.7% women) Bronchial, colorectal, prostate, oesophagus, breast, skin and other cancers	Cross-sectional retrospective study Patient self-reported questionnaires	Clinician stress, empathy	An indirect effect of clinician empathy on long-term patient outcomes, mediated by the patients' desire for more information; clinician stress with a negative effect on patients' perceived empathy
Politi et al. 2011 U.S.A. [36]	5 oncology clinicians, 40% female and 75 female patients	Correlational study Clinician self-report questionnaire, patient self-report questionnaires	Clinician anxiety with regard to uncertainty	Clinicians' higher anxiety related to higher patient satisfaction Clinician anxiety does not moderate the relationship between patient anxiety and decision satisfaction

Pollak et al., 2007 U.S.A. [37]	51 clinicians, 20% female, 270 patients, 51% female, with advanced cancer Hematological, lung, breast, colon , gastrointestinal, brain and other cancer	Correlational study Clinician self-report questionnaires, observer ratings	Clinician gender, age, experience, training, orientation (socio-emotional or technical), confidence	Clinician gender associated to the number of empathic opportunities presented by the patient; clinician age and orientation related to the number of empathic statements Empathic opportunities found in 52% of consultations with female patients and a female clinician, 44% with female patients and a male clinician, and 28% with male patients and either a female or a male clinician Socio-emotional oriented clinicians more empathic than technical oriented clinicians Clinician experience and training not associated with communication Confidence not related to empathic responses

Shapiro et al., 1992 U.S.A. [38]	40 patients (breast cancer) viewed videotapes of 1 oncologist presenting simulated results	Analogue research Patient self-report questionnaires	Clinician affect (expressed worry)	Women receiving medical results from a worried clinician recalled significantly less information, perceived the clinical situation as significantly more severe, reported higher levels of state anxiety and had higher pulse rates

Smith et al., 2011 Australia [39]	20 clinicians, 45% female and 55 patients, all female Breast cancer	Correlational study Clinician self-report questionnaire, patients self-report questionnaires, observer ratings	Clinician shared decision-making style, gender, age, specialty, CST, years of practice, years spent working with cancer patients, hours per week in direct patient contact	Clinicians high shared decision-making style significantly predicted patient satisfaction with the clinicians "shared decision making skills" two weeks after consultation, and with treatment decision (whether or not the patient adhered to the clinicians advice or not) four months after consultation Clinician blocking communication predicted decisional conflict Number of empathic cues and clinicians degree of empathy predicted patient post-consultation anxiety: high clinician empathy predicted high patient anxiety (the authors underline that these patients already showed higher anxiety pre-consultation)
Söllner et al., 2001 Austria [40]	8 clinicians, 38% female, 254 patients, 56% female Breast, head and neck, lung or other cancer	Cross-sectional study Clinician self-report questionnaire, patient self-report questionnaires	Clinician gender, age, experience, training	Clinician gender, age, experience and training did not influence the concordance between clinicians and patients perceptions of any of the outcome variables.

Stalmeier et al., 2007 Netherlands [41]	15 clinicians, 40% female, 150 patients, all male. Prostate cancer	Correlational study Clinician self-report questionnaire, patient self-report questionnaire	Clinician gender, training	Clinicians' intuition about the patients' decision-making preferences improves with years of training, but remained equally poor for male and female clinicians Clinicians intuition about the unvoiced patients treatment preferences strongly associated with their own preferred treatment plan; male clinicians four times more likely to prefer the higher treatment dose

Step et al., 2009 U.S.A. [42]	24 clinicians, no information on gender, 180 patients, all female Breast cancer	Cross-sectional study Patient self-report questionnaires, observer ratings	Clinician non-verbal relational communication, communication style	Clinicians' relational communication predicted greater patient communication involvement and patient communication involvement predicted patient decision regret; marginal evidence found that the effects of clinician relational communication on patient decision regret is mediated by patient communication involvement Greater patient communication predicted by more clinician confirmation, less directness and greater inclusion with a direct effect between clinician confirmation and patients' decision regret

Strasser et al. 2005 U.S.A. [43]	69 patients, 51% female and a video of a male clinician standing or sitting lung, genitourinary, gastrointestinal, hematological, sarcoma and other cancers	Analogue randomized crossover study Patient self-report questionnaires	Clinician posture	No significant patients' preference for sitting or standing clinician; patients' assessments of clinician compassion and other attributes not different between sitting and standing clinician and patient satisfaction with communication not different according to clinicians' posture Patients considered that their preferred clinician spent more time in consultation than the non-preferred clinician, independent of posture of clinician

Zachariae et al., 2003 Denmark [44]	31 clinicians, 58% female, 500 patients, 66% female	Cross-sectional study Clinician self-report questionnaire, patient self-report questionnaire	Clinician communication style (technical or socio-emotional), confidence	Clinicians reported style had no impact on patients outcome Patient perceived clinician attentiveness and empathy correlated with patient satisfaction, distress, self-efficacy and perceived control Clinicians over-rated satisfaction with personal contact and with medical aspects, especially of patients in palliative treatment Clinicians who over-rated satisfaction with personal contact were rated significantly lower on attentiveness by the patients; Clinicians who over-rated satisfaction with medical aspects were rated significantly lower on both attentiveness and empathy

*Search untill november 2012. HRQL: Health Related Quality of Life; CST: Communication Skills Training; BBN: Breaking Bad News; LOC: Locus of Control; VAS: Visual Analogue Scale; HADS: Hospital Anxiety and Depression Scale. ‡Information exchange: the way the doctor exchanged information as perceived by the patients (such as listening to patient, providing understandable information, responding to questions, giving as much information as patient wanted, patient left with unanswered questions); Affective behavior: doctor behaviors to patient perceived as respectful, caring, kind, interested, sensitive; Decision-making style: involving or not the patient in decision making; CST and consolidation workshop: clinicians experience in training, either in specific communication skills training or in additional consolidation of training; Preference for treatment: clinicians' preference to

use chemotherapy; Decision style: patients desire that decisions are made solely by the patient, by the patient and clinician together, or only by the clinician.

CHARACTERISTICS AND STUDY DESIGNS

Clinician characteristics, studied as a primary or as a secondary objective, were gender, age, communication skills training, professional experience, levels of fatigue, stress and burnout, posture, attitudes toward psychosocial issues, locus of control, confidence, decision style, empathy, affect, and defensive functioning.

Twenty-five of 27 articles were published in 2001 or later. The majority of the studies were conducted in the USA (*N* = 9) and addressed patients with various types and stages of cancer.

Different study designs were used, such as controlled and uncontrolled, randomized and not randomized, prospective and retrospective, and cross-sectional, experimental, and observational. Clinician characteristics were measured by self-report questionnaires or ratings by patients or observers.

CLINICIAN GENDER

The overwhelming majority of studies reporting on the effect of clinician gender found no influence on patient outcome or on quality of communication. Gender had no effect on clinician predictions of patient treatment preference or on agreement for decision-making preferences [42]. It had no effect on indication for chemotherapy [35] or on communication concerning health-related quality of life (HRQL) [28]. It had no influence on the concordance between clinician and patient perceptions of patient distress and need for support [36, 41] or on patient perception of care, information exchange, affective behavior, coordination, or health promotion [23]. In addition, gender was not associated with responses to empathic opportunities. Gender was associated with occurrence of empathic opportunities, which occurred in 52% of consultations between female patients and female clinicians, in 44% of consultations between female patients and male clinicians, and in 28% of consultations between male patients and either female or male clinicians [38]. Finally, patients rated knowledge and overall level of care more positively for male clinicians [23].

CLINICIAN AGE, EXPERIENCE, AND SPECIFIC TRAINING

The only study to examine the relationship of clinician age to empathy found an association with younger clinicians responding more often to empathic

opportunities [38]. Other studies examined the relationship of clinician age to HRQL communication [28], prescription of chemotherapy, [35] and capacity to detect patient distress [36, 41]. None found an effect.

There was no correlation between clinician experience and communication or patient outcome [17, 18, 28, 35, 38, 41].

Five studies found a correlation between training (or years of training) and communication (or patient outcome) [18, 27, 30, 36, 42]. Clinician and patient agreement for patient decision-making preferences increased with years of clinician training [42]. Communication skills training (CST) significantly improved clinician skills [18, 27, 30, 36] and patient outcome (satisfaction with the clinician's performance) [27]. One study reported a lack of correlation between CST and clinician response to empathic opportunities [38], although the type of training was not described.

Clinician level of fatigue, stress, and burnout

Higher levels of fatigue and burnout, but not clinician stress, correlated with poor communication performance, accounting for more than one third of the outcome variance [17]. Also, patient perceived 'busyness in hospital staff' significantly affected patient perception of clinician empathy [13].

Clinician posture or nonverbal behavior

In two studies [26, 44], patients evaluated clinician quality of communication by watching simulated consultations with standing or sitting clinicians. Clinicians who sat during the consultation were rated higher on overall impression and compassion. However, almost half of the patients had no posture preference or else preferred the standing clinician. There was no association between patient-evaluated quality of clinician communication and patient satisfaction with clinician communication [26, 44].

Nonverbal communication (e.g., monotone voice and speech rate) was related to patient involvement in communication [43]. Scores on nonverbal expression of empathy (nods, facial expression, gestures, and touching) increased following CST [30].

Clinician socioemotional or technical preferences and communication styles

Patients treated by clinicians who focused more on social and emotional aspects of patient care showed lower anxiety and depression than those treated by clinicians who emphasized technical and scientific aspects [6]. Socioemotional

oriented clinicians also showed more empathy [38]. However, one study showed no impact of clinician preference on patient satisfaction, distress, self-efficacy, or perceived control [45].

Clinician participatory or shared decision-making style (involving the patient in the decision making) was positively associated with patient sense of trust, control, and self-efficacy. It was negatively associated with patient feelings of uncertainty [24] and predicted patient satisfaction with the 'shared decision making skills' and treatment decisions of the clinician [40]. Patient-centered clinicians (those allowing the patients' subjective or illness experience to emerge in the consultation) were rated as warmer, less hurried, and allowing more input from the patient [29]. Positive communication (e.g., reassurance, acknowledgement, or shared humor) by the clinician predicted increased communication involvement of the patient and less decision regret [43]. Finally, clinician willingness to discuss HRQL increased the probability of the clinician discussing emotional aspects of disease with the patient [28].

CLINICIAN EMPATHY

Lelorain *et al*. reported that empathy was associated with higher patient satisfaction, improved psychosocial adjustment, and less psychological distress and need for information [46]. However, all studies in that review assessed empathy as an outcome (most often of CST) and not as a clinician characteristic and were therefore not included in our review.

CLINICIAN LOCUS OF CONTROL

Locus of control [LOC; the belief that life outcomes are (at least in part) controlled by one's own actions (internal LOC) or by external forces (external LOC)] influences communication. In three-person interviews, external LOC was associated with less premature and more appropriate information, higher frequency of utterances directed to the relatives of patients, and lower frequency of utterances directed to the patient. External LOC was also associated with use of more assessing, checking, and summarizing communication skills. In addition, before and after CST, clinicians with an internal LOC showed increased acquisition of communication skills. However, all three studies were conducted by the same research group, the sample size was relatively small and there was important variance in measurements and differences at baseline [32-34].

CLINICIAN AFFECT AND DEFENSIVE FUNCTIONING

When all clinician variables were controlled except for the expression of worry, patients recalled less information presented by a worried clinician and perceived their situation as more severe. Patients also reported higher levels of state anxiety and had higher pulse rates [39]. Clinician anxiety generated by uncertainty (about treatment decisions or outcome) was significantly related to patient decision satisfaction with higher clinician anxiety related to higher patient satisfaction [37].

Following CST, clinicians with better defensive functioning (more mature defenses, such as affiliation compared with denial) showed a higher adherence to an ideal prototype of a patient-interview [25].

CLINICIAN CONFIDENCE

Clinician confidence was associated with a better ability to perceive patient information needs but not with patient worry. Patients found the consultation 'very satisfying' when conducted by clinicians with higher confidence in communicating about difficult matters [31]. However, clinician confidence in addressing patient concerns was not related to empathic responses [38]. Clinicians, who over-rated patient satisfaction, were rated by patients as less empathic and less attentive [45].

DISCUSSION

This review reveals that the following clinician characteristics have a positive impact on quality of communication and/or patient outcome: trained in communication skills, an external locus of control, empathy, favoring a socioemotional approach and shared decision-making style, higher anxiety levels, and more mature defensive functioning. A negative impact was reported for higher level of fatigue and burnout and expression of worry. Clinician professional experience was not related to communication or patient outcome and results diverged for clinician gender, age, stress, posture, and confidence or self-efficacy.

The fact that CST was consistently associated with communication and patient outcome confirms the importance of implementing CST in the curriculum of clinicians [47]. Because LOC plays a role in the assimilation of CST, integrating this variable into CST, for example by means of individual supervision [48], might be beneficial. Training should also address the fact that clinician preference for treatment or style plays an important role in the consultation process because it influences patient satisfaction, anxiety, depression, and adherence to treatment.

Clinicians should therefore be made aware of their preferences and the possible consequences for the patient.

Clinician empathy was associated with patient outcome but the results were contradictory possibly because of the use of different definitions of empathy. Additionally, the role of empathy might be more complex. None of these studies report a possible negative effect, whereas the literature suggests that empathy can have a negative impact on group [49] and on reconciliation processes [50]. Because patient desire for information has been found to be an indirect effect of empathy [13], empathic behavior could, for example, lead to an increase of information, which might overload a patients' capacity and thereby compromise their adaptation to disease. The confusion with regard to definitions, researcher bias, and lack of research on empathy and its effects calls for more rigorous studies that investigate the specific role of empathy.

Level of fatigue and clinician burnout, being associated with poor communication performance [17], illustrates how important it is to pay attention to clinician working conditions and skills for handling complex and emotionally challenging situations [51].

The importance of self-awareness was illustrated by a study showing that clinician affect (anxiety, uncertainty, and worry) and clinician regulation of their own affect (defensive functioning) was associated with patient outcome and quality of communication [25, 37, 39]. The observation that increased anxiety of the physician was associated with positive patient outcome [37] is an interesting result. Anxiety of the clinician in this context may indicate increased sensitivity to the patient's situation, thereby leading to a more appropriate perception of patient needs and thus an increased alliance. We imagine that beyond a certain level of clinician anxiety, defense mechanisms such as denial might become counter-productive and hamper perception of patient needs.

Professional experience was not found to impact patient outcome. This might be because of certain clinician routines developed over time that neutralize possible effects of experience. However, because of the unclear definition of professional experience and its confusion with professional training or education, we could not draw conclusions.

With regard to the divergent results, it seems that characteristics such as gender might have an impact on communication or on patient outcome depending on patient characteristics. Also, clinician age was related to empathic responses [38] but not to other communication outcomes such as HRQL communication [28]. To understand such divergent results, pathways have been proposed to investigate how clinician characteristics impact patient outcome; for example, how

they could be moderated by patient-specific variables before influencing patient outcome [13].

Clinician stress was assessed by measurements of physiological stress [17] and by patient-perceived 'busyness in hospital staff' [13]. Because these two operations cannot be compared, as illustrated by the study of Brown *et al*. [17], we could not draw conclusions [17].

Although clinician confidence seemed to impact patient satisfaction (patient outcome) [31], it was not related to empathic response (communication) [38]. This again reveals that quality of communication and patient outcome are not simultaneously influenced by clinician characteristics.

Although these studies generate useful information about the role of clinician characteristics on patient–clinician communication and on patient outcome in oncology, several issues remain unresolved. How do clinician characteristics influence communication or patient outcome? Is the influence of clinician characteristics mediated or moderated by disease factors (type or stage of cancer), by patient factors (age or gender), by contextual and cultural factors (setting, generational influences or Latin vs. Nordic countries), or by other clinician characteristics? Are there interactions between clinician and patient behavior and/or characteristics? It is more important to understand how clinician characteristics influence patient outcome than to know that they do have an impact. More studies are needed to answer these questions.

Finally, the importance of the relational factor (intersubjectivity) or the 'connectional dimension of medical care' [52], cannot be ignored. All too often, it is not known whether clinicians included in these studies see their patients for the first time or have been seeing them for years, nor how the quality of their relationship is perceived. Empirical evidence confirms the crucial role of a working alliance in healthcare where alliance is associated with patient self-efficacy, satisfaction, adherence, and perceived utility of treatment [53-55]. In line with these observations in general medical care, length of the patient–clinician relationship is significantly associated with cancer survivors' perceived quality of care [23] and working alliance associated with specific communicational behavior in the oncology setting [56].

Our study and future studies investigating the impact of clinician communication skills related to patient outcome will improve the quality of clinician training and thereby the quality of cancer care.

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CHAPTER **3**

Alexithymia in cancer patients: review of the literature

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ABSTRACT

Objective. To summarize the literature on alexithymia in cancer patients.

Methods. The empirical literature published between 1972 and January 2010 was searched through MEDLINE, PSYINFO, EMBASE and the Cochrane Library. Key words were: alexithymia, affective symptoms, cancer, neoplasms.

Results. The search identified 16 relevant studies which are methodologically problematic and show conflicting results. However, several interesting hypotheses emerge such as a possible link between alexithymia and the immune system, between alexithymia and quality of life, or between alexithymia, anxiety and depression. The question to what degree alexithymia in cancer patients is a trait or a state cannot be answered by these studies.

Conclusions. A lack of methodologically sound studies and the large variations of results among studies suggest that the role of alexithymia in patients with cancer deserves more systematic research. Consequently, studies are needed which investigate the nature (state or trait) of alexithymia, its impact on cancer development and progression, as well as its influence on compliance and on the underestimation of psychological distress and psychiatric outcome in cancer patients.

INTRODUCTION

Alexithymia, in Greek literally 'no words for feelings', is a term first introduced by Sifneos in 1973 to describe a marked difficulty in verbalizing feelings and a diminution of fantasy of psychosomatic patients [1]. Nowadays alexithymia refers to a multidimensional concept, characterized by cognitive-affective deficits consisting of (1) difficulties in identifying and describing emotions, (2) difficulties in distinguishing between emotions and physical sensations of emotional arousal, (3) reduced imaginative processes, illustrated by a lack of fantasy, and (4) an externally oriented cognitive style (operational thinking) [2].

