Patient Education and Counseling 105 (2022) 1673–1675

Contents lists available at ScienceDirect

Patient Education and Counseling

journal homepage: www.journals.elsevier.com/patient-education-and-counseling

Studying clinical communication through multiple lenses: The underused potential of inter-disciplinary collaborations☆

Hanne C. Lie [a,*], Jennifer Gerwing [b], Hilde Bondevik [c], Inga Bostad [d], Dan-Mikael Ellingsen [e], Sascha Frühholz [f], Pål Gulbrandsen [b,g], Magnus Hontvedt [h], Thomas De Lange [h], Anne Marie Landmark [h], Berit Hofset Larsen [i], Julia Menichetti [b,j]

[a] Department of Behavioural Medicine, Institute of Basic Medical Sciences, Faculty of Medicine, University of Oslo, Norway
[b] Health Services Research Unit, HØKH, Akershus University Hospital, Norway
[c] Department for Interdisciplinary Health Sciences, Institute of Health and Society, Faculty of Medicine, University of Oslo, Norway
[d] Department of Education, Institute of Pedagogy, Faculty of Educational Sciences, University of Oslo, Norway
[e] Department of Psychology, University of Oslo, and Department of Diagnostic Physics, Division of Radiology and Nuclear Medicine, Oslo University Hospital, Norway
[f] Department of Psychology, Faculty of Social Sciences, Norway
[g] Ahus University Hospital, Institute of Clinical Medicine, Faculty of Medicine, University of Oslo, Norway
[h] Faculty of Humanities, Sports and Educational Science, Department of Educational Science, University of South-Eastern Norway, Norway
[i] Department of Oncology, Oslo University Hospital, and Centre for Medical Ethics, University of Oslo, Oslo, Norway
[j] Psychologist EACH Research Committee, Norway

1. Introduction

In the era of evidence-based medicine, surprisingly little attention is given to the practice of evidence-based communication skills and strategies to provide the best and most efficient patient care, perhaps due to the infinitely complex nature of clinical communication. Multiple models for 'best practice' exist, but they tend to focus on *what* skills and strategies to use, paying less attention to *how* they should be used in *which* contexts and situations for best effects [1]. Disentangling the complexities of effective clinical communication would therefore require insights from other disciplines outside medicine, including their theoretical models, empirical knowledge, and research methods, concerning the study of human communication and interaction, as well as medical, ethical, legal, philosophical, existential, cultural, and organizational perspectives. Although several disciplines study clinical communication, this is often done in isolation, without integrating efforts beyond a few selected disciplines, e.g., medicine, linguistics, or social psychology [1–4]. Given the multiple levels of complexity in clinical communication research, we need to move beyond this fragmented approach to answer questions about *what works, for what reasons, and in which contexts.*

These Association Pages aim to provide insights to move forward towards interdisciplinary research of clinical communication. As a primer to help build bridges across disciplines, we have asked experts from medicine, cognitive neuroscience, psychology, philosophy, linguistics, medical ethics, and educational sciences these two questions: "What fascinates you about clinical communication?" and "Which methodological tools do you tend to use to study it?". We have summarized the responses below and provided a suggestion for how these different experts may work together in an interdisciplinary effort to generate new and needed knowledge of what is effective clinical communication, how it works and why, which can be translated into clinical practice and training.

1.1. Interests on clinical communication across disciplines

The patient-clinician interaction is often considered an intangible part of the 'art of medicine'. At the core of the interests of different experts studying clinical communication is *how a brief encounter and very small adjustments of approaches can have profound, sometimes unpredictable, impact on patient outcomes*. However, our scientific understanding of the brain mechanisms and behavioural processes supporting clinical communication is in its infancy. Human communication is a multi-level and dynamic exchange of knowledge, opinions, intentions, and affect that, when successful, can foster mutual understanding and rapport. This communication happens via speech and non-verbal behaviour, both of which are central in patient-clinician interactions. These behaviours can display higher level social concepts such as trust, empathy, warmth, and competency, which in turn may promote therapeutic alliance [5].

In any given clinical context, clinical communication is a goal-

☆ One of the scopes of rEACH, the research-focused subcommittee of EACH: International Association for Communication in Healthcare, is to disseminate knowledge on new trends in healthcare communication research. With these Association Pages, rEACH has involved external contributors to disseminate knowl-edge on the specific topic of 'interdisciplinary collaboration in healthcare commu-nication research'.

* Corresponding author.
E-mail address: h.c.lie@medisin.uio.no (H.C. Lie).

https://doi.org/10.1016/j.pec.2022.04.010
0738-3991

directed activity [6], with goals ranging from specific clinical communication tasks (e.g., gathering or providing information) or manifesting a communication ethos more generally (e.g., patient-centred, empathic). Advances in understanding the workings of goal-oriented clinical communication could be achieved through an interdisciplinary, mutually beneficial approach.