Research suggests that alexithymia might play a role in the onset or development of several psychiatric and physical health problems such as substance abuse or pathological gambling [3,4,5], eating [6,7] and somatoform disorders [8,9], chronic pain [10], low back pain [11] or kidney failure [12], posttraumatic stress disorders [13,14] and stress-related disorders in general [15], asthma [16], myocardial infarction [17], inflammatory bowel disease [18], and also cancer [19]. Furthermore alexithymia is suspected to have an impact on treatment compliance and treatment outcome [20].

For several decades there has been a debate on whether alexithymia is to be considered as a trait or a state. According to Freyberger [21], both types of alexithymia can co-exist: primary alexithymia, considered to be a personality trait and vulnerability factor, and secondary alexithymia, induced by a traumatic event such as a life-threatening disease or exposure to violence. The hypothesis of the two different types of alexithymia, state and trait, has been supported by the different prevalence of alexithymia in medical, psychiatric and healthy populations, but have not been investigated in cancer patients. In the oncology setting some researchers argue that alexithymia might be linked to the onset of cancer, based on the hypothesis of a relationship between personality and cancer and the dysregulating effect of alexithymia on the immune system [22,23,24]; others suggest that alexithymia might be a reaction to a life-threatening disease. It is important to further investigate alexithymia in cancer patients, for example because of its potential influence on cancer development and progression, on compliance and on underestimation of psychological suffering and psychiatric outcome. The aim of this first review is to summarize the existing literature on this subject and to discuss the clinical and scientific implications of study results.

METHODS

Selection of Studies

Studies investigating alexithymia in adult cancer patients from 1972 until January 2010 were eligible for review. Case reports, studies including only benign tumors and articles not published in English were excluded.

Study Subjects

Study subjects were cancer patients (aged 18 and over), adult patients with a history of childhood cancer and cancer patients with co-morbid medical illnesses or psychiatric disorders, or healthy controls.

Search Methods

MEDLINE, PSYINFO, EMBASE and the Cochrane Library were searched for eligible articles, based on: (1) key word alexithymia, extend all; (2) key word MeSH: affective symptoms, extend all; (3) #1 or #2; (4) key word cancer, extend all; (5) key word MeSH: neoplasms, extend all; (6) #4 or #5; (7) #3 and #6. Filters were used selecting 'only humans' and restricting the search to '1972–current'.

Data Collection and Analysis

All abstracts were read by two of the authors (V. Forni and A.M.M. de Vries) who decided independently from each other whether the articles could be included in the review. If it was not possible to include or exclude a study based on the abstract, the full text was evaluated before making a decision. In case of doubt a consensus with the last author (F. Stiefel) was planned; however, it was not necessary to organize such a consensus.

The articles included were evaluated by the first author (A.M.M. de Vries) and classified as follows: (A) population, patient number, characteristics, diagnoses; (B) study design, main research questions, main hypothesis; (C) instruments used to measure alexithymia; (D) statistical analysis performed; (E) outcome and main conclusions.

RESULTS

Included Studies

A total of 375 non-duplicated references were identified. First, studies in which alexithymia was not measured were excluded (316), and then articles on patients without cancer (7), with benign tumors (1), children with cancer (4), case reports

(2) and book chapters (4). Of the remaining 41 articles, 25 were excluded since they were not written in English, leading to a final selection of 16 studies. Study characteristics and results can be found in table 1.

Table 1. Characteristics and results from included studies (in alphabetical order of the first author)

First Author, year	Aims of the study	Sample	Design and alexithymia measurment	Focus with regard to alexithymia	Results with regard to alexithymia
Anagnosto poulos et al. 1993	To test an association between the diagnosis of breast cancer and (i) the personality pattern of persistent suppression of emotion and (ii) the inability to express affect and a lack of fantasy.	487 women attending 2 public breast-screening centers for a checkup for suppected breast symptoms.	Quasi-prospective design. A subset of 100 women was assessed with the TAS-26, Greek version.	Alexithymia as secondary focus.	No statistically significant correlation between alexithymia and occurrence of breast cancer.

Carta et al. 2000	To obtain additional information concerning the association between alexithymia and cancer.	239 asymptomatic women, who consulted for a routine pap test. At the time of the study, women were unaware of the results.	(semi-) prospective design. TAS-26, Italian version.	Alexithymia as a primary focus.	Patients with a positive pap smear showed higher mean scores of the TAS compared to healthy controls. Women with a negative pap test showed no statistically significant differences compared to healthy controls.
Dalton et al. 1989	To identify the differential role of fear, anxiety, alexithymia, family factors and coping in cancer patients with pain.	27 ambulatory cancer patients with pain (breast, lung, colon, prostate, ovarian and other), 26 patients with chronic non-cancer pain, 27 patients with chronic illness but no pain (hypertension), and 45 healthy controls.	Controlled design. Schalling-Sifneos Personaltiy Scale (SSPS), 20-item self-report scale, English version.	Alexithymia as secondary focus.	Chronic non-cancer pain patients scored significantly lower on alexithymia than cancer patients, patients with chronic illness without pain and healthy controls. No differences on alexithymia scores between cancer patients and healthy controls.

Grassi et al. 2004	To examine the application of the Diagnostic Criteria for Psychosomatic Research (DCPR), and the association between the DCPR and coping, and illness-related worries.	105 woman with breast cancer.	Correlational study. Diagnostic Criteria for Psychosomatic Research (DCPR), Italian version.	Alexithymia as secondary focus.	Patients meeting the DCPR cluster of alexithymia had higher socres on the Mini-MAC subscale avoidance.
Grassi et al. 2005	To compare the DSM-IV and the DCPR in cancer patients.	146 patients with different types of cancer (84% female).	Explorative study. Diagnostic Criteria for Psychosomatic Research (DCPR), Italian version.	Alexithymia as secondary focus.	Patients reporting alexithymia were older. The three most frequent DCPR syndromes were related to health anxiety, demoralization and alexithymia.

Greenberg et al. 1983	To evaluate if alexithymia predicts development of a somatic disorder.	181 disease free males at baseline, who over a 10 year period developed: (i) physical illnesses (N=83), such as lung cancer, prostate cancer, multiple carcinomas, benign tumors; (ii) psychosomatic illnesses (N=42), such as hypertension or gastrointestinal ulcers; (iii) psychiatric disorders (N=25), such as; or (iv) remained disease free (N=37).	Prospective design. MMPI alexithymia scale, English version.	Alexithymia as primary focus.	No differences of alexithymia among groups.

Luminet et al. 2007	To assess the stability for alexithymia factor scores.	122 patients with a first diagnosis of breast cancer.	Pre-post design. TAS-20, French version.	Alexithymia as primary focus.	Alexithymia relatively stable, even in a context of threat. Significant correlations between depression and alexithymia and anxiety and alexithymia. Subscales of alexithymia showed different patterns of change and different correlations to depression and anxiety.
Manna et al. 2007	To explore the possible presence of alexithymic traits in women with breast cancer.	86 women, of whom 44 with breast cancer and 42 without, referred to a breast check-up.	Controlled explorative study. TAS-20, Italian version.	Alexithymia as primary focus.	A higher percentage of alexithymic subjects in the cancer group.
Mantani et al. 2007	To investigate alexithymia, family functioning, and other factors that might affect anxiety and depression levels in women with breast cancer and in their husbands.	Woman who had surgery for breast cancer at least 3 months before interview and their husbands.	Cross-sectional design. TAS-20, Japanese version.	Alexithymia as primary focus.	High degrees of alexithymia among patients and husbands correlated with high degrees of anxiety, but not with depression.

Porcelli et al. 2007	To investigate the role of alexithymia in the experience of pain in cancer patients and the association of alexithymia with other illness-related behaviors, such as maladaptive coping and abnormal illness behavior.	108 patients (56.5% female) with different types of cancer.	Controlled study. TAS-20, Italian version.	Alexithymia as primary focus.	Pain not associated with global alexithymia, but DIF was significantly higher in pain patients and constituted one of the independent predictors of pain.
Ripetti et al. 2008	To identify the prevalence of alexithymia and to examine its relationship with future QoL in colorectal cancer patients undergoing surgery.	60 colorectal cancer patients (58% male) and 60 cholelithiasis patients.	Controlled prospective design. TAS-20, Italian version.	Alexithymia as primary focus.	Alexithymia significantly correlated with QoL. QoL significantly higher in LA than in HA subsets of both patient groups before surgery. Afther surgery, QoL significantly higher in HA than in LA patient groups.

Servaes et al. 1999	To observe if breast cancer patients express negative emotions less intensely (higher alexithymia) than healthy controls.	48 formerly breast cancer patients and 49 controls.	Controlled retrospective design. TAS-20, Dutch version.	Alexithymia as primary focus.	No significant differences between groups with regard to alexithymia. No development of secondary alexithymia in patients with cancer.
Todarello et al. 1989	To measure alexithymia in patients with breast cancer and its correlation with other psychopathological symptoms.	Women (N = 200) who had mammographic examination either for suspected carcinoma of the breast or for a routine checkup.	Semi-prospective design. Schalling-Sifneos Personaltiy Scale (SSPS), 20-item self-report scale, Italian version.	Alexithymia as primary focus.	Women with carcinoma of the breast (13) had significantly more alexithymic traits than women in the control group (187). No correlation between alexithymia and other psychopathological symptoms.

Todarello et al. 1994	To search for a possible relationship between alexithymia, cancer and the immune system.	26 women affected by cervical intraepithelial neoplasia and 36 healthy women, not aware of status.	Controlled prospective design. Schalling-Sifneos Personality Scale Revised (SSPS-R), 20 item self-report scale, Italian version.	Alexithymia as primary focus.	An association between alexithymia and changes in immune system and between alexithymia and diagnosis of neoplasms.
Todarello et al. 1997	To assess alexithymia in women prior to the diagnosis of a precancerous lesions of the cervix.	43 women with cervical dysplasia and 67 controls, not aware of status.	Controlled design, prospective. TAS-20, Italian version.	Alexithymia as primary focus.	More alexithymia in women with cancer than in control group. Lower immune system in women with higher alexithymia.
Van Dijk et al. 2002	To study the prevalence of alexithymia in childhood cancer survivors and to explore the medical determinants predicting alexithymia.	72 patients (57% male) recruited during a follow up visit.	Retrospective study (controlled with general population). Bermond-Vorst Alexithymia Questionnaire (BVAQ), self-report scale, Dutch version.	Alexithy-mia as primary focus.	Stress due to childhood cancer does not affect alexithymia scores in females. Male cancer survivors score less alexithymic than age matched controls. None of the medical determinants associated with alexithymia scores.

Study Designs and Concepts of Alexithymia

Twelve studies investigated alexithymia as a primary and four studies as a secondary objective. Different study designs were used, controlled and uncontrolled, prospective and retrospective, cross-sectional and longitudinal. All studies used a concept of alexithymia based on the first definition by Sifneos in 1973 [1]. Only three studies [25,26,27] assessed all dimensions of alexithymia with their instruments; the different dimensions measured and instruments are listed in table 2.

Table 2. Dimensions of alexithymia and their measurement with frequently used instruments

Dimensions	DCPR[1]	BVAQ[2]	TAS[2]	SSPS[3]	SPSS-R[3]	MMPI-A[4]
Difficulties identifying and describing emotions	+	+	+	–	+	–
Difficulties distinguishing between emotions and physical sensations of emotional arousal	+	+	+	–	–	–
Reduced imaginative processes	+	+	–	–	+	–
Externally oriented cognitive style	+	+	+	–	+	–
Number of studies included in this review using the instrument	2	1	9	2	1	1

DCPR = Diagnostic Criteria for Psychosomatic Research; BVAQ = Bermond-Vorst Alexithymia Questionnaire; TAS = Toronto Alexithymia Scale; SSPS = Schalling-Sifneos Personality Scale; SPSS-R = Schalling-Sifneos Personality Scale – Revised; MMPI-A = Minnesota Multiphasic Personality Inventory – Alexithymia scale. [1] [28]. [2] [29]. [3] [30]. [4] [31].

Alexithymia and Outcomes

Sociodemographics and Medical Characteristics of Patients

Five studies focused on cancer patient characteristics and prevalence of alexithymia [26,27,32,33,34]. Of these studies, three found no differences in alexithymia scores between men and women [32,33,34] and one study reported a higher prevalence in men having survived childhood cancer [27]. One study identified a higher prevalence of alexithymia in older cancer patients [26], which was not confirmed by two other studies [33,34]. Education was not related to alexithymia in patients with cancer [33]. Cancer patients showed a higher mean score on the Toronto Alexithymia Scale than healthy controls, while patients with benign tumors did not differ from controls [32]; however, it has to be noted that the number of patients included were between 5 and 8 in this study. One study found that 26% of patients with different types of cancer qualify for alexithymia (no control group) [26]. Finally, in a study comparing colorectal cancer patients to

patients with cholelithiasis, the prevalence of high-level alexithymia was 34 and 35%, respectively [27].

Type and Stage of Cancer

All studies specified the type of cancer, but none compared alexithymia scores of different types of cancer. Eight studies provided information about staging, without including the stages in the analysis [23,24,25,26,33,35,36,37]; one specified that curative cases were included [34] and seven provided no information about the stages [19,22,27,32,38,39,40].

Treatment Variables

Information on treatment was mentioned in four studies [25,26,27,37]; only van Dijk et al. [27] reported that radiotherapy (yes or no), surgery (yes or no) and occurrence of cancer (second malignancy or relapse) were not associated with the total alexithymia scores. In four studies alexithymia was assessed before cancer diagnosis, but no information was provided about the existence of other diseases or treatments [19,23,24,36]. Two studies specified whether patients were in palliative or curative treatment [33,35], one that alexithymia was assessed before surgery [38], one that patients underwent surgery and that analyses were controlled for adjuvant therapy [34], and four provided no information about treatment [22,32,39,40].

Comparison with Controls

Four studies found no statistically significant difference in alexithymia mean scores between patients and controls for patients with breast cancer [35,36] and for patients with different types of cancer (breast, lung, colon, prostate, ovarian and other) [40]; in one study no differences in alexithymia mean scores were observed in men with medical diseases (such as cancer) and with psychosomatic or psychiatric disorders [22]. Differences between cancer patients and controls were observed for women with breast cancer, who showed significantly higher alexithymia scores [19,39], and for women with cervical dysplexia, who showed a higher prevalence of alexithymia (42.5%) than healthy women (12.8%) [24]. One study reported that male survivors of childhood cancer had a lower proneness to alexithymia than the healthy population, while females did not differ from healthy controls [27].

Pain

In one study global alexithymia scores were not related to pain, but the alexithymic factor 'difficulty identifying feelings' predicted experience of pain and was associated with the dimensions of intensity, interference and quality of pain [33]. Dalton and Feuerstein [40] found that chronic non-cancer pain patients had significantly higher alexithymia scores than cancer patients. None of the other studies assessed pain.

Quality of Life

Quality of Life (QoL) has been found to be influenced by the level of alexithymia in patients with colorectal cancer [34]: patients were divided into a high alexithymia (HA) and a low alexithymia (LA) group; before surgery, QoL was higher in LA patients than in HA patients, but after surgery the results inversed, with HA patients having higher QoL than LA patients. Despite an initial improvement in QoL in the HA group, both groups ended with lower QoL after surgery. The authors hypothesized that the 'reassuring effect' of surgery may be different for LA or HA patients and that QoL was influenced by the level of alexithymia. The study also included a control group of patients with cholelithiasis: in both LA and HA groups, patients improved significantly in QoL after surgery. The authors concluded that the 'reassuring effect' of surgery is different in colorectal cancer patients and cholelithiasis patients and that the influence of alexithymia levels seems not to depend on the severity of the disease.

Immune System

A statistically significant correlation has been found between alexithymia and certain lymphocyte clusters; the authors concluded that alexithymia seems to favor the development of cervical dysplasia through influence on the immune system [23,24].

Psychopathology

In 1989, Todarello et al. [19] found no correlation between alexithymic traits of cancer patients and psychopathology (anxiety, phobias, obsessive compulsions, psychosomatic disorders, depression or hysteria), but several subsequent studies show different results. In one study both depression and anxiety were significantly associated with HA mean scores in cancer patients, but alexithymia was only found to be positively correlated with anxiety, explaining 12.6% of its variance [37]. In another study depression and anxiety of breast cancer patients were positively correlated with total alexithymia scores at baseline and at 6-month follow-up [38].

Variance in follow-up alexithymia was explained by baseline alexithymia (22%) and changes in depression (12%) and anxiety (4%). A third study found that in cancer patients meeting the Diagnostic Criteria for Psychosomatic Research, alexithymia was correlated with higher avoidance and depression, lesser well-being, more physical symptoms, decreased leisure activity, difficulties of adjustment, lower interpersonal support and more cancer worries [25].

Conclusions on Alexithymia and Outcome

Regarding the results of studies on alexithymia and outcome, several hypotheses can be drawn. Studies on the impact of sociodemographics showed inconsistent results due to large variations in study design. Nonetheless one might conclude that in cancer patients alexithymia seems not to vary between men and women [33,34,36] and between patients with different levels of education [33]. In contrast, alexithymia might have a different development in boys or girls facing cancer [27]. Not enough is known about a potential relationship between type and stage of cancer, treatment variables and alexithymia. In studies comparing the prevalence of alexithymia in cancer patients and controls, inconsistent results are also reported, but pain, which is frequent in cancer patients, seems to be related to alexithymia [33,40]. Furthermore, alexithymia might influence QoL in patients with colorectal cancer [34]. One group demonstrated that alexithymia seems to favor the development of cervical dysplasia through influence on the immune system [23,24]. Finally, alexithymia is found to correlate with psychopathology, such as anxiety or depression [25,37,38]. No study addressed the consequences of alexithymia for patients with cancer with regard to treatment outcome.

ALEXITHYMIA: TRAIT OR STATE?

Primary Alexithymia

Nine studies did not address the question of primary alexithymia [25,26,27,33,34,35,37,39,40]. Two studies concluded that alexithymia could not be identified as a predisposing factor for the development of cancer either in women with breast cancer [36] or in men developing different kinds of cancer over a period of 10 years [22]. Five studies, conducted by three different research teams, found that alexithymia is a trait that could be part of a cancer-prone personality [19,23,24,32,38]. One group [19,23,24] measured alexithymia in apparently healthy women without physical symptoms prior to routine gynecological cancer screening. By comparing those who were affected by cervical dysplasia with those found to be healthy, the authors concluded that alexithymia is a personality trait

and that it plays a role in the development of cervical dysplasia. Carta et al. [32] replicated these results using a very small sample size (n = 8, n = 5). The third research team [38] investigated the absolute and relative stability of alexithymia from the day before surgery for a first cancer to a follow-up at 6 months; they found no absolute but a relative stability of alexithymia, supporting the view that alexithymia is a personality trait rather than state-dependent.

The distinction between primary and secondary alexithymia, its possible co-existence and its absolute and relative stability is especially important for the oncology population, for which a cancer-prone personality has been hypothesized. While a 'trait' is a stable characteristic of personality that cannot be specific to a somatic disease, the cancer-prone personality characteristics are by definition specific. Therefore the cancer-prone personality traits would have to be distinct from alexithymia, at least with regard to some dimensions (e.g. difficulties identifying or expressing certain feelings, such as anger, but not others, as has been hypothesized) [23,41].

Secondary Alexithymia

Ten studies did not address the question of secondary alexithymia [19,22,23,24,25,26,33,36,37,39]. Six studies concluded that alexithymia could not be considered as secondary based on their data [27,32,34,35,38,40]. Of these studies, three [34,35,40] found no difference in alexithymia scores between cancer patients and healthy controls. One study [27] found a gender effect for the influence of childhood cancer on alexithymia scores in adults; whereas female survivors showed no differences, male survivors were less alexithymic than the healthy population. The fifth study [38] considered that alexithymia could not be state-dependent because of its relative stability. Finally, one study concluded that alexithymia was not secondary, since its onset was observed prior to the development of cancer [32].

Conclusions on Primary and Secondary Alexithymia

In conclusion, although some studies did not identify alexithymia as a predisposing factor for the development of cancer, several others did; especially the distinction between absolute and relative stability has provided information suggesting that alexithymia might be a personality trait in patients with cancer. On the contrary, none of the studies supported the existence of secondary alexithymia in cancer patients. Limitations in study design, however, do not allow firm conclusions to be drawn on the prevalence of primary and secondary alexithymia (or the co-existence of both) in the cancer population.

DISCUSSION

The small number of studies included in this review, some of them conducted by the same group of researchers, demonstrates a feeble interest for the investigation of alexithymia in cancer patients. This may be due to the large evidence for biological origins of this disease; for other disorders, such as psychosomatic or psychiatric disorders, the origin is less clear and interest in psychological risk factors, such as alexithymia, is stronger. However, as with any other disease, biological factors do not exclude an influence of psychological factors contributing to onset or development of the disease – or to outcome, including psychosocial adjustment – as illustrated by studies on alexithymia in the development of cervical cancer, which is known to be related to stress [23,24] and how stress is perceived and coped with [25].

Studies on alexithymia in cancer are methodologically problematic, since important information which might have an effect on the prevalence of alexithymia is often lacking – such as identification of stages of cancer, type of treatment and existence of alexithymia before the development of cancer – and designs often do not include a control group or show weaknesses concerning the measurement of alexithymia. This last point is illustrated by the fact that alexithymia, as trait or state, is not perceived by the patient but measurement is mainly based on self-reported questionnaires. Interestingly, a recent controlled study with heart-transplanted patients showed that the concept of emotional inhibition, a conscious emotion- focused coping strategy, partly overlaps with a self-report measurement of alexithymia but not with an observer-rated measurement of alexithymia [42]. The results suggest that emotional inhibition and alexithymia are distinct phenomena even though they share certain features. Alexithymia is a difficult concept to measure because of dimensions such as 'impoverished fantasy life' – which has been found to be linked to social desirability which can influence answers [29] – and because of the difficulties associated with the measurement of personality constructs. A multidimensional measurement might therefore be necessary to assess the entire construct. As new methodologies and experimental approaches to measure alexithymia are used in other fields [43], this should also be done in oncology.

Most studies focus on the prevalence of alexithymia in cancer patients compared to healthy controls and produce contradictory results. While alexithymia has been frequently investigated in patients with chronic pain [10,40], especially in patients with pain as a somatoform disorder [11], only one study [33] addressed the issue of pain and alexithymia in patients with cancer, reporting that

the difficulty of alexithymic subjects to identify emotions predicted pain and some aspects of pain perception. More recently, the same authors published a study adding evidence to the importance of the role of alexithymia in predicting the variance of pain intensity, pain interference and pain quality in patients with cancer [44]. Independently of intervention group (6 months psychological intervention or control group) or time, alexithymia was found to be related to a more severe pain experience. Pain should therefore be systematically included in studies on alexithymia.

With regard to other outcomes, only one study [34] addressed the possible influence of alexithymia on QoL, indicating a different outcome for QoL of cancer patients undergoing surgery depending on baseline scores of alexithymia; this study concluded that surgery had a more reassuring effect in patients with higher alexithymia at baseline, explaining their higher QoL after surgery. Two studies [23,24] investigating the possible role of alexithymia on the immune system found that alexithymia may be a mediating factor with regard to stress, coping with stress and development of some types of cancer. In addition, several studies indicate the potential impact of alexithymia on psychopathology, adjustment to disease and other important outcomes for patients with cancer, such as leisure activities, interpersonal support or cancer worries [25,37,38]. Again, treatment outcome, compliance and psychosocial outcome should be systematically assessed in studies on alexithymia in cancer patients, since its role on different outcomes might have important clinical implications.

Because of the potential role of alexithymia in cancer development, one of the most important questions concerning alexithymia in the cancer population is whether it is a state or a trait; a majority of the studies were not designed to answer this question or could not answer it because of methodological weaknesses. This is a difficulty not limited to research concerning alexithymia and cancer, but is also found with other personality constructs in medical and psychiatric disorders. While some studies [19,23,24,32,38] concluded that alexithymia in cancer patients might be a personality trait, others [22,36] found that primary alexithymia was not a predisposing factor for the development of cancer. Since there may exist an absolute and relative stability of the construct, as has been demonstrated in research on alexithymia in patients with depression [45,46], this distinction should be addressed in future studies on alexithymia in oncology.

With regard to secondary alexithymia – considered as a state and a reaction to a traumatic event, such as cancer – six studies [27,32,34,35,38,40] concluded that alexithymia was not secondary, but their design does not allow

confirmation of this statement. For example, one study [32] showed that secondary alexithymia was not present since alexithymia existed prior to the development of cancer; however, the existence of primary and secondary alexithymia is not mutually exclusive. Despite the fact that alexithymia, especially secondary alexithymia, is of clinical importance for the psychiatric and psychotherapeutic approach to cancer patients, the literature on this subject is still very scarce. As noted in a recently published tribute to the work of the co-founder of the concept of alexithymia, John C. Nemiah, the importance of life events in the development of psychological processes intimately related to the formation of psychological or bodily symptoms is widely recognized, but investigating this process has proven to be challenging [47]. A recent study with cancer patients has shown that a multicomponent psychological intervention was able to reduce alexithymia [44], and other studies are currently under way to further evaluate whether psychotherapeutic approaches can influence alexithymia in cancer patients [48].

Since the role and the biological and psychosocial consequences of alexithymia might vary across the medical and psychiatric populations, there is a need for research specifically investigating alexithymia in cancer; in this respect, research on specific somatic diseases, such as dermatology, or on single psychological aspects, such as work-related stress, has provided valuable insight into the role of alexithymia [49,50].

In conclusion a clear need exists for prospective and controlled studies – based on psychometric instruments which reflect the clinical concept – addressing questions which surpass the sole issue of prevalence of alexithymia in cancer patients. Some evidence on alexithymia and its role in or impact on cancer development and other dimensions that are intrinsically linked to cancer, such as psychosocial variables, has been produced during the past decades and calls for further investigation.

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CHAPTER **4**

Patient satisfaction and alliance as a function of the physician's self-regulation, the physician's stress and the content of consulation in cancer care

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ABSTRACT

Objective. To investigate which characteristics of the physician and of the consultation are related to patient satisfaction with communication and working alliance.

Methods. Real-life consultations (n=134) between patients (n=134) and their physicians (n=24) were audio taped. All of the patients were aware of their cancer diagnosis and consulted their physician to discuss the results of tests (CT scans, MRIs or tumour markers) and the progression of their cancer. The consultations were transcribed and coded with the "Defence Mechanisms Rating Scale – Clinician". The patients and physicians completed questionnaires about stress, satisfaction and alliance, and the data were analysed using Robust Linear Modelling.

Results. Patient satisfaction with communication and working alliance was high. Both were significantly (negatively) related to the physician's neurotic and action defences - in particular to the defences of displacement, self-devaluation, acting-out and hypochondriasis - as well as to the physician's stress level. The content of the consultation was not significantly related to the patient outcomes.

Conclusions. Our study shows that patient satisfaction with communication and working alliance is not influenced by the content of the consultation but is significantly associated with the physician's self-regulation (defence mechanisms) and stress. The results of this study might contribute to optimizing Communication Skills Training and to improving communication and working alliance in cancer care.

INTRODUCTION

BACKGROUND

In cancer care, communication between physicians and patients is a complex process [1]. Effective communication is believed to, among other functions, foster the patient-physician relationship, promote patient satisfaction and enhance health or health-related quality of life [1]. However, the process of patient-physician communication and working alliance and their pathways to desirable outcomes is still not fully understood. In this study, we investigated which characteristics of physicians and the consultation are related to patient (dis)satisfaction and working alliance. We focused on perceived stress and ways of regulating stress or emotions of the physicians, as well as on the content (bad, neutral or good news) of the consultation. Below, we provide background information on the different variables of this study.

PATIENT SATISFACTION WITH COMMUNICATION

Patient satisfaction reflects the extent to which the needs, expectations or preferences of a patient are met. Higher patient satisfaction is associated with a lower level of patient distress and a higher level of self-efficacy [2-4]. However, the factors that contribute to patient satisfaction with in particular communication in healthcare remain unclear. For example, systematic reviews show that theory-based training in communication skills has little to no effect on patient satisfaction [5, 6] even though they have an effect on certain communication skills. In addition, although more and more communication factors have been found to correlate with patient satisfaction, such as the physician's expressions of uncertainty [7], and the physician's response to emotional cues [9], some studies have emphasized that there is still a need to better understand which qualities and characteristics of the physician induce patient satisfaction with communication [10, 11].

WORKING ALLIANCE

Working alliance refers to a collaborative relationship, characterized by an involvement in the treatment process based on patient-physician agreement on tasks and goals, and a positive personal bond that includes confidence, trust and mutual approval [13]. A sound conceptual and empirical body of work exists to assert the importance of alliance in all relationships of care, and alliance has been identified as one of the five dimensions of patient-centred medical care [14]. In studies on the role of the patient-physician alliance in the treatment and outcomes of chronic and serious medical illnesses, the results have shown

moderate to strong relationships between the alliance and the patient's perceived utility or value of treatment, self-efficacy, treatment adherence, satisfaction with community care [15, 16] and other health outcomes such as blood pressure and pain scores [17]. Thus working alliance was included in this study as a patient outcome measure to further strengthen the clinical implications of the investigation.

SELF-REGULATION: DEFENCE MECHANISMS OF PHYSICIANS

Defined as part of a person's emotional self-regulation [18], defences are triggered by anxiety-provoking situations and are supposed to help the person adapt to and/or protect himself from stress. Moreover, defences have been proposed as a way to conceptualize the emotional distance or connection the physician establishes with his patient [19]. Different types of defence mechanisms have been identified [20] and classified depending on their degree of adaptation to or distorting of reality. These range from "immature or low defences" (i.e., distorting reality and/or emotions) to "mature or high defence" (i.e., staying closer to reality and to emotions). A single Overall Defensive Functioning score (ODF) can be calculated with a score of 7 indicating a completely mature defensive functioning and a score of 1 a completely immature defensive functioning.

Using "low" defence mechanisms might protect physicians from professional distress and burnout but might hamper their awareness of the patient's distress and thus create patient dissatisfaction.

In previous studies, we found a high prevalence of a variety of defence mechanisms used by physicians when communicating with simulated patients and determined that these defences may be modified through Communication Skills Training [21-23]. To our knowledge, no study has investigated the possible association between the physician's defence mechanisms during communication with cancer patients and patient satisfaction with communication and working alliance.

PHYSICIAN'S STRESS

Divergent results are reported on the association between the physician's stress and physician-patient communication in cancer care [24]. However, literature focusing solely on psychological stress (perceived stress as opposed to physiological stress responses) shows that stress might impair physician-patient communication [25, 26], for example, by hampering the physician's empathy during communication [27, 28] and his or her clinical reasoning [29]. Higher

physician stress has also been associated with lower patient ratings on the quality of the physician's communication [30], and physicians themselves report a greater likelihood of suboptimal patient care when stressed [31].

THE CONTENT OF THE COMMUNICATION: BAD, NEUTRAL OR GOOD NEWS

Patients react differently to bad news versus good news. For example, receiving bad news raises physiological arousal in patients [32] and deteriorates recall [33]. Patients perceive their physicians as less compassionate and less trustworthy when bad news is given, even if the physician uses an equally empathetic communication style as they would in a "good news" situation [34]. These findings suggest that physicians might have to make more efforts to adapt to their patients in "bad news" situations. However, in "bad news" situations, physicians often encounter physiological and emotional reactions in themselves, which make it difficult to stay patient-focused [35].

RESEARCH OBJECTIVES

We intended to address the following research questions: Which characteristics of the physician and of the consultation are related to patient satisfaction with communication and working alliance?

We expected that a higher level of patient satisfaction with communication and working alliance would be significantly associated with:

1) the physician's defence mechanisms (less defence mechanisms used, and those that are used would be of a higher level)
2) the physician's stress (negative association)
3) the content of the consultation (bad news negatively associated).

METHODS

DESIGN

This study was a naturalistic multi-centred observational study.

SAMPLE

All physicians (N=49) working in an ambulatory oncology department of three hospitals in Switzerland and receiving patients for medical consultations were invited to participate in this study. The reasons that physicians did not participate included time-pressure, imminent departure to other services and a lack of patients in a palliative phase. The participating physicians (N=24; response rate

49%) informed the research assistant (MdV) of patients eligible for inclusion. The patients were sent information about the study by letter to their home and were approached by the research assistant before their next meeting with a participating physician.

A total of 134 patients (response rate 53%) were included. The reasons for why patients did not participate included tiredness, having other appointments, not having time to fill in the questionnaires, not being interested and feeling ill. Some data were lost due to technical problems, to the patient suddenly being hospitalized or having severely deteriorating health, to the patient being already informed about the results, or to a last-minute change to a physician who was not participating in our study. The patients were all aware of their diagnosis of advanced cancer and were undergoing active anticancer treatment or palliative treatment. The objective of the consultations was to discuss the results of tests, such as computed tomography (CT) scans, histopathological examinations, magnetic resonance imaging (MRIs) or tumour marker levels, showing the progression of their disease.

PROCEDURE

The study received permission to be conducted by the medical ethics committee of the participating hospitals. The physicians provided informed consent and filled in the questionnaires prior to and after each consultation. The patients provided informed consent before the consultation and filled in the questionnaires afterwards. The consultations were audio-recorded and transcribed.

MEASUREMENTS

Outcome variables

Patient satisfaction with communication and working alliance. The patients rated their satisfaction with communication on a five-point scale (*1*=poor, *5*=excellent) using the Satisfaction Questionnaire [4]. This questionnaire (SQ3) comprises patient satisfaction with three communication-related aspects (diagnosis, procedure and treatment goals). We transformed the scores to facilitate the interpretation and comparison of the results, with a higher score indicating higher patient satisfaction. As the original scale did not have a 0-point, we could not transform the scores to a 0-10 scale and thus it became a 2-10 scale.

Visual Analogue Scales (VAS7) were used to assess satisfaction with the following aspects of communication: language used by physician, response of physician to patients' emotions, information given by the physician, support given

by the physician, feeling free to ask questions, feeling free to express concerns and worries, and feeling free to express feelings. We transformed the scores into a 0-10 scale, with a higher score indicating higher satisfaction.

The patients rated their working alliance with the physician using the Working Alliance Inventory (WAI-SR) [36], a widely used and validated instrument to measure therapeutic alliance [37]. The WAI-SR measures three dimensions: the affective bond between the physician and patient, task congruence and goal congruence. The patients rate the 12 questions on a seven-point scale (1=never, 7=always), with a higher score indicating a higher alliance. In this study the total alliance score (scale 1-7) was used.

Determinants

Defence mechanisms. The Defence Mechanism Rating Scale for physicians (DMRS-C) [38] is an observer-rated instrument developed to assess a physician's defence mechanisms. Based on the transcriptions of the consultations, 30 defences were coded, and an Overall Defensive Functioning (ODF) score, varying from one (lowest or most immature defensive functioning) to seven (highest or most mature defensive functioning), was calculated. To code a defence, coders need to observe an emotion or an unexpected lack of emotion and then verify whether the reaction to this has a defensive function. Detailed information on the process of coding defences, the development of the DMRS-C and its psychometric qualities have been reported elsewhere [38]. The first author of this manuscript coded all of the consultations using the "thin-slice" method, which has been found to be reliable and valid [39-41]. To do this, the first 10 pages of each transcript was coded. This number of pages was chosen because the ODF-score did not change anymore when coding more pages, and all physicians were found to give the results of the tests within the first 10 pages of transcripts. Consensus ratings and reliability assessments were conducted using a random sample of 20% of the consultations with an experienced DMRS-C coder. The interrater reliability using the two-way mixed effects model of consistency and single-measure statistics was considered to be good with an intraclass correlation coefficient (ICC) of 0.70.

Physician's stress. Physicians reported their level of stress directly after the consultation on a Visual Analogue Scale (0=no stress to 10=very much stressed). The construct validity and sensitivity of the VAS to measure stress have been found to be satisfactory [42].

Consultation content. The transcripts were coded by the first author of this manuscript to determine the nature (good, neutral or bad news) of the consultation. Good news was coded when the cancer had regressed or blood

markers showed no sign of progression, whereas bad news was coded when the cancer had progressed or blood markers showed signs of progression. The news was coded as neutral when results were inconclusive and further tests were needed.

DATA ANALYSIS

We used descriptive statistics and linear models to analyse the data. The linear models were fit using Huber's M-estimator, which is a robust method. Descriptive analyses were performed using SPSS Statistics 21 software, and the models were fit using the R language and environment for statistical computing [43].