Cognitive neuroscientists aim to understand the brain mechanisms underpinning these social interactions, the contributions and characteristics of verbal and non-verbal communication, and to what extent they contribute to effective communication. Such an enquiry requires basic knowledge of specific skills and strategies and how they can be applied in specific ways to achieve effective clinical communication. This knowledge can be drawn from the social sciences of linguistics, interaction analysts, psychologists and learning scientists.

These social science disciplines are interested in detecting 'best actual practice', by focusing on how clinicians and patients negotiate and accomplish goal-oriented communication despite their differing standpoints, e.g. patients' care plans. For these experts, the consequential effort of doctors and patients to negotiate meaning through dialogue is at the core of detecting what works or not in achieving the communication goals.

While doing so, medical ethicists, philosophers and medical humanists would highlight the need to pay attention to contextual factors to understand why certain skills and strategies are successful in achieving the goal of the communication in that given context, including factors such as social and cultural prejudices, ethical dilemmas and value conflicts that are always present (explicit or implicit) and often subtle and challenging. For example, the ethical principle 'respect for patient autonomy' may pose challenges for health professionals when the patient's autonomy conflicts with the values, goals, and principles of the medical profession, such as professional views on the patient's best interest vs responsible resource allocation.

In sum, achieving the goals of clinical communication requires the use of specific skills and strategies, manifested in the clinician's behaviours in dialogues with patients. Studying the same clinical interaction through multiple disciplinary lenses would help us better understand *what* skills and strategies are successful for reaching *which* goals, *how* they are applied, and in *which* contexts.

1.2. Methods for studying clinical communication across disciplines

An overview of various methods used to answer research questions regarding aspects of clinical communication across disciplines is provided in Table 1. In medicine, applying checklists and questionnaires to detect epidemiological patterns and randomized controlled trials to study effects of prescribed consultation structures are traditionally the gold standard [7]. Effect studies are needed to convince clinicians, but these may be overly simplistic approaches which may also explain why prescribed communication often fails and is subsequently dismissed by clinicians, and how immature medicine is in its understanding of human interaction [7].

For many non-medical disciplines such as interaction analysts, psychologists, philosophers, medical humanists and learning scientists, video-recordings of authentic clinical dialogues (both in actual clinical encounters and in training situations) are the key data [3]. Interaction analysts would typically analyse such data inductively (with conversation analysis or microanalysis of face-to-face dialogue) [8,9], while building on accumulated knowledge about social interaction in general

Table 1
The many levels of understanding of clinical communication across disciplines.

Level of understanding	*Discipline*	*Research objects*	*Units of analysis*	*Methods*
Basic level	Cognitive neuroscience/ neuropsychology	Key underlying physiological and brain mechanisms supporting clinical communication, including general features that guide the informational and socio-affective dimensions of human communication, and the brain networks that underlie verbal and non-verbal communication	Brain network activation in response to experimental stimuli (qualities of verbal and non-verbal sensory input) Brain-to-brain concordance and non-linear dynamic relationships Behaviours Cognitive and affective characteristics of clinician and patients	Brain activity assessment (fMRI, EEG, fNIRS) Physiological recording (heart rate, skin conductance, respiration) Non-verbal behaviour (facial expressions, gestures, posture, within-dyad synchrony) Self-report and behavioural tasks (e.g. attachment style, empathy, theory of mind, personality scales)
Interpersonal dialogue level	Linguistics, psychology, sociology, medicine, etc.	Specific speech, prosodic, and bodily communicative behaviours constituting practices, strategies, actions and resources that facilitate the goal-oriented nature of clinical communication Dialogic behaviours supporting socio-affective communication features to improve patient outcomes Observable signs of clinical and ethical dilemmas in dialogues and behaviours to manage them	Sequential organization, turn design (e.g. question formats), co-speech hand and facial gestures, interactive function Sequence of themes and events, how participants talk about subjects Place of interaction, structure of interaction, resources, type of tasks, relationships, gender, language discordance, measurements etc.	Conversation analysis Discourse analysis Microanalysis of clinical interactions Validated coding schemes (see EACH website for a comprehensive list: https://each.international/resources/reach/)
Contextual level	Law, ethics, bioethics, philosophy, and medical humanities	Ethical dilemmas, cultural and contextual challenges, and the complexity of values that clinicians need to manage to practise medicine according to the professional goals, values and principles How skills and strategies can be trained and applied to exercise moral sensitivity, responsiveness, and good judgments in clinical interactions Reflective reasoning behind effective communication behaviour and management of contextual dilemmas to ensure high quality patient care	Formal rules, legislation, ethical principles, values and norms of behaviour and interactions, role definitions, responsibilities	Qualitative analysis of clinical interactions (e.g. video-recordings) Qualitative interviews regarding the perceptions of clinicians and patients Philosophical dialogue Moral deliberation Narrative competence
Knowledge translation level	Educational sciences, pedagogy, medicine	Pedagogically sound research-based training methods for advancing clinical communication expertise with enhanced opportunities for deliberate practice, reflection, and feedback	Meaning making, mediated action, learning trajectories	Interaction analysis Participatory methods Design-based research Focus group interviews

and in various clinical contexts in particular [1,4].