While attempting to fit the linear model and examining the normality of the model residuals, we observed a non-normal behaviour of residuals, and the use of log-transformation or power transformations (Box-Cox) could not improve the result. Therefore, we chose to fit linear models using a robust procedure, which was not influenced by non-normal residuals. The advantage of this procedure is that no transformation of the variables and no excluding of outliers are necessary. In addition, the results are robust and reliable. The variables were first analysed for potential inclusion in our model based on a statistically significant association ($p \leq 0.05$) with the outcome variable (i.e., patient satisfaction and alliance). Neither the age nor gender of the patients was related to the patient outcomes in our study; similarly, the age, gender and experience (years in oncology and completion of Communication Skills Training (CST)) of the clinicians was not related to patient outcomes. Therefore, in further analysis, we concentrated on our determinants only.

RESULTS

SAMPLE

A total of 134 patients participated in this study. The patients (50% women) had a mean age of 59.7 years (range 27-86). The demographics and cancer diagnoses are shown in Table 1. A total of 24 physicians (54.2% women) participated in the study. The physicians had a mean age of 39.0 years (range 28-61) and encountered a mean of 5.6 patients (range= 1-10)(for further demographics see Table 1). The physician's gender, age and experience in oncology did not differ significantly between the hospitals.

Table 1. The characteristics of the patients and clinicians.

	Patients N=134		Clinicians N=24	
	Number/ Mean	**Percentage/ S.D. (range)**	**Number/ Mean**	**Percentage/ S.D. (range)**
Women	66	50%	13	54.2%
Age	59.7	13.0(27-86)	39.0	8.8 (28-61)
Experience*			6.6	8.1 (0-29)
Followed CST**			6	25%
Cancer diagnosis				
Intestinal	30	22.4%		
Breast	19	14.2%		
Lung	14	10.4%		
Prostate	3	2.2%		
Other	61	45.5%		
Missing	7	5.2%		

*in oncology, in years **CST = Communication Skills Training.

DESCRIPTIVE STATISTICS

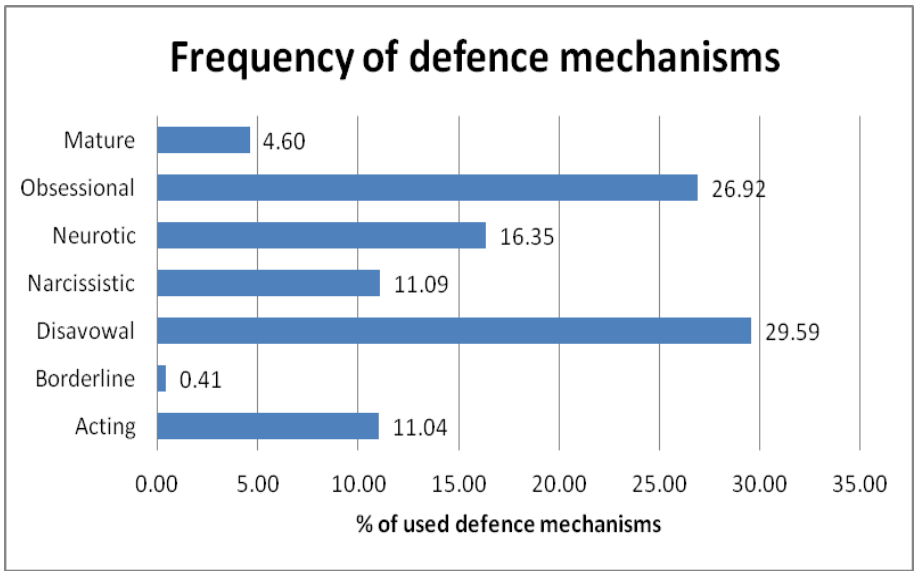
Patient satisfaction with communication was high, with a mean score on the SQ3 and VAS7 of 8.87 (range 4-10) and 8.59 (range 1-10). Patients' perceived working alliance was also high with mean scores of 6.3 (total alliance: range 2.3-7), 6.6 (goal subscale: range 2.3-7), 5.9 (task subscale: range 2.0-7) and 6.4 (bond subscale: range 2.8-7).

Physicians showed a mean of 15.8 (SD=6.74, range 4-35) defence mechanisms per consultation. The mean Overall Defensive Functioning (ODF) was 4.23 (SD=0.56, range 2.85-5.73). The most prevalent defensive levels were disavowal (29.6%), obsessional (26.9%) and neurotic (16.4%), and the most coded

defences were rationalization (25.4%), intellectualisation (23.9%) and displacement (15.3%) (see Figure 1). The number of defences used and the ODF were negatively related (B=-0.024, p=0.00), with the ODF decreasing by 0.24 when the number of defences increased by 10.

Physicians reported a mean stress level of 3.1 (SD=2.0, range 0-8.4). Of the consultations, 40.8% were coded as bad news, 36.2% as neutral, and 23.1% as good news.

Figure 1. The frequency of Perry's 7 defence levels.



PATIENT OUTCOMES AND PHYSICIAN'S USE OF DEFENCE MECHANISMS

Both the ODF and the number of defences used were not significantly related to patient satisfaction or alliance. When using the 7 categories of the DMRS-scale, we found that neurotic and action defences were significantly related to patient outcome. The individual defences of displacement, self-devaluation, acting-out and hypochondriasis were all significantly negatively related to patient satisfaction and/or alliance (see Table 2).

Table 2. The results of Robust Linear Modelling for the relationship between the number of defence mechanisms and the patient's satisfaction and alliance.

β *p*	**Neurotic Level**	**Action Level**	**Displacement**	**Self-devaluation**	**Acting out**	**Hypochondriasis**
SQ3 [2-10]	-0.11 *.053*	-0.16 *.000*	-0.11 *.051*	-1.23 *.000*	-0.39 *.002*	-0.50 *.000*
VAS7 [0-10]	ns	-0.04 *.043*	ns	-0.64 *.011*	ns	-0.30 *.000*
Total Alliance [1-7]	-0.07 *.021*	-0.06 *.033*	-0.07 *.021*	-0.50 *.021*	ns	-0.26 *.000*

ns = non-significant; SQ3 = 3-item satisfaction questionnaire; VAS7 = 7-item Satisfaction Visual Analogue Scale

PATIENT OUTCOMES, PHYSICIAN'S STRESS AND THE CONTENT OF THE CONSULTATION

The physician's stress was negatively related to patient satisfaction (SQ3: B=-0.11, p=0.02) and to patient alliance (Total Alliance: B=-0.07, p=0.02). The content (bad vs. good news) was not significantly related to patient satisfaction (p=0.06) or to patient alliance.

CONCLUSIONS

In this study, we found that the scores for patient satisfaction with communication and working alliance were high. Four defences (i.e., displacement, self-devaluation, acting-out and hypochondriasis) and the physician's stress had a negative relationship with patient satisfaction and patient-perceived alliance. The content of the consultation had no relationship with patient outcome.

PATIENT OUTCOME AND PHYSICIAN'S DEFENCES

The results of this study suggest that some defence mechanisms, although they might momentarily protect the physician, can hamper the patient-physician relationship and the patient's satisfaction with the consultation. Defence mechanisms such as displacement (changing from one emotional topic to a less

emotional or concrete topic or referring the patient to a colleague), self-devaluation (stating something negative about oneself or about one's abilities) and hypochondriasis (complaining about the patient's behaviour or attitude to the patient himself) negatively correlated with patient satisfaction and alliance. These mechanisms might alienate the physician from the patient, thereby preventing support and relationship building. The presence of these defences should alert physicians and their supervisors of a probable loss of satisfaction and alliance with the patient. These findings also emphasize that in CST, attention should not only be focused on the technical aspects of communication but also on the clinician's stress and defences he deploys.

We did not find a relationship between patient outcome and the levels of high, intermediate and low defence. This was surprising because these levels have been shown to be related to the acquisition of communication skills [23] and could be expected to be related to patient satisfaction with communication. Patient experience and its link with the physician's defence mechanisms might be confounded by other variables, and the processes involved require a more comprehensive and in-depth investigation. For example, recent results of working alliance processes have suggested that, instead of looking at one overall alliance score, it might be more informative to look at the evolution of alliance [44-46]. The movements of rupture (a quick decline in alliance) and repair (professional solving the negative feelings or problems) in the process of alliance were found to explain the relationship with therapist interventions [45], and only the "unrepaired-ruptures group" predicted worse treatment outcomes [46]. This result demonstrates that the relationship between alliance and other variables might be different according to the phase of the treatment, the duration of the treatment and the slope of the alliance development during therapy [44, 47]. We hypothesize that the same might be true for the relationship between defence mechanisms and other variables.

PATIENTS' OUTCOME AND PHYSICIAN'S STRESS

Our results confirm earlier reported studies on physicians' stress and patient outcome and show that the patients rated consultations more negatively on satisfaction and alliance when the physicians felt the consultations were more stressful. These results illustrate the notion that perceived physician stress should be taken very seriously, as it indicates or even precipitates patient dissatisfaction with the consultation and a suboptimal alliance between patient and physician. There should be more attention on what factors might stress physicians, such as

mismatches between patients and physicians, time-pressure or lack of awareness, in order to prevent patient dissatisfaction or physicians burden.

PATIENTS' OUTCOMES AND THE CONTENT OF THE CONSULTATION

We did not find a relationship between the content of the consultation (bad, neutral or good news) and patient outcome. One explanation for this result might be that we based our coding of the content on the medical reports. However, a given medical report can have different meanings for the physician and the patient, or different physicians might choose to present them in different ways, as illustrated in these examples:

- *One physician announced the bad news that even though they were controlling the original cancer, they had now found metastases. The patient persisted in saying this was good news.*
- *Another physician stated that the medical report mentioned a "significant progression" of the cancer, but he explained to the patient that because the progression was only minor, one could conclude it had remained stable.*

However, the absence of a relation between bad news and patient dissatisfaction might also be explained by the physicians succeeding in bringing the news in a way that still permits the patient to maintain some hope and feelings of control and support.

LIMITATIONS OF THE STUDY

There are a number of limitations of the study. First, our study was not longitudinal and therefore did not allow for causal interpretations. Second, we ignored how long the physicians already knew their patients; this factor could influence the physician's stress and defences as well as the patient's outcome. Third, the number of patients was rather small, which enhanced the probability of finding a significant result by chance. However, almost all of the relationships reached a very low p-value, indicating robustness. On the other hand, our sample might have been too small to detect smaller effects of our variables. Still, some of the beta values were quite low showing that we managed to measure even fine or nuanced relationships. These low beta values also call for caution in interpreting the results as they diminish the practical implications of the results. On the other hand, keeping in mind the ceiling-effects in the outcome measures and the nuanced nature of defence mechanisms, even very small results can add meaning and comprehension to this field of research. Further, the satisfaction and alliance

scores were high, illustrating the well-known social desirability in patients' responses with regard to their perception of the care provided and diminishing the possibility to find relations with other variables (possibly giving all the more importance to the relations that were found in this study). Further caution must be drawn to the measurement of defence mechanisms. As the DMRS-C is a validated and reliable instrument we feel confident in what we measured, but we acknowledge that there is still room for improvement in measuring these (partly unconscious) defence mechanisms. A last limitation might be found in the relative low stress score of the physicians. Does such a low score allow interpretations of its relation with other variables? Caution might be advised, but as variance and range of physicians' stress was good, and the variable was normally distributed, we feel our results can be safely used for further theory building and testing.

Future research

Future research should investigate the factors influencing the use of psychological defences by physicians while communicating with cancer patients. For instance, does a physician use the same defences again and again or does he deploy different defences with different patients? Is the use of a wide variety of defences related to the positive outcomes of the patient's perception of the consultation? Another focus of future studies might be to further explore the micro-processes of clinician-patient communication discussed above. Combining quantitative approaches with qualitative analyses might further elucidate the multiple processes activated during patient-physician communication.

Clinical implications

This study showed the importance of the perceived level of stress of the physician, as stress might influence the patient's perception of the consultation and the alliance between the patient and the physician; the same is true for the physician's use of certain defence mechanisms. The results of this study will contribute to optimizing CST and to improving communication and working alliance in cancer care.

Conclusion

In conclusion, our study shows that patient's satisfaction with communication and working alliance in oncology is associated with the physician's defences and the physician's stress but not with the content of the consultation.

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CHAPTER **5**

Physicians' emotion regulation during communication with advanced cancer patients

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ABSTRACT

Objective. In cancer care optimal communication between patients and their physicians is**,** among other things, dependent on physicians' emotion regulation which might be related to physicians' as well as patients' characteristics. In this study we investigated physicians' emotion regulation during communication with advanced cancer patients, in relation to physicians' (stress, training, alexithymia) and patients'(sadness, anxiety, alexithymia) characteristics.

Methods. In this study, 134 real-life consultations between 24 physicians and their patients were audio-recorded and transcribed. The consultations were coded with the "Defence Mechanisms Rating Scale – Clinician". Physicians completed questionnaires about stress, experience, training and alexithymia, while patients completed questionnaires about sadness, anxiety and alexithymia. Data were analysed using linear mixed effect models.

Results. Physicians used several defence mechanisms when communicating with their patients. Overall Defensive Functioning was negatively related to physicians' alexithymia. The number of defence mechanisms used was positively related to physicians' stress and alexithymia as well as to patients' sadness and anxiety. Neither physicians' experience and training nor patients' alexithymia were related to the way physicians regulated their emotions.

Conclusions. This study showed that physicians' emotion regulation is related to both physician (stress and alexithymia) and patient characteristics (sadness and anxiety). The study also generated several hypotheses on how physicians' emotion regulation relates to contextual variables during healthcare communication in cancer care.

INTRODUCTION

In cancer care, theories and protocols related to communication have been developed, and numerous communication skills trainings (CST) and workshops have been proposed to physicians worldwide, even on a mandatory basis [1]. However, a paradigm shift has occurred in which the initial enthusiasm for the acquisition of *standardised* communication skills by physicians is tempered by critical comments. These criticisms include a lack of consideration for the subjectivity and context-dependent nature of communication, in particular with regard to the importance of physicians' characteristics such as their flexibility, experiences and resources [2-4]. In order to move beyond a one-size-fits-all skills-based model, we investigated the relationships between a physicians' functioning (emotion regulation by use of defence mechanisms), his/her subjectivity (physicians' characteristics and states) and the context in which it occurred (patients' characteristics and states) during communication with patients suffering from advanced cancer. To the best of our knowledge, no other study has ever investigated how the physicians' defensive functioning is related to physicians' and patients' characteristics in cancer care communication.

PHYSICIANS' EMOTION REGULATION

Defence mechanisms – self-protective psychological mechanisms triggered by an affective load– can be understood as a form of implicit emotion regulation [5]. As we reported previously [6], defences are supposed to help a person adapt to and/or protect oneself from stress [7]. Moreover, defences have been proposed as a way to conceptualise the emotional distance or connection a physician establishes with patients [8]. Various types of defence mechanisms have been identified [9] and classified depending on their degree of adaptation to or distortion of reality. These range from "immature defences" (i.e., keeping distance by distorting reality and/or emotions, being closed to further exploration) to "mature" (i.e., keeping in touch with own and others feelings, being open to explore further), see box 1 in the supplemental material for more examples and further information.

With the Defence Mechanism Rating Scale for clinicians (DMRS-C) [10], a single Overall Defensive Functioning score (ODF) can be calculated (1-7). Number of defences used is also calculated, as are scores for number of only mature versus only immature defences used.

In previous studies, we found a high prevalence of defence mechanisms among physicians when communicating with simulated and real patients. We also

found a relationship between physicians' defence mechanisms and patients' outcomes in cancer care, as well as with physicians' learning skills [6, 11, 12]. Based on these studies, hypotheses were formulated about the physician-related and patient-related factors that might generate or influence the use of defence mechanisms by physicians.

PHYSICIAN-RELATED FACTORS

Several physician characteristics could affect physician-patient communication [13], and the following of these are included in this study: perceived level of stress, years of experience in oncology, received training in communication skills, and alexithymia traits (i.e., cognitive-affective difficulties with emotional processing and/or awareness).

Physicians' stress might impair their empathy during communication [14, 15] and their clinical reasoning [16]. Physicians report a greater likelihood of suboptimal patient care when stressed [17]. Divergent results have been reported regarding the possible relationship between physicians' experience and treatment outcomes or communication [13, 18, 19], however a positive association has been found between the effect of CST on communication skills and defensive functioning [11, 12].

Alexithymia was included to assess difficulties with emotional processing and/or awareness. Alexithymia is a multidimensional concept characterised by cognitive-affective deficits consisting of the following: i) difficulties in identifying and describing emotions, ii) difficulties in distinguishing between emotions and physical sensations of emotional arousal, iii) reduced imaginative processes and a lack of fantasy, and iv) an externally oriented cognitive style (operational thinking) [20]. Physicians' alexithymia has been related to burnout [18], and patients' alexithymia has been related to quality of life, to higher levels of depression, anxiety, stress [21] and somatisation [22].

PATIENT-RELATED FACTORS

In addition to alexithymia, we included sadness and anxiety as well as age and gender. The last two variables were used as control variables. Regarding patients' sadness and anxiety, research has shown that physicians tend to more frequently give empathetic responses to patients' expressions of sadness than to patients' expressions of fear. However, physicians tend to provide more in-depth empathetic responses to fear than to sadness [23]. Patient anxiety has been shown to decrease when physicians show affective communication [24] and when

physicians have been trained to recognise and manage their own emotional reactions in their relationships with patients [25].

To summarise, the research question addressed in this paper is whether physicians' stress, training, experience, and alexithymia, and patients' sadness, anxiety, and alexithymia are related to physicians' use of defence mechanisms during patient-physician communication in cancer care. The goal is to generate new hypotheses to increase the quality of research and/or training in order to move from *standardized* to more *flexible* communication in cancer care.

MATERIALS AND METHODS

The study was designed as a naturalistic multi-centred observational study of physicians meeting patients with advanced cancer to discuss test results. Permission for the study was granted by the medical ethical committees of the participating hospitals. All participating patients and physicians provided written informed consent.

SAMPLE

All physicians (N=49) who worked in an ambulatory oncology department of three hospitals in Switzerland and receiving patients for medical consultations were invited to participate in this study. Reasons for physicians not to participate included time pressure, imminent departure to other services and a lack of patients in the palliative phase. The participating physicians (N=24; response rate 49%) informed the researcher (MdV) which patients were eligible for inclusion. Inclusion criteria of patients were the following: the patient i) followed ambulant treatment for advanced cancer, ii) was aware of the diagnosis of advanced cancer, iii) was 18 years or older, iv) spoke French, and v) visited the physician to be informed about the results of tests, such as computed tomography (CT) scans, histopathological examinations, magnetic resonance imaging (MRIs) or tumour marker levels, which might indicate cancer progression. Exclusion criteria were severe psychiatric, cognitive disorders, or communication impairment.

The patients were sent information about the study in a letter to their home and were approached by the researcher before their next meeting with a participating physician.

A total of 134 patients (response rate 53%; 255 patients invited) were included. The reasons for patients' non-participation included tiredness, other appointments, a lack of time to complete the questionnaires, a lack of interest and feeling ill. The patients were all aware of their diagnosis of advanced cancer and

were undergoing active anticancer or palliative treatment. A subsample of the physicians and patients also filled in the alexithymia measure (n=16 and n=85 respectively).

PROCEDURE

The physicians completed a demographic questionnaire. They then completed the perceived stress questionnaire after each consultation. The patients completed all questionnaires after the consultation, including a retrospective measurement of their state of sadness prior to the consultation. The entire consultations were audio-recorded and were afterwards transcribed.

MEASUREMENTS

Defence mechanisms. The Defence Mechanism Rating Scale for clinicians (DMRS-C) [10] is an observer-rated instrument developed to assess physicians' defence mechanisms. Based on the transcriptions of the consultations, 30 defences were coded, total number of defences and number of mature and immature defences were calculated, as well as an Overall Defensive Functioning (ODF) score ranging from one (lowest or most immature defensive functioning) to seven (highest or most mature defensive functioning). In a critical review of the psychometric characteristics of different measures of defense mechanisms, the Defence Mechanism Rating Scale was found to have a good validity (discriminant, convergent, construct, and concurrent) and reproducibility [26-28]. Detailed information on the development of the DMRS-C and its psychometric qualities as well as on the process of coding defences for this study are reported elsewhere [6, 10]. The first author of this manuscript coded all the consultations. Consensus ratings and reliability assessments were conducted using a random sample of 22% (N=33) of the consultations with another experienced DMRS-C coder. Interrater reliability using the two-way mixed effects model of consistency and single-measure statistics was considered to be good, with an Intraclass Correlation Coefficient (ICC) of 0.70.

Physicians' stress. Physicians reported their level of stress directly after the consultation on a Visual Analogue Scale (0=no stress to 10=very stressed). The construct validity and sensitivity of the VAS to measure stress have been found to be satisfactory [29].

Physicians' experience. Physicians reported their years of experience in medicine and in oncology by completing a questionnaire ("I have ___ years of experience in medicine" and "I have ___ years of experience in oncology").

Physicians' training. Whether physicians had attended a communication skills training was measured by asking, "Have you received the Communication Skills Training from the Swiss Cancer League?" and "Please state all other relevant training that you have received outside of the standard medical training".

Patients' sadness. Patients' sadness was measured on a Visual Analogue Scale ("not at all" to "completely") by asking the question, "During the past 2 weeks, to what extent have you felt sad?" (score 0 to 70). The higher the score, the more often the patient had felt sad in the prior weeks. Visual Analogue Scales have been found to have good validity and reliability and to be a valuable tool in measuring mood [29, 30].

Patients' anxiety. To measure patients' anxiety, the patients completed the state part of the State-Trait Anxiety Inventory (STAI-Y-A) following the consultation (score 20-80). This instrument has good internal consistency and reliability [31].

Physicians' and patients' alexithymia. Physicians' and patients' alexithymia were measured with the Toronto Alexithymia Scale (TAS-20) [32], a self-report scale rated on a 5-point Likert scale that measures three factors of alexithymia: 1) difficulty in identifying feelings (DIF), 2) difficulty in describing feelings to others (DDF), and 3) externally oriented thoughts (EOT). Eventhough the TAS-20 has some limitations, especially with the subscale EOT, it has been found to be one of the most generally empirically sound measures of alexithymia [33] and has been translated into French [34]. This questionnaire was added to the study protocol in a later phase and was thus not completed by all participating physicians and patients. Analyses based on this subsample of our data are clearly identified as such in the text. Cut-of scores for the French version of the TAS-20 have been found to be different from the English version [35]: alexithymia ≥56, non-alexithymia ≤44.

DATA ANALYSES

Data were explored by descriptive statistics and graphical means. The hierarchical structure of the data, due to treatment of several patients by the same physician, implies the use of models capable of taking inter-correlations among observations into account. Thus the associations between the independent variables (physician and patient characteristics) and the dependent variables (Overall Defensive Functioning (ODF), number of defences used, number of mature and immature defences) were investigated in two series of linear mixed effect models, adjusted for inter-correlation among observations by including a common random intercept for observations corresponding to the same physician.

For each dependent variable two linear mixed effect models were performed: i) the first series described the association between each independent variable alone and each dependent variable (for example first ODF and Alexithymia alone, then ODF and stress alone etc.), and ii) the second series described the association of all the significantly associated independent variables from the first series put together with each dependent variable (for example number of defences with stress, sadness and anxiety). All models were adjusted for age and gender of the patient, as the goal was to generate hypotheses that would have clinical meaning for physicians independently of their patient's age and gender. Quality of the fit for adjusted models was investigated using statistics and graphical means (e.g., QQ-plots of residuals), for all models the fit quality proved to be satisfactory. Normal distribution for the response variable is not necessary while fitting linear models as normal distribution is required to be verified on the residuals, and not on the response variable. Finally, although we adjusted several models to describe the two dependent variables, no multiple comparisons were performed between the dependent variables as the main goal was to describe each dependent variable separately. All statistical analyses were performed using SPSS Statistics 21 software. Level of significance for all p-values was fixed at .05.

RESULTS

SAMPLE

A total of 134 patients participated in this study (50% women and 50% men), with a mean age of 60 years (range 27-86). A total of 24 physicians (54.2% women and 45.8% men) participated in the study, with a mean age of 39 years (range 28-61). Within the study, the physicians met 6 patients on average (range= 1-10). The physicians' gender, age and experience in oncology did not differ significantly between the hospitals. A summary of the descriptive statistics of physicians and patients is shown in Table 1.

Table 1. Descriptive statistics and characteristics of the physicians and patients.

	Physicians N=24		Patients N=134	
	Number	**Percentage**	**Number**	**Percentage**
Women	13	54.2%	66	50%
Attended CST	6	25%		
Cancer diagnosis				
Intestinal			30	22.4%
Breast			19	14.2%
Lung			14	10.4%
Prostate			3	2.2%
Other			61	45.5%
Missing			7	5.2%
	Mean	**S.D. (range)**	**Mean**	**S.D. (range)**
Age	39.0	8.8 (28-61)	59.7	13.0(27-86)
Experience in years	6.6	8.1 (0-29)		
Overall Defensive Functioning	4.2	0.6 (2.9-5.7)		
Number of defence mechanisms	15.8	6.7 (4-35)		
Immature defences	8.5	4.9 (0-28)		
Intermediate defences	6.6	3.0 (1-14)		
Mature defences	0.7	1.1 (0-6)		
Stress	3.1	2.0 (0-8.4)		
Sadness			23.4	17 (0-65)
Anxiety			35.6	12.4 (20-74)
	Physicians N=16		**Patients N=85**	
	Mean	**S.D. (range)**	**Mean**	**S.D. (range)**
Alexithymia, TAS-Total	39.2	10.2 (24-56)	50.8	13.3 (28-75)
Alexithymia, DIF	12.7	3.8 (7-20)	15.8	6.5 (7-30
Alexithymia, DDF	11.1	3.8 (5-17)	13.8	4.2 (6-23)
Alexithymia, EOT	15.4	4.2 (8-22)	21.2	6.0 (10-37)

Abbreviations: CST, Communication Skills Training; DIF, difficulty identifying feelings; DDF, difficulty describing feelings to others; EOT, externally oriented thoughts.

Descriptive Statistics

The physicians showed a mean of 15.8 (SD=6.74, range 4-35) defence mechanisms per consultation. The mean Overall Defensive Functioning (ODF) was 4.23 (SD=0.56, range 2.85-5.73). The most prevalent defensive level was the immature defence level; the mature defence level was rare (see Table 1).

Physicians reported a mean stress level of 3.1 (SD=2.0, range 0-8.4). They had a mean of 6.6 years of experience in oncology (range 0-29), and seven of the 24 physicians (29%) had attended Communication Skills Training. Sixteen physicians (who saw 85 of the 134 patients) completed the TAS-20, with a mean score of 39.2 (SD=10.2, range 24-56). Ten physicians had a score indicating the absence of alexithymia, five had scores in the possible alexithymia range and one had a score indicating probable alexithymia.

Patients reported a mean sadness level prior to the consultation of 23.4 (SD=17, range 0-65) and a mean anxiety level after the consultation of 35.6 (SD=12.4, range 20-74). Of the 134 patients, 44 completed the TAS-20, with a mean of 50.8 (SD=13.3, range 28-75). Fifteen patients scored well below the treshold for alexithymia, 13 had scores indicating possible alexithymia, and 16 scored highly alexithymic.

Analysis of Models

Significant results of the first and second series of linear mixed effect models are presented in Table 2 and 3.

Table 2. First series of linear mixed effect models (only one independent variable per model), relations between physician and patient variables and physicians' defences, adjusted for patient age and gender.

		Physician Alexithymia[1]	Physician DIF[1]	Physician EOT[1]	Physician stress[2]	Patient sadness[2]	Patient anxiety[2]
Overall Defensive Functioning	β	-0.02□	-0.05□	-0.04*			
	p	*.005*	*.002*	*.036*	ns	ns	ns
	conf	ns	ns	ns			
Number of defences	β		0.62*		1.12□	0.09□	0.13□
	p	ns	*.023*	ns	*.000*	*.009*	*.006*
	conf		ns		ns	ns	ns
Mature defences	β						0.02□
	p	ns	ns	ns	ns	ns	*.009*
	conf						ns
Immature defences	β		0.55□		0.67□	0.06□	
	p	ns	*.007*	ns	.003	.008	ns
	conf		ns		ns	ns	

Abbreviations: DIF, Difficulty identifying feelings; EOT, Externally Oriented Thinking; conf, confounders; ns, nonsignificant; * p<.05, □ p<.01; [1]analyses on subsample (n=85), [2]analyses on whole sample (n=134). Confounders are the patient age and gender.

OVERALL DEFENSIVE FUNCTIONING AND NUMBER OF DEFENCES USED

In the first series of models (only one independent variable per model), the Overall Defensive Functioning of the physician was negatively related to physicians' total alexithymia (subsample) and, in particular, to difficulty identifying feelings and externally oriented thoughts (see Table 2 for details). The number of defences used was positively related to the difficulty identifying feelings subscale of physicians' alexithymia (subsample), physicians' stress, patients' sadness and patients' anxiety (whole sample). In the second series of models (with the dependent variable and all the significantly associated independent variables from the first series), the four variables related to number of defences were put together in the same model resulting in only physicians' stress and patients' sadness remaining significantly and independently related with the number of

defences (stress: β=1.10, *p*=.001; sadness: β=0.10, *p*=.017; DIF: β=0.55, *p*=.057; anxiety: β=-0.04, *p*=.46, subsample) (see Table 3).

Table 3. Second series of linear mixed effect models (all presented independent variables together in each model), relation between physician and patient variables and physicians' defences, adjusted for patient age and gender.

		Physician DIF	Physician stress	Patient sadness	Patient anxiety	Patient age and gender
Number of defences	β	0.55	1.10□	0.10*	-0.04	ns
	p	*.057*	*.001*	*.017*	*.461*	
Immature defences	β	0.48*	0.60*	0.08□	ns	ns
	p	*.020*	*.014*	*.008*		

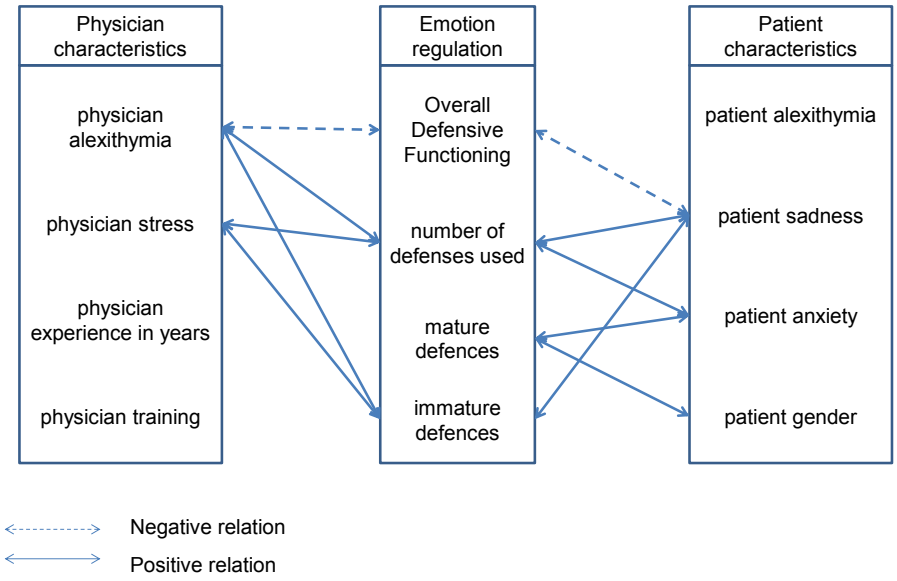
Abbreviations: DIF, Difficulty identifying feelings; * p<.05, □ p<.01. All analyses were done on the subsample (n=85).

NUMBER OF IMMATURE AND MATURE DEFENCES USED

In the first series of models, the number of immature defences was positively related to the difficulty identifying feelings subscale of alexithymia (subsample), to physicians' stress and to patients' sadness (whole sample, see Table 2 for details). In the second series of models all variables remained significantly positively and independenly related with the number of immature defences (stress β=.60, *p*=.014; difficulty identifying feelings β=.48, *p*=.020; sadness β=.08, *p*=.008, subsample) (see Table 3).

Finally, patients' anxiety was significantly positively related to the number of mature defences (β=.02, *p*=.009, whole sample) (see Table 2). For a graphic summary of the relationships between the physicians' and patients' characteristics with the physicians' regulation of emotions, see Figure 1.

Figure 1. relationships between the physicians' and patients' characteristics and the physicians' emotion regulation



DISCUSSION

In this study, we found that physicians use several defence mechanisms to regulate their emotions when communicating with advanced cancer patients. Their defensive functioning and use of defence mechanisms are related to physician and patient characteristics, thus illustrating the context-dependent nature of physicians' emotion regulation.

Overall Defensive Functioning is negatively related to physicians' alexithymia, particularly to difficulty identifying feelings and an externally oriented thinking style. Thus, the more difficulties a physician has with emotional processing, the less mature the physician's overall defensive style is. This is an interesting finding because Overall Defensive Functioning was not related to any of the other physician or patient characteristics, such as the state of the patient and the training or stress of the physician. It is possible that alexithymia can be considered a form of emotional detachment that serves a global defensive function. In difficult situations in which one has limited control over the events, it might be adaptive to distance oneself from hurtful emotions that might otherwise

be overwhelming. However, when this emotional detachment is no longer situational but becomes structural for a physician, the alexithymic functioning might hamper the therapeutic relationship with patients by producing a lack of connection and a sense of interchangeability (i.e., that either the patient or the physician could be replaced by any other patient/physician without being missed)[36], which might alienate and isolate the patient. Additionally, for the physician, this lack of connection and sense of interchangeability might become the precipitating symptoms of feelings of burnout as depersonalization is one of the symptoms of burnout [18, 37].

The number of defences used by physicians is positively related to physicians' stress and patients' sadness, and this independently of each other. Thus, although the defensive functioning of the physician might remain at the same level across different contexts, the frequency of defences might increase or decrease depending on the context (patient sadness) and inner state of the physician (stress).

With respect to the frequencies of immature or mature defence mechanisms, differences are apparent in their relation to contextual factors. While there is an absence of any relation with physician variables for mature defences, immature defences are related to physicians' stress and difficulty in identifying feelings. This result supports the hypothesis that physicians with a more mature defensive functioning might be more independent of (inner) context and may maintain the ability to keep a relationship with patients throughout different stress levels, and thus fulfil a critical element of good patient care [38].

With regard to the prevalence of alexithymia in our sample, our results are partly in accordance with the literature [18], but it is possible that we failed to include the more highly alexithymic physicians. Patients scored higher on alexithymia than physicians, with 36.4% of patients showing probable alexithymia scores. These results also seem to be consistent with the literature that reports a prevalence of alexithymia between 26% and 42.5% in cancer patients compared to between 2.4% and 12.85% in individuals without cancer [22, 39, 40].

STUDY LIMITATIONS

Several limitations of the study must be considered. First, it is not possible to infer causal interpretations from this study as it is not a longitudinal study. Although we evaluated the context-dependent nature of physicians' emotion regulation, we limited this to patients' and physicians' characteristics and did not consider for instance the institutional or societal context. Furthermore, although the DMRS-C is a validated and reliable instrument, there is room for improvement in measuring

defence mechanisms during communication, for example by continuing to strive for higher ICC-scores between coders. The occurrence of mature defences was relatively rare and the hypotheses connected to their occurrence should thus be verified before further interpretation. Also, one of our measurements (TAS-20) was added in a later stage of the study limiting the number of observations for this variable. Therefore we need to be cautious with the interpretation of the results, even more so since measurement of alexithymia should ideally be done by using multiple measurements. Finally, as one of the coders was also part of the research team, unwitting contamination of findings might have occurred. However, as the hypotheses resulting of this particular study were not known at the time of coding, and the second coder was in no way implicated in the study, we feel confident that contamination has been minimal.

FUTURE RESEARCH AND CLINICAL IMPLICATIONS

Our study generated hypotheses that might be studied in future research to enhance clinical practice, training and supervision:

1) Overall Defensive Functioning might be predominantly a stable trait;

2) The number of defences used might depend on the physician's outer world (the patient's state) and inner world (the level of stress);

3) Physicians who use more mature defences might function more independently from their inner world than physicians who use more immature defences;

4) Alexithymia might be viewed as a form of emotional detachment that serves a global defensive function. When a physician is detached from his or her emotions, he or she might fail to recognise them and thus lack the ability to manage them in a mature way.

Future research should investigate which aspects of the inner and outer worlds of physicians represent difficulties or strengths for the physician-patient relationship and how this might influence their communication and health status. Qualitative studies might further enrich our hypotheses on this matter. Studies that include a larger sample of various physicians and patients as well as a longitudinal perspective might provide more conclusive answers on the questions raised in this paper. Answers to these questions will improve both training and clinical practice in the future by allowing it to move away from a one-size-fits-all skills based paradigm of clinical communication and move towards a paradigm taking into account the individual aspects of healthcare communication, in the hopes of improving communication by ameliorating the quality of the physicians' judgement and deliberate actions.

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Box 1. Examples of and more information about defence mechanisms (Supplemental material)

In order to adapt to or protect oneself from stress, physicians might use more or less defences in response to their own or their patients' emotions. They might use defences of several levels ranging from immature (level 1; i.e., keeping distance by distorting reality and/or emotions, being closed to further exploration) to mature (level 7; i.e., keeping in touch with own and others feelings, being open to explore further) defences. The weighted mean of their use of defences, measured with the Defence Mechanism Rating Scale for clinicians (DMRS-C), constitutes an Overall Defensive Functioning (ODF) score (1-7) with a score of 1 indicating a completely immature defensive functioning and a score of 7 indicating a completely mature defensive functioning. The defensive functioning of physicians may hamper or broaden the physicians' perception of their patients' needs and thus influence the physicians' capacity to attune the communication behaviour.

An example of an immature defence in the Defence Mechanism Rating Scale for clinicians (DMRS-C) is hypochondriasis (level 1) which is complaining about the patient's behaviour or attitude to the patient himself in a way that gives no opportunity to explore the patient's feelings or the relationship further.

Example from a transcript in our study (2048: 1-19)

*"*Physician: *So, how are you doing?*

Patient: *I am doing fine*

Physician: *You're doing fine? Well, I called you because I wanted to discuss the results of the PET-scan with you. Are you, are you followed by another doctor? Someone in town maybe?*

Patient: *Yes, I have seen doctor *Name, who operated on me twice when I had the melanoma removed*

Physician: *Right, but he is a surgeon! Right, you have, well I am just surprised because you had, you had this PET-scan but you never, I don't know, did you have any way to learn about the test results? Because these tests were done on *Date*

Patient: *well, I thought that the surgeon, or otherwise the hospital would contact me*

Physician: *yes sure they could! But you see, you didn't, well I mean we know that melanoma is a type of cancer that is very*

aggressive, I mean, the majority of my patients are very stressed, they call me right after to ask me what's happening!"

In this example, the physician is facing a delicate situation in which ambivalent test results were not communicated rapidly to the patient as the patient was difficult to reach. In response to the physician's own stress and to a lack of alarm in the patient, the physician defends him/herself by telling the patient how the patient should have behaved, taking other patients as examples.

An example of a mature defence in the DMRS-C is affiliation (level 7) which is the acknowledgement of the patients' difficulties and showing the readiness to share the difficulties in order to create an opportunity to strengthen the relation or further explore the feelings.

Example from a transcript in our study (2094:291-302)

*"*Physician: *I need to look that up to confirm it to you but I think, well I need to look when the first spot opens up at the hospital, to be able to do, normally all can be done within a period of one week generally*

Patient: *mmm*

Physician: *but uhm… I don't think it will be faster*

Patient: *ok [*whispers*]…*

Physician: *everyday is long right? Is that it?*

Patient: *yes…yes… because I have had this metastasis for about a month now [*Physician: *mmm] I felt… I felt there was something [*Physician: *mmm] uhm… I am not in pain [*Physician: *mmm] that's not it but…but I felt that something was different"*

In this example, the physician gives disappointing news to the patient with respect to the pace with which they will be able to set up the next treatments. In response to the patient's whisper and lack of further reactions even though the patient just before in the same consultation had repeatedly asked when they could start the treatments and how they could organise them, the physician responds by making a movement towards the patient's lived experience by acknowledging that the waiting can be long and offering the possibility to talk about this difficulty.

Between the two endpoints (mature and immature) defences are ranged from creating little to more distance to the emotion or changing little to more of

the reality of the situation. For example, by using jargon (intellectualization; level 6) a person does not change the reality of the situation, but creates a little bit of distance with the emotion of the situation. In contrast, by exaggerating their own powers (idealisation of self; level 4) a person does change a little of the reality of the situation and thus reduces the chance to fully understand the situation or to fully be in contact with the other person.

Lastly, in order to understand the function of defence mechanisms it is important to take into account the context of the defence. In some contexts, an immature defence might be the best way to go in order not to lose one's head or to become exhausted and it is important to have a flexible use of several defence mechanisms during a life-time [7].

CHAPTER **6**

General discussion

INTRODUCTION

The overall aim of this thesis was to investigate physicians' defensive functioning with real patients suffering from cancer. The first aim was to summarize the existing scientific knowledge with regard to the impact of physicians' characteristics on both patient-physician communication and patient outcome in oncology; then the scientific literature on alexithymia in patients suffering from cancer was reviewed. This led to the main research questions of whether the physicians' defensive functioning, perceived stress or the content of the consultation were related to the patient's satisfaction with communication and working alliance; and whether physician and/or patient variables were related to physicians' defensive functioning. We hypothesized that a higher level of patient satisfaction and working alliance would be associated with less use of defence mechanisms by the physician and the defence mechanisms that would be used would be of a higher level, as well as with lower physician's perceived stress, and with the content of the consultation (bad news negatively associated to patient satisfaction and alliance). The last research question was used to generate new hypotheses around the physician's defensive functioning and its context (physicians' and patients' variables).

In this final chapter, the main findings of the study are summarized and put into perspective. The limitations of the study, the implications for clinical care and for communication education are discussed and recommendations for future research are given.

SUMMARY OF THE MAIN RESULTS

In ***Chapter 2*** a systematic literature review revealed that quality of communication and/or patient outcome was positively related to physicians' communication skills training, external locus of control, empathy, socio-emotional approach, shared decision-making style, higher anxiety, and more mature defensive functioning. A negative association was found for physicians' increased level of fatigue and burnout, and expression of worry. Professional experience of physicians was not related to the quality of the communication and/or to patient outcome, and divergent results were reported for physicians' gender, age, stress, posture, and confidence or self-efficacy. One of the aspects that was illustrated by these results was the importance of self-awareness by the physician. For instance, while higher physician's state of anxiety was associated with positive patient outcome, the physician's expression of worry was associated with negative patient outcome. Thus the physicians' state - possibly indicating the physician's increased sensitivity

to the patient's situation – might have a positive effect on patient outcome, but the way the physician regulates this state or expresses it might be counter productive. Unresolved issues remained about *how* the physicians' characteristics influence communication or patient outcome. The divergent results of the review and the unexpected absence of a relationship between the outcome variables and physicians' professional experience call for new, maybe more complex, hypotheses. Pathways have already been proposed to investigate how physician characteristics impact patient outcome; for example, how they could be moderated by patient-specific variables before influencing patient outcome.

The systematic review of literature in ***Chapter 3*** showed that patients' alexithymia was positively related to patients' state (anxiety and depression). The question to what degree patients' alexithymia in cancer patients is a trait or a state could not be answered. No study investigating a possible link between patients' alexithymia and physicians' affect regulation during communication with patients suffering from cancer could be identified. Still, patients' alexithymia seemed to be related, possibly as a mediating factor (e.g., with regard to stress and coping with stress) with the immune system, with patients' emotional inhibition, and with intensity, interference (on daily functioning) and quality of pain among other variables.

At the centre of the framework of this thesis is the physician's defensive functioning. In ***Chapter 4*** results of the naturalistic multi-centred observational study showed that the use of four defences (i.e., *displacement*, *self-devaluation*, *acting-out* and *hypochondriasis*) and the physician's level of stress had a negative relationship with patient satisfaction and patient-perceived alliance. The content of the consultation (good versus bad test results) had no significant relationship with patient outcomes. No defences were found with a positive effect on patient outcome. These results suggested that some of physicians' defence mechanisms, although they might momentarily protect the physician, can indeed hamper the patient-physician relationship (working alliance) and the patient's satisfaction with the consultation. This is important as alliance is a powerful aspect of patient-physician communication. The physician's defensive functioning might alienate the physician from the patient, thereby preventing support and relationship building and, ultimately, hampering positive treatment outcome. However, the majority of defences had no significant relationship with patient outcome, and might only have a function for the physician's well-being. It may also be that these relationships are confounded by other variables. The link between physicians' stress and patient outcome emphasises the importance that should be given to physicians' perceived stress as it indicates or even precipitates patient

dissatisfaction with the consultation and a suboptimal alliance between physician and patient. Also, the surprising absence of a significant relationship between content of the consultation (bad versus good news) and patient outcomes could possibly be explained by the likelihood that the same content can be differently interpreted by physicians or patients, or, alternatively, the absence of a relationship might be a sign that physicians now succeed in adapting to their patients in bad news situations.

In ***Chapter 5*** a lower Overall Defensive Functioning was observed for the more alexithymic physicians in our study, while the frequency of defences increased depending on the context; especially when patients reported more sadness and the physician felt more stress. Neither physicians' training nor experience, nor patients' alexithymia were related to physicians' defensive functioning. Physicians with a more mature defensive functioning were more independent of (inner) context and might thus maintain the ability to keep a relationship with the patients throughout different stress levels, and by doing so fulfil a critical element of good patient care. When a physician is detached from his or her emotions (e.g, alexithymic), he or she might fail to recognise them and thus lack the ability to manage them in a mature way. Overall Defensive Functioning and alexithymia might both illustrate more global functioning independent of situational factors but related to each other. Even though it might sometimes be adaptive to distance oneself from hurtful emotions that might otherwise be overwhelming, when this emotional detachment is no longer situational but becomes structural for a physician, the alexithymic functioning might hamper the therapeutic relationship with patients by producing a lack of connection and a sense of interchangeability (i.e., that either the patient or the physician could be replaced by any other patient/physician without being missed), which might alienate and isolate them both.

GENERAL DISCUSSION

The main findings of the study have been summarized above, and will be put into perspective here revolving around four themes: complexity of communication and defensiveness, paradoxes in healthcare communication, methodological issues, and implications for practice and future research.

COMPLEXITY OF COMMUNICATION AND DEFENSIVENESS

The results of this thesis clearly show that physicians'defence mechanisms influence the quality of communication and working relation with cancer patients. However, it is also important to realize that there is no "good" or "wrong" defence mechanism *per se*, as there is no "good" or "wrong" communication *per se*. This might seem counterintuitive to some people as they feel that a physician using an immature defence (for example *acting out* or *hypochondriasis*), surely at that moment shows "wrong" communication. This statement will be discussed in more detail later on to illustrate that it is not so "sure".

The results of this thesis can be discussed from the point of view of two, seemingly paradoxical or contradicting, ways of thinking. **The first** can be illustrated by the thoughts of the philosopher René Descartes (1596-1650) about the mind and the body being distinct. His thoughts have no doubt contributed to the progress of scientific and philosophical thinking, however the interpretation of his thoughts as a differentiation between mind and body, or between the thinking subject (philosophy) and the external world (science), has also pushed scientists to disconnect their field of work of other fields. It thus happened that for instance physics became distinct and disconnected from biology, which in turn became isolated from psychology [1]. This, combined with the development in the 1950s and 1960s of the idea that "detached concern" was a sign of objectivity and medical professionalism [2, 3], contributed to the art of medicine developing into a hyper-specialised one, where students became at risk to be isolated from the art of and the ability to be aware of, to think of, and to reflect upon their own functioning, such as on their defensive functioning. Their defensive functioning (or other psychological functioning [4]) might not be something they are often aware of or take into account when communicating with patients. Even though in modern times attention for quality of communication [5] and patient-centredness of physicians has increased and scientific literature combining the medical and psychological fields with regards to the physicians' functioning has become less sparse, research on the physicians' defensive functioning is still scarce, a first motivation for this thesis.

Research has shown that our emotions and emotion regulation influence us in a wide array of our functioning, such as in our processing of information, in our executive resources, or our decision making [6-8], in our interactions [7], or our job satisfaction and health [9]. More specifically, physicians who can be emotionally engaged, sustaining their affective attunement to their patient without being overwhelmed by it, are found to have higher well-being and job satisfaction [10]. However, studies showed that physicians lack accuracy in

identifying their patients emotional states [11], as well as in perceiving if emotional issues were discussed [12, 13]. They tend to either not acknowledge emotions or to offer minimal support or empathy [14-16], which in turn has been found to unfavourably influence patient's anxiety and trust [17], with the latter being one of the most important predictors [18] and mediators [19] of treatment adherence in patients.

Thus, some form of emotional detachment might have become inherent to medical practice. This is possibly illustrated even on a neurobiological level, with for instance physicians' brains showing a lack of response to physical pain cues [20], not as such indicating any form of sociopathy in physicians but rather the physical consequences of repeatedly being confronted with a difficult situation in which a certain calmness is asked of them. Of course, this might be for a good reason, as when a medical student learns complicated and difficult topics, it might not be helpful to be overwhelmed by emotion when seeing someone in pain and thus maybe become less accurate in manual medical performance. At the same time however, with more than half of practicing physicians being found to experience detachment and loss of meaning [21], and emotional detachment being one of the precursors of burnout and of lack of job satisfaction [22, 23], this might also negatively influence precision and the capacity to adapt to the situation. Thus, both unregulated emotional reactions and some forms of emotional detachment might lead to loss of adaptation to the patient's and physician's needs.

What is needed, is attention to the *way* the physician regulates the emotions or tensions. Awareness of one's own and others' emotions, cognitive comprehension of them, and emotional resonance (i.e., learning to calibrate one's emotions in response to the circumstances) might be key for physicians' as well as patients' well-being [9]. This brings us to **the second** point of view or way of thinking that influenced the discussion of the results of this thesis, illustrated by the words of the French mathematician Blaise Pascal (1623-1662) "*je tiens impossible de connaître les parties sans connaître le tout, non plus que de connaître le tout sans connaître particulièrement les parties.*" [24] or loosely translated "I find it impossible to know the parts without knowing the whole, nor to know the whole without knowing particularly the parts.". This nicely illustrates the struggle of balancing the findings of this thesis, in which specific data was gathered about one aspect or variable of the communication process, within the scope of overall data about the general quality of the communication between physicians and patients. While the two ways of thinking, the "Cartesian" and the "Pascalian", might seem contradictory to each other, in complexity science -"an

approach to science studying how relationships between parts give rise to the collective behaviours of a system, and how the system interacts and forms relationships with its environment" [25] – both ways of thinking might have a function. Indeed, in his *Introduction à la pensée complexe*, Edgar Morin, a French sociologist and philosopher, states that it is not our false perceptions or error in logic that are the real causes for errors in our knowledge, but it is our ways of organising our knowledge into systems (theories, ideologies). He proposes that a system only has sense when it is capable of grasping both the unique and the multiple, both the continuity and the ruptures. Thus, while we could accept that some parts have functions independently from each other or from the whole, they might at the same time have functions that can only arise when they depend on each other, or depending on the larger system they are part of. Interestingly enough, this had already been mentioned by René Descartes himself when he underlined that even when separating the mind from the body, it would be a false supposition to think that this meant that mind and body did not act on each other [26].

This thesis tried to investigate such complex relationships. Based on this thesis, a new hypothesis is that patient experience (outcome) and its link with the physician's defensive functioning might be confounded by other variables, and be defined by a more complex (non-linear) relationship incorporating movements of rupture (e.g., a quick decline in level of defensive functioning or increase in number of defences used) and repair (e.g., professional solving the negative feelings or problems derived from the rupture) and might be differently related according to the phase of the treatment, the duration of the treatment and the slope of the variables during treatment (Chapter 4). We think that the results of this thesis contribute to a greater understanding of parts of defensive functioning and communication in healthcare and, in addition, contribute to the formulation of several hypotheses about them taking into account both the physician's outer (object) and inner (subject) world (Chapter 5). Notwithstanding that, there is still much to learn about how these parts are made into wholes by relationships and systems.

To summarise, the complexity of healthcare communication and physicians' defensive functioning might have long been underestimated by the dualistic mind-body or subject-object approach influencing both the scientific research topics in the field and the physicians' stance towards their own psychological functioning. While recently communication in clinical practice has evolved from a paternalistic to a patient-centred communication model, there still seems to be a struggle to incorporate complexity into (researching) these models,

as illustrated by the mostly unilaterally emphasis on taking care of *patients'* representations, emotional needs, and uncertainty, while the *physicians'* needs, if discussed at all, are often presented as excessive (e.g., their excessive need for certainty), as source of confusion with the needs of the patient, or as reasons for the physician to not address the patients' needs [27]. With the emergence of complexity science, researchers are challenged to further enlarge the theoretical systems to be able to incorporate more dimensions.

PARADOXES IN HEALTHCARE COMMUNICATION

The paradigm surrounding physician-patient care and communication has not always been as it is today. Well before the 20th century patients are said to have avoided seeing doctors whenever possible, going to see them only under very severe circumstances [28]. During the 20th century, when medical science improved and gained more knowledge, so did medical authority and status. However, with the subsequent rise of patients' accessibility to medical knowledge and to other experiences or second opinions, medical authority declined once more [28].

One of the current paradoxes in medical communication revolves around the position or the needs of the patient and seems to be that, on the one hand, patients are believed to be autonomous, knowing what they want, and preferring to make their own decisions, but, on the other hand, patients are believed to be vulnerable and in need of support, engagement and compassion from the physician [29].

Another current paradox, this time around the position of the physician in healthcare communication, seems to be that, on the one hand, the physician is expected to be a "communication technician", to use standardized communication skills (e.g., open questions, silence, making eye contact), and to follow structured communication guides [29, 30], while, on the other hand, more and more physicians know, and research shows, that the strength of communication lies in the quality of the working relationship between the physician and the patient, and that meaning of communication behaviour depends on the context (object and subject; for example silence can be frightening) [31].

These paradoxes illustrate the need for more nuances in the current health communication paradigm, and, as we will see, in the appreciation of physicians' defensive functioning. Although a shift can be perceived towards more importance of context-specific factors in healthcare communication [32, 33], the limits of our current research tools hinder the further development and

implementation of this shift into practice. Eventhough the "switch in mindset" [30] is underway there still is room for growth and improvement, especially with regard to the physicians' affect regulation and its role in the communicational proces. Based on the findings of this thesis, one of the key factors to address in the paradigm of healthcare communication seems to lie in the "level of awareness" of the physician, especially awareness of the inner feelings and beliefs that drive the physician, the state of the patient in front of him or her, the goals of the patient and of the physician at that particular point in time, and lastly of the effect of the physician's words and attitudes on the patient's mood and motivation. It might sound simple to be aware of all these factors, however, from a psychological perspective, being self-aware also means differentiating between the self and the other, and thus being less prone to use for instance the defence mechanism of projection. By embracing complexity science, and oscillating between paradoxical concepts instead of ignoring or eliminating them, more importance could be given to the reality of the asymmetry between patients' vulnerability and physicians' expertise, between patients' autonomy and physicians' authority, between patients' and physicians' power during communication, and between their sometimes different goals.

When judging the example of a physician using an immature defence mechanism and somebody wanting to determine whether it is right or wrong to do so, they should thus take into account the above underscored need to perceive communication as context dependent, as not being merely the sum of an object and of a subject but of something more dynamic than an addition, notably incorporating more dimensions than meets the eye. Further, if "more" is not always better, than "less" might also not *always* be better. One can only oscillate between possible needs of the patient and of the physician, between the patients' and the physicians' mood and motivations, and between ideal and practical situations. Thus the answers "yes" or "no" seem less complete than "it depends". To illustrate this point, two different examples of the utilisation of the same immature defence mechanism *hypochondriasis*, as found in the study material, are given in Box 1. For the sake of clarity and anonymity, the text of the transcripts has been adjusted slightly but remains true to the original. Although the same defence mechanism is used, their consequences are not similar.

Box 1. Examples of the use of the immature defence mechanism *hypochondriasis*

Example A: Consultation 2048: lines 1-19

"Physician: *So, how are you doing?*
Patient: *I am doing fine*
Physician: *You're doing fine? Well, I called you because I wanted to discuss the results of the PET-scan with you. Are you, are you followed by another doctor? Someone in town maybe?*
Patient: *Yes, I have seen doctor *Name, who operated on me twice when I had the melanoma removed*
Physician: *Right, but he is a surgeon! Right, you have, well I am just surprised because you had, you had this PET-scan but you never, I don't know, did you have any way to learn about the test results? Because these tests were done on *Date*
Patient: *well, I thought that the surgeon, or otherwise the hospital would contact me*
Physician: *yes sure they could! But you see, you didn't, well I mean we know that melanoma is a type of cancer that is very aggressive, I mean, the majority of my patients are very stressed, they call me right after to ask me what's happening!"*

Example B: Consultation 2030: lines 149-159

[In the first lines of the consultation, the physician realised that the patient has heard the diagnosis of his advanced cancer only two weeks before, and does not know a lot about the illness. The physician then opted to explain about the particularities of his illness to the patient, and explained in quite some detail the three possible treatment modalities of which they would have to choose one. The patient's reactions were very short throughout, mostly restrained to "yes?" or "okay". This continued for 12 minutes.]

"Physician: *So that would, again, be the third option…yes?*
Patient: *okay [5 seconds of silence]*

Box 1. Continuation

Physician: *Okay, it's a lot of information, so you*
Patient: *no, it's fine*
Physician: *you…you…uhm*
Patient: *it's quite clear, it's fine*
Physician: *Okay*
Patient: *no, no, it's not…"*
Physician: *"Okay…Right…but I...Still I want to… interrupt and you need to ask me questions here because that's the way…*
Patient: *Yes, well I don't have any particular questions. But I understand the three options well. It's the timing that interests me and knowing, well, when we'll know which one… As long as we haven't chosen I'm not really interested in all the side effects, well, I don't know, will it be much, will it be a little, as long as we haven't chosen the protocol…it will depend on that and if you explain all these details to me, on all three protocols… In any case we will only take one.*
Physician: yes…yes…indeed, I think, I don't want to burden you with too much information because that would not help you"

In example A, the physician is facing a delicate situation in which ambivalent test results were not communicated rapidly to the patient as the patient was difficult to reach. In response to the physician's own stress and to a lack of alarm in the patient, the physician defends him/herself very early in the consultation by telling the patient how the patient should have behaved, taking other patients as examples. After this the patient became more and more tense (in tone of voice and way of responding) and finally started complaining about the physician and the hospital. Alliance was lost and in the end, the entry of a team of physicians was necessary to get the process back on track, only reaching a very precarious collaboration.

In example B, the physician is facing an unresponsive patient, and even though the physician prompts for reactions or questions, the patient at first stays aloof. In response to the physician's own inner feeling of unease and to a persistent lack of reaction of the patient, the physician finally defends him/herself by telling the patient how the patient should behave, with a tone that indicated that this was not going to work unless the patient did his part (e.g., being a "good"

patient). After this, the patient took a more active stance, indicating more clearly what interested him, asking questions and leading the physician away from the details of the possible protocols and more and more to the illness itself. Thus, alliance was not lost, even possibly momentarily reinforced, with the defence *hypochondriasis* of the physician not only helping to get the needed reaction from the patient, but also creating the opportunity to co-construct the goals and pertinence of the consultation.

Thus we postulated, as illustrated in the examples above, that the use of defence mechanisms is not intrinsically just or unjust and that there is no "good" or "wrong" defence mechanism *per se*.

METHODOLOGICAL CONSIDERATIONS

Methodological considerations or limitations of this study were already discussed in the previous chapters of this thesis. In this paragraph the principal limitations will be summarized.

STUDY DESIGN

Several limitations with relation to the study design should be taken into consideration. First, the study was not longitudinal, with the measurements being only at one time point, and therefore did not allow for causal interpretations. A single time measurement had been chosen to limit the participation burden on the patients and with the idea that a longitudinal design with patients with limited survival-time would be difficult to carry out.

Second, several determinants were not included in this study. Because of the lack of information on the length of the already existing relationships between physicians and patients, we could not take into account how this could influence the physicians' stress and defence mechanisms, as well as the patients' outcome. Further missing information concerned the timing of the communication. Indeed, several phases of communication have been differently correlated to patients' needs [34]. For instance, informal talk during the history-taking phase was positively correlated with patient satisfaction, while during the physical examination it had a negative correlation with patient satisfaction [34]. It could be that the same is true with regard to emotional exchange or relationship-building conversation. Even though all included consultations shared the same goal, i.e. the presentation of test results to advanced cancer patients, differences still existed. For example, differences in patients' history or disease trajectory might account for differences in needs with regard to emotional distance with their physician. Or,

differences in physicians' personality, cultural background, and state of fatigue or anxiety might have made emotional distance more or less appropriate at that particular moment. In order words, one of the main limitations of this study is the incapacity to take into account the appropriateness of the defensive functioning of the physician in a particular situation. This is related to a recognized problem for scientific research into psychological processes which has been identified as the *responsiveness* problem [35], referring to behaviour being influenced by emerging context by the principle of interpersonal regulation and attunement. The responsiveness problem undermines conclusions on psychological processes when they are based on linear reasoning and linear statistics [35] and might as such have obscured relationships between variables in our study.

A third limitation might be the relatively moderate number of physicians and patients investigated. It is possible that with a higher number of included patients and physicians the risk of false negatives and false positives would have declined, as would the risk of exaggerated estimates of the magnitude of the relations discovered. However, we were able to respect our initial power calculations and should thus have reached a test power of p=.95 on patient level and of p=.80 on physician level, which are very acceptable levels. Also, almost all of the significant relationships reached a very low p-value, further indicating robustness. Still, our low beta values call for caution in interpreting the results since they can diminish the practical implications of the results. But, keeping in mind the ceiling-effects in the outcome measures and the nuanced nature of defence mechanisms, even small results can add meaning and comprehension to this field of research. Finally, the aforementioned ceiling-effects might illustrate the social desirability in patients' responses with regard to their perception of the care provided, and might diminish the likelihood of finding relations, underlining the importance of the relations that were found in this study.

MEASUREMENT OF PHYSICIANS' DEFENCE MECHANISMS

Caution must also be drawn to the measurement of the physicians' defensive functioning. Although the Defence Mechanism Rating Scale – Clinician (DMRS-C) is a validated and reliable instrument, there is room for improvement in measuring (mostly unconscious) defence mechanisms during real-time communication. Defence mechanisms are frequently clearly present but might also work in more subtle ways that might not yet be fully measurable. Observer-rating instruments are vulnerable for several forms of bias. For instance, in response to their knowing that they are being studied, subjects might have modified their behaviour – also known as the Hawthorne effect [36]. Also the researchers own cognitive bias,

history, or state of mind might have caused them to be more attentive to some details over others. However, as a substantial part of the material was independently and blindly double coded and showed satisfactory inter-rater reliability, this kind of bias might have been minor, though still existent. The choice for an observer-rated instrument was a deliberate one. There are other instruments available to measure defence mechanisms, such as self-report questionnaires (e.g., Defence Style Questionnaire: DSQ), but they have their own difficulties and have been suggested to be less effective in measuring defence mechanisms [37]. Also, had we asked our physicians to complete a self-report defence mechanisms measure, than we would have had information about their (self-perceived) general way of defending themselves. By using the DMRS-C, one of the advantages was that we had a measurement of the actual defences used in one particular consultation with one particular patient at one particular time. The fact that this thesis focuses on *physicians'* defence mechanisms is original in itself as traditionally researchers have focused on *patients'* defensive functioning. Furthermore, including physicians' defence mechanisms permits a more dynamic vision of their affect regulation in the context of their work and of their continuing search for balance in taking care of the needs, desires and demands of the other and of themselves.

UTILISATION OF PATIENT SATISFACTION AS OUTCOME MEASURE

There are some shortcomings in using patient satisfaction as outcome measure. First of all, it is not an objective measurement in the sense that patients might be satisfied in spite of inadequate physician-patient communication and they might not rationalise their difficulties with their physician in terms of "dissatisfaction" with the communication. Earlier research showed that patients are less able to be objective about an abstract issue such as the quality of communication, in comparison to a concrete subject such as the quality of the meals [38]. While the World Health Organisation mentioned patient satisfaction as a dimension of outcome of healthcare quality assurance programs, they also underlined its approximate nature, stating that "patient satisfaction may be inferred to reflect, *even if crudely*, the quality of care that had been rendered" (italics by MdV). Still, they underlined its importance in that it enables researchers to learn whether a given health service meets the felt needs of the patient. Also, as stated before, our skewed data, indicating a ceiling-effect and lack of variability, makes meaningful interpretation difficult. However, even if significantly skewed, patient satisfaction has been found to be reliably affected by variables such as age, psychological morbidity and length of waiting in the clinic [39], showing that the results of

patient satisfaction still bear clinical relevance and sustaining its validity. Finally, we regret that we did not ask patients how long they knew their physicians before the recorded consultation. Patients who know their physicians for a longer time not only might have invested considerable time and energy in the relationship, making it more likely that small discrepancies can be more easily understood or accepted by the other party, but it makes it also less likely that they are dissatisfied with the physician as they might already have asked to be seen by someone else if that was the case.

IMPLICATIONS FOR PRACTICE AND FUTURE RESEARCH

CLINICAL IMPLICATIONS

The results of this thesis have several clinical implications for physicians and for healthcare communication education. The studies showed the importance of certain physicians' characteristics - such as locus of control, anxiety, level of fatigue and burnout, and defensiveness – as they might influence the quality of communication and/or patient outcome. Specifically the physician's use of the defence mechanisms of *displacement*, *self-devaluation*, *acting out*, and *hypochondriasis* were negatively related to the patient's satisfaction with the consultation and to the alliance between the patient and the physician.

The psychotherapist's ability to regulate negative affects, and more specifically to respond in an open and non-defensive fashion, has been recognised as being an important contributor to therapeutic alliance [40], as has the ability of being sensitive to interpersonal processes [41]. The same might be true for physicians. Indeed, some authors have described that the difference between a good physician and a great physician might be the ability of the latter to sense and react (or respond) to inner feelings and intuitions, as well as to the outer context (i.e., patient's needs), in a flexible and attentive way thus « shifting gears » (e.g., shifting from autopilot functioning to deliberate action) when necessary [42]. When a physician becomes aware of using the four aforementioned defence mechanisms, this is the sign that the consultation might be running in the wrong "gear" and that precious alliance with the patient is being lost. However, it is always possible that the context demands this gear, as we might drive-up a mountain in a lower gear in order to maintain sufficient power to get to the top (e.g., a physician using *displacement* when faced with a negative affect of the patient on a side-subject, in order to prevent the patient – or the physician - of getting too worked up by the affect and loose the capacity to stay focused and be

constructive, in the context of an important test result that needs immediate deliberation).

An important goal of (future) training programs targeting physicians working with cancer patients should thus be to train them to become aware of their inner states, and if possible even of their use of defence mechanisms. If the use of certain defence mechanisms can deteriorate alliance and patient outcome, the question becomes how to manage it. As clinicians can improve alliance and outcome when they are informed of problems with it, it is suggested that physicians might start by using information on their defensive functioning to repair the alliance, relation, and outcome [43, 44]. It is warranted that physicians get external feedback on their use of defence mechanisms during supervision or intervision. Not only has feedback from role-models been identified as a major enhancing factor in communication skills learning by residents themselves [45], but in addition defence mechanisms are mostly unconscious processes and physicians are sometimes overly optimistic when relying on their own impression of how a consultation went [11-13]. Also, to change one's defensive functioning demands a certain level of skill and self-awareness that might be better accomplished when accompanied by professional external support [46, 47]. It is important to bear in mind that the physician does not need to change his or her personality, but rather the verbal expression of some of the defence mechanisms. For instance, when feeling the pressure of certain expectations (e.g., to cure, to help, to solve) physicians might be tempted to underline their limits or doubts in the hopes that such expectations are then lowered by using for instance *self-devalorisation* (e.g., "I'm really no specialist"; "I have very little experience in this"). However, even though this might diminish their feelings of pressure, they should train themselves in refraining from *unreflected* verbalisations of devalorisations of themselves as this might deteriorate the working alliance. We underline the idea that *reflected* verbalisations of devalorisations might be useful, for instance when someone has thought about it and reached the conclusion that it would be desirable in a particular situation to share that it is acceptable to not know everything by showing one's own limitations. Thus we share recent viewpoints that it is warranted that physicians be trained to optimize communication by increasing reflective communication, and practice flexibility (context dependency) in their communication with their patients [30], while the use of summative assessment checklists seems to impede the optimisation of communication [45].

FUTURE RESEARCH

Several issues need further research. The long-term effects of the defensive functioning of the physicians are not yet fully understood, nor are there any studies reporting about the rigid versus the dynamic nature of defensive functioning in physicians working with severely ill cancer patients. Our study indicates that Overall Defensive Functioning might be predominantly a stable trait if the physician does not suffer from psychopathology or burnout, however, this should still be verified. Until now, only four defence mechanisms could be linked with patient outcome and alliance in oncology. Further studies, with greater power of measurements, should replicate the results of these four defences, but also have a closer look to the more mature defences. As mature defences occurred less frequently in our study, it is possible that their effect could, therefore, not be detected.

One of the limitations of the current study was our inability to take into account the adaptive value of the defence mechanisms. Mature or high defence mechanisms are not automatically adaptive to the clinical situation, and when used rigidly or inadequately they could have negative consequences: as when a physician continues to use *humour* in a defensive manner (most mature level), while the patient does not share the same humour. Similarly, immature defences might not always have negative consequences and could, if used adaptively in a certain situation, have positive consequences either for the physician, for the patient, or for both: as when a physician uses *acting out* (most immature level) to defend against stress or tension by choosing to do a physical exam at that very moment, possibly giving the patient a reassuring impression that the physician is doing “his job”. We acknowledge that we might have learned more about parts of defensive functioning and communication in healthcare, but there is still much to learn about how these parts are made into wholes by relationships and systems and how these systems influence the parts. Several interesting variables could be added to research into these communicational pathways, for instance: the physicians’ attachment style, which has been found to be related to different processes of emotion information [48] and to patient satisfaction [49]; the physicians’ burnout, which was also found to be associated with patient satisfaction [50]; and importantly, the patients’ perceptions of the physicians’ emotion regulation skills as well as their expectations of the emotional display of their physician could play a major part in these pathways [51]. The use of different measuring instruments would also be able to add to our understanding. For instance, while patients are now measured using techniques such as Magnetic Resonance Imaging (MRI) to show the differences in brain function before or after

therapy [52-54], or with regard to addictive behaviours [55], such efforts seem not to be done for the understanding of the physician's functioning. However, if we can understand patients' repeated behaviour by looking at their prefrontal cortex regions associated with self-regulation and self-awareness, why not do the same to better understand the physicians' repeated emotional detachment inherent to medical education? Could this add a layer to the complexity of our understanding?

Currently, the data of this study are further examined using a qualitative approach to gain insight into how physicians and advanced cancer patients communicate in a real-world setting and what aspects of communication patients' value. Different communication-related behaviours emerging from the literature or from iterative reading and listening of the audiotaped material are explored with a qualitative inductive approach, leading to the identification of variables that might be valuable to take into account when studying communicational pathways (e.g., disruptions of the consultation, expressions of emotions by the physician or the patient, expressions of uncertainty by the physician, and assertions of power by either the physician or the patient) [56, 57]. For example, both physicians and patients might use more or less assertion of power (i.e., verbal utterances seemingly with the purpose of influencing the interaction, opinions, decisions and/or behaviours of the other) when communicating with each other. Various types of power assertion shape consultations and are differently related to variables such as patient satisfaction, alliance, or physicians' stress [56]. Furthermore, other new findings related to the dataset of this thesis have been subsequently found. Three different possible communication pathways emerged from our data (e.g., connected to the patient more often asserting power, to the patient more often expressing emotions, or to the physician more often expressing emotions). This might add to a greater understanding of both the physician's and the patient's communication behaviours by combining communication and relationship ingredients that create the atmosphere of the consultation and lead to specific outcomes [57].

In conclusion, future research should develop the necessary tools to be able to study the communication loop between physicians and patients, instead of the communication ingredients as variables that can be added into a fixed ideal score, and should embrace and be inspired by a paradigm taking into account both the complexity and the uncertainty of the multiple layers of healthcare communication, including the physicians' experiences and internal resources. By doing this, we hope to improve the communication, not by increasing a certain communication behaviour, but by ameliorating the quality of the physician's judgment and his or her deliberate actions.

CONCLUSION

The main research questions of this thesis were whether the physicians' defensive functioning, perceived stress or the content of the consultation were related to the patient's satisfaction with communication and working alliance; and whether physician and/or patient variables were related to physicians' defensive functioning. The results suggested that some of physicians' defence mechanisms, although they might momentarily protect the physician, can indeed hamper the patient-physician relationship (working alliance) and the patient's satisfaction with the consultation. However, the majority of defences had no relationship with patient outcome, and might only have a function for the physician's well-being, or be confounded by other variables. The importance of physicians' perceived stress was emphasized as it indicates or even precipitates patient dissatisfaction with the consultation and a suboptimal alliance between physician and patient. The surprising absence of a relationship between content of the consultation (bad versus good news) and patient outcomes was explained by the likelihood that the same content can be differently interpreted by physicians or patients, and that physicians now succeed in adapting to their patients in bad news situations. Furthermore, Overall Defensive Functioning might be predominantly a stable trait, while the number of defences used might depend on the physician's outer world (the patient's state) and inner world (the level of stress). Physicians with a more mature defensive functioning were more independent of (inner) context and might thus maintain the ability to keep a relationship with the patient throughout different stress levels.

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APPENDICES

Summary

Samenvatting

Acknowledgements

Curriculum Vitae

SUMMARY

Communication between physicians and patients is a key element in cancer care and entails several aspects such as maintaining hope while discussing poor prognosis, coping with uncertainty, explaining and managing treatment effects and side effects, addressing end-of-life issues, and facing emotional distress and other reactions in both patients and physicians. The challenges in current healthcare communication research are to address this complexity and investigate the subjectivity and context-dependent nature of communication, as well as physicians' flexibility, motivation, and resources.

The overall aim of this thesis was to investigate physicians' defensive functioning during communication with patients suffering from advanced cancer and to explore the relationships between defensive functioning and patient outcome (satisfaction with communication and working alliance) and contextual characteristics (of the physician, the patient, and the consultation). Defined as part of a person's affect regulation, defences – self-protective psychological mechanisms triggered by an affective load – are supposed to help individuals, like the physician, to adapt to and/or protect oneself from stress. Moreover, defences have been proposed as a way to conceptualize the emotional distance or connection which the physician establishes with his patient. Various types of defence mechanisms have been identified and can be classified depending on their degree of adaptation to or distortion of reality. These range from "immature or low defences" (i.e., distorting reality and/or emotions) to "mature or high defence" (i.e., staying closer to reality and to emotions). A single Overall Defensive Functioning score (ODF) can be calculated for each consultation, positioning the defensive functioning of the physician during that consultation on the mature/immature scale with a score of 7 being completely mature and a score of 1 being completely immature.

First, the existing scientific knowledge with regard to the impact of physicians' characteristics on both patient-physician communication and on patient outcome (physical and psychological) in oncology was reviewed. In ***Chapter 2*** the systematic literature review revealed a positive impact of physicians' communication skills training, external locus of control, empathy, socio-emotional approach, shared decision-making style, anxiety, and mature defensive functioning on quality of communication and/or patient outcome. A negative impact was reported for physicians' level of fatigue and burnout and expression of worry. Professional experience of physicians was not related to the quality of the communication and/or to patient outcome, and divergent results

were reported with respect to physicians' gender, age, stress, posture, and confidence or self-efficacy.

Alexithymia (the difficulty to identify and describe emotions in oneself and in others) might be considered a form of emotional detachment that serves a global defensive function. It is suggested to play a role in the onset or development of psychiatric and physical health problems, such as stress-related disorders and cancer. It is also suspected to have an impact on patient outcome. In ***Chapter 3*** we reviewed the scientific literature on alexithymia in patients suffering from cancer. Patients' alexithymia was positively related to patients' state (anxiety and depression) but whether it could be related to physicians' affect regulation during communication with patients remained to be studied. Still, patients' alexithymia seemed to be related, possibly as a mediating factor (e.g., with regard to stress and coping with stress), with the immune system, with patients' emotional inhibition, and with intensity, interference and quality of pain among other variables.

At the centre of the framework of this thesis is the physician's defensive functioning. In ***Chapter 4*** results of the naturalistic multi-centred observational study in different hospitals in Switzerland showed that the use of four defences (i.e., *displacement*, *self-devaluation*, *acting-out* and *hypochondriasis*) and the physician's level of stress had a negative relationship with patient satisfaction and patient-perceived alliance. The content of the consultation (good versus bad test results) had no relationship with patient outcomes. No defences were found with a positive effect on patient outcome. These results suggested that some of physicians' defence mechanisms, although they might momentarily protect the physician, can indeed hamper the patient-physician relationship (working alliance) and the patient's satisfaction with the consultation. This is important as alliance is a powerful variable in patient-physician communication. The physician's defensive functioning might thus alienate the physician from the patient, thereby preventing support and relationship building and, ultimately, hampering positive treatment outcome. However, the majority of defences had no relationship with patient outcome, and might only have a function for the physician's well-being, or be confounded by other variables. This is illustrated by the link between physicians' stress and patient outcome emphasizing the importance that should be given to physicians' perceived stress as it indicates or even precipitates patient dissatisfaction with the consultation and a suboptimal alliance between physician and patient. Furthermore, the surprising absence of a relationship between content of the consultation (bad versus good news) and patient outcomes could possibly be explained by the likelihood that the same content can be differently

interpreted by physicians or patients, or, alternatively, the absence of a relationship might be a sign that physicians now succeed in adapting to their patients in bad news situations.

In ***Chapter 5*** a lower Overall Defensive Functioning was observed for the more alexithymic physicians in our study, while the frequency of defences increased depending on the context; especially when patients reported more sadness and the physician felt more stress. Neither physicians' experience nor training, nor patients' alexithymia were related to physicians' defensive functioning. Physician with a more mature defensive functioning were more independent of (inner) context and might thus maintain the ability to keep a relationship with the patients throughout different stress levels, and by doing so fulfil a critical element of good patient care. When a physician is detached from his or her emotions (e.g, alexithymic), he or she might fail to recognise them and thus lack the ability to manage them in a mature way. Overall Defensive Functioning and alexithymia might both illustrate more global functioning independent of situational factors but related to each other. Even though it might sometimes be adaptive to distance oneself from hurtful emotions that might otherwise be overwhelming, when this emotional detachment is no longer situational but becomes structural for a physician, the alexithymic functioning might hamper the therapeutic relationship with patients by producing a lack of connection and a sense of interchangeability (i.e., that either the patient or the physician could be replaced by any other patient/physician without being missed), which might alienate and isolate them both.

Finally, in **Chapter 6**, the main findings of this thesis were summarized and put into perspective by discussing the complexity of communication and of defensiveness, the paradoxes in healthcare communication and the implications for clinical care and for communication education. Recommendations for future research were given.

To conclude, the present thesis advances our understanding of healthcare communication and more specifically of the defensive functioning of physicians themselves during real life consultations with patients suffering from advanced cancer. The main research questions of this thesis were whether the physicians' defensive functioning, perceived stress or the content of the consultation were related to the patient's satisfaction with communication and working alliance; and whether physician and/or patient variables were related to physicians' defensive functioning. The results suggested that some of physicians' defence mechanisms, although they might momentarily protect the physician, can indeed hamper the patient-physician relationship (working alliance) and the patient's satisfaction with

the consultation. However, the majority of defences had no relationship with patient outcome, and might only have a function for the physician's well-being, or be confounded by other variables. Furthermore, Overall Defensive Functioning - indicating the overall maturity of the defences used - might be predominantly a stable trait, while the number of defences used might depend on the physician's outer world (the patient's state) and inner world (the level of stress). Physicians with a more mature defensive functioning were more independent of (inner) context and might thus maintain the ability to keep a relationship with the patient throughout different stress levels.

SAMENVATTING

Communicatie tussen artsen en patiënten is een belangrijk element in de zorg voor patiënten met kanker en omvat verschillende aspecten zoals het behouden van hoop, het bespreken van een slechte prognose, het omgaan met onzekerheid, het uitleggen en managen van behandelingseffecten en bijwerkingen, het behandelen van levenseinde vragen, en het hoofd bieden aan emotionele of stress reacties in zowel de patiënten als de artsen. Eén van de uitdagingen van het hedendaagse onderzoek naar communicatie in de gezondheidszorg is het doorgronden van de complexiteit van de communicatie door onderzoek te doen naar de subjectiviteit en contextafhankelijke natuur van communicatie, als ook naar de flexibiliteit, motivatie en vaardigheden van de artsen.

Het algemene doel van dit proefschrift was om het gebruik van afweermechanismen door de artsen tijdens communicatie met patiënten die lijden aan een geavanceerde vorm van kanker te onderzoeken en om de relaties tussen het gebruik van afweermechanismen enerzijds en de door de patiënten gemelde uitkomstmaten (tevredenheid met communicatie en werkalliantie) en contextuele kenmerken (van de arts, de patiënt, en het consult) anderzijds te verkennen. Afweermechanismen, gedefinieerd als onderdeel van de affectregulatie van een persoon, zijn zelfbeschermende psychologische mechanismen veroorzaakt door een affectieve stressor. Zij worden verondersteld het individu, zoals de arts, te helpen zichzelf aan te passen aan en / of te beschermen tegen stress. Afweermechanismen kunnen ook gebruikt worden als conceptualisatie van de emotionele afstand of verbinding die de arts met zijn patiënt tot stand brengt. Er zijn verschillende soorten afweermechanismen geïdentificeerd en zij kunnen, afhankelijk van hun mate van aanpassing aan of vervorming van de werkelijkheid, worden geclassificeerd. Dit varieert van "onrijpe of lage afweermechanismen" (d.w.z., de werkelijkheid en / of emoties vervormen) tot "rijpe of hoge afweermechanismen" (d.w.z. dichter bij de realiteit en bij de emoties blijven). Per consult kan een score voor de algemene afweerfunctie (ODF) van de arts worden berekend, waarbij een score van 7 een volledig rijpe afweerfunctie en een score van 1 een volledig onrijpe afweerfunctie voorstelt.

Eerst werd de bestaande wetenschappelijke kennis met betrekking tot de impact van de eigenschappen van de arts op zowel de communicatie tussen patiënt en arts alsook op de door patiënten gemelde uitkomstmaten (fysiek en psychologisch) in de oncologische setting onderzocht. In **Hoofdstuk 2** toonde een systematische literatuurstudie een positieve impact aan van de variabelen communicatietraining, externe locus of control, empathie, sociaal-emotionele

benadering, gezamelijke besluitvormingsstijl, angst, en rijpe afweerfunctie op kwaliteit van communicatie en / of door patiënten gemelde uitkomstmaten. Een negatieve impact werd gemeld met betrekking tot het niveau van vermoeidheid en burn-out van artsen en de uitdrukking van bezorgdheid. De professionele ervaring van artsen was niet gerelateerd aan de kwaliteit van de communicatie en / of door patiënten gemelde uitkomstmaten en er werden uiteenlopende resultaten gerapporteerd met betrekking tot het geslacht, de leeftijd, de stress, de lichaamshouding en het zelfvertrouwen en zelfeffectiviteit van de arts.

Alexithymie (de moeilijkheid om emoties in zichzelf en in anderen te identificeren en te beschrijven) kan worden beschouwd als een vorm van emotionele onthechting die een algehele afweerfunctie dient. Er is gesuggereerd dat alexithymie een rol speelt bij het ontstaan of bij de ontwikkeling van psychiatrische en lichamelijke gezondheidsproblemen, zoals stressgerelateerde stoornissen en kanker. Het wordt ook vermeend een effect te hebben op door patiënten gemelde uitkomsten. In **Hoofdstuk 3** hebben we de wetenschappelijke literatuur over alexithymie bij patiënten met kanker onderzocht. De alexithymie van patiënten was positief gerelateerd aan de toestand van de patiënt (angst en depressie), maar de vraag of deze gerelateerd kon zijn aan de affectregulatie van de arts tijdens de communicatie met patiënten was nog niet onderzocht. De alexithymie van patiënten leek onder andere gerelateerd, mogelijk als mediërende factor (bijvoorbeeld met betrekking tot stress en omgaan met stress), met het immuunsysteem, met emotionele inhibitie van patiënten, en met intensiteit, interferentie en kwaliteit van pijn.

Centraal in het kader van dit proefschrift staat de afweerfunctie van de arts. In **Hoofdstuk 4** lieten de resultaten van de naturalistische multicenter observationele studie in verschillende ziekenhuizen in Zwitserland zien dat het gebruik van vier afweermechanismen (*verplaatsing, zelf-devaluatie, acteren* en *hypochondriasis*) en het stressniveau van de arts een negatieve relatie hadden met patiënttevredenheid en met door de patiënt waargenomen alliantie. De inhoud van de consulten (goede versus slechte testresultaten) had geen relatie met de door de patiënten gemelde uitkomstmaten. Er werden geen afweermechanismen gevonden met een positief effect op de door patiënten gemelde uitkomstmaten. De resultaten suggereerden dat sommige afweermechanismen van artsen, hoewel ze de arts misschien tijdelijk kunnen beschermen, de relatie tussen patiënt en arts (werkalliantie) en de tevredenheid van de patiënt met het consult kunnen belemmeren. Dit is een belangrijk punt omdat alliantie een invloedrijke variabele is in de communicatie tussen patiënt en arts. De afweerfunctie van de arts zou hem of haar dus van de patiënt kunnen vervreemden, waardoor steun en

relatieopbouw wordt verhinderd en uiteindelijk de positieve behandelingsresultaten worden belemmerd. Het merendeel van de afweermechanismen had echter geen relatie met de door patiënten gemelde uitkomstmaten en zou alleen een functie kunnen hebben voor het welzijn van de arts, of zou met andere variabelen kunnen samenhangen. Dit wordt geïllustreerd door de relatie tussen de stress van de arts en de uitkomstmaten van de patiënt, hetgeen het belang benadrukt dat aan de ervaren stress van de arts gegeven dient te worden. Deze laatste duidt op, of versterkt, de ontevredenheid van de patiënt met het consult als ook een suboptimale samenwerking tussen arts en patiënt. Verder kan de verrassende afwezigheid van een relatie tussen de inhoud van het consult (slecht versus goed nieuws) en de door de patiënten gemelde uitkomstmaten wellicht worden verklaard door de mogelijkheid dat dezelfde inhoud door artsen of patiënten verschillend kan worden geïnterpreteerd, of dat de afwezigheid van een relatie een teken is dat artsen er nu in slagen zich aan te passen aan hun patiënten in slecht nieuws situaties.

In **Hoofdstuk 5** werd een onrijpere algemene afweerfunctie waargenomen voor de meer alexithymische artsen in onze studie, terwijl de frequentie van afweermechanismen toenam naargelang de context; vooral wanneer patiënten meer verdriet rapporteerden en de arts meer stress voelde. Noch de ervaring of training van artsen, noch de alexithymie van patiënten waren gerelateerd aan de afweerfunctie van de arts. Artsen met een rijpere afweerfunctie waren onafhankelijker van (innerlijke) context en konden aldus het vermogen bewaren om een relatie met de patiënten te houden onder verschillende stressniveaus, en op die manier een kritisch element van goede patiëntenzorg vervullen. Wanneer een arts gescheiden is van de beleving van zijn of haar emoties (bijvoorbeeld door alexithymie), kan hij of zij deze mogelijk niet herkennen en heeft dan niet de mogelijkheid om op een rijpe manier met de emotie om te gaan. Algemene afweerfunctie en alexithymie kunnen beiden een meer globaal functioneren illustreren, onafhankelijk van situationele factoren maar gerelateerd aan elkaar. Soms kan het adaptief zijn voor een arts om afstand te nemen van pijnlijke emoties die anders overweldigend zouden kunnen worden. Echter, op het moment dat de emotionele afstandelijkheid niet langer situationeel is maar structureel wordt, kan het alexithymische functioneren de therapeutische relatie met patiënten belemmeren door het genereren van een gebrek aan verbinding en een gevoel van uitwisselbaarheid (dat wil zeggen dat ofwel de patiënt ofwel de arts zou kunnen worden vervangen door een andere patiënt / arts zonder te worden gemist), wat zowel de arts als de patient zou kunnen vervreemden en isoleren.

Tot slot werden in **Hoofdstuk 6** de belangrijkste bevindingen van dit proefschrift samengevat en in perspectief geplaatst door de complexiteit van communicatie en van afweerfunctie te bespreken, alsook de paradoxen in communicatie in de gezondheidszorg en de implicaties van de resultaten van dit proefschrift voor klinische zorg en voor communicatietrainingen. Verschillende aanbevelingen werden gegeven voor toekomstig wetenschappelijk onderzoek.

Samenvattend, dit proefschrift bevordert ons begrip van communicatie in de gezondheidszorg en meer specifiek van de afweerfunctie van artsen zelf tijdens consulten met patiënten die lijden aan vergevorderde kanker. De belangrijkste onderzoeksvragen van dit proefschrift waren of de afweerfunctie, de waargenomen stress of de inhoud van het consult gerelateerd waren aan de tevredenheid van de patiënt met de communicatie en aan de werkalliantie; en of arts- danwel patiënt-kenmerken gerelateerd waren aan de afweerfunctie van de artsen. De resultaten suggereerden dat sommige afweermechanismen van artsen, hoewel ze de arts tijdelijk zouden kunnen beschermen, inderdaad de relatie tussen patiënt en arts (werkalliantie) en de tevredenheid van de patiënt met de communicatie kunnen belemmeren. Het merendeel van de afweermechanismen had echter geen relatie met de door patiënten gemelde uitkomstmaten en zou alleen een functie kunnen hebben voor het welzijn van de arts, of zou met andere variabelen kunnen samenhangen. Bovendien kan de algemene afweerfunctie - de algemene rijpheid van de gebruikte afweermechanismen - een overwegend stabiele eigenschap zijn, terwijl het aantal gebruikte afweermechanismen kan afhangen van de externe wereld van de arts (de toestand van de patiënt) en van de innerlijke wereld (de mate van stress). Artsen met een rijpere afweerfunctie waren onafhankelijker van (innerlijke) context en konden zo het vermogen bewaren om een relatie met de patiënten te houden onder verschillende stressniveaus.

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Statistical course on Regression techniques (V05), EpidM. *Analyse van continue uitkomstvariabelen, van continue dichotome uitkomstvariablelen, van survival data, Multiple regressie analyse, Kwaliteit van predictiemodellen en Valkuilen in regressie analyses* (NL), 2013

Several courses on research models, research instruments, quantative and qualitative analyses while working at the *Institut Universitaire de Psychothérapie* (IUP) at the University Hospital of Lausanne (such as *Endnote, statistics, DMRS-C, use of PubMed and other scientific databases, systematic review procedures, weekly seminars, journal club*) (CH), 2007-2014

European Method Workshops for Young Researchers, SPR. *Neuroscience methods in psychotherapy research, P-technique and space-state models, discourse methods, meta-analysis of qualitative studies, exploring the process of change, strategies for modeling change over time via hierarchical linear models, external and internal validity, modeling patient progress and defining feedback tools, basic item response modeling* (DE), 2010

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Parameters of Esteem - Grants

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