Medical ethicists would use the same principles and methods, with a specific focus on identifying and describing ethical or moral conflicts in clinical practice and discussing findings in light of ethical principles of clinical practice to generate new insights into how communication can help or hinder the resolution of these conflicts (e.g. Ref. [10]).

Psychologists would usually complement the video-based data with qualitative interviews or questionnaires, asking clinicians and patients about their views and experiences of what happened, of what they felt and how they feel afterwards [11].

Cognitive neuroscientists use techniques such as functional Magnetic Resonance Imaging (fMRI), functional Near Infrared Spectroscopy (fNIRS) and Electroencephalography (EEG) to record moment-to-moment activity in different areas of the brain. The human brain has modular neural systems that decode such implicit social and affective information in speech communication from the tone of voice, which influences the neural processing of generic speech signals [12]. Using fMRI, it is possible to disentangle the different components responsible for decoding explicit speech versus implicit nonverbal signals, and how these modes combine during active communication. Recent approaches using simultaneous recording of brain activity (e.g. fMRI or EEG) *during* interaction can tap into how brains interact dynamically during interaction, and link these parameters to specific behaviour and patient-reported symptoms (e.g. pain), affect, and therapeutic alliance ([13]).

For educational scientists, gaining research-based knowledge about clinical interaction would only bring us halfway, as they particularly strive to translate and include research-based insights into high-quality learning environments and contribute to how to develop communication as a professional competency and include it in learning designs in both professional settings and educational health training. They employ design-based research to systematically co-design with the end users: students, clinicians and trainers. Video-observation and interaction analysis contribute to progressively refine the learning environments [14].

1.3. Moving from multi-to inter-disciplinary approaches to clinical communication research

With these pages, we have provided an overview of interests, research objects, and methods across different disciplines interested in clinical communication. Basic, interpersonal, contextual, and knowledge translation levels of inquiry provide knowledge that can substantially enrich our understanding of clinical communication and move our field forward (Table 1). However, moving from a multi-to an inter-disciplinary approach to clinical communication research may require new ways of working and focused projects that connect the interests of the different disciplines.

In such an attempt, we highlight a possible research question that can be addressed by an inter-disciplinary effort to create knowledge about clinical communication practice and training. One possible interdisciplinary research question on clinical communication could indeed aim to discern *what are the fundamental skills and strategies underpinning effective clinical communication and how can we best teach them considering the contextual challenges that may arise?* To address this broad question, we may need to have psychologists and interaction analysts work in tandem on the same videotaped interactions to identify specific speech, prosodic features, bodily conduct that contribute to specific practices and strategies that facilitate the goal-oriented nature of clinical communication. Medical humanists and ethicists could explore ethical and moral dilemmas and values that those skills and strategies involve, while cognitive neuroscientists can then shed light on the underlying physiological and brain mechanisms supporting those skills and strategies by designing focused lab experiments. Finally, educational sciences and practitioners could ensure that the knowledge generate can result in 'trainables' and develop novel and sustainable clinical communication teaching methods based on sound interdisciplinary knowledge.

Such a translational approach could help elucidate how clinical interactions work and can be improved – from the moment-by-moment unfolding of conversation and underlying brain-behavioural mechanisms to a societal framework of clinical communication.

For further information on the research-focused work of EACH International Association for Communication in Healthcare, visit: https://each.international/research/

References

[1] Udvardi A. The role of linguistics in improving the evidence base of healthcare communication. Patient Educ Counsel 2019;102(2):388–93. https://doi.org/10.1016/j.pec.2018.09.012.

[2] Woodward-Kron R, Stevens M, Flynn E. The medical educator, the discourse analyst, and the phonetician: a collaborative feedback methodology for clinical communication. Acad Med 2011;86(5):565–70. https://doi.org/10.1097/ACM.0b013e318212feaf.

[3] Henry SG, White AEC, Magnan EM, et al. Making the most of video recorded clinical encounters: optimizing impact and productivity through interdisciplinary teamwork. Patient Educ Counsel 2020;103(10):2178–84. https://doi.org/10.1016/j.pec.2020.06.005.

[4] Maynard DW, Heritage J. Conversation analysis, doctor–patient interaction and medical communication. Med Educ 2005;39(4):428–35. https://doi.org/10.1111/j.1365-2929.2005.02111.x.

[5] Frühholz S, Schweinberger SR. Nonverbal auditory communication–evidence for integrated neural systems for voice signal production and perception. Prog Neurobiol (N. Y.) 2021;199:101948. https://doi.org/10.1016/j.pneurobio.2020.101948.

[6] Hulsman RL. Shifting goals in medical communication. Determinants of goal detection and response formation. Patient Educ Counsel 2009;74(3):302–8. https://doi.org/10.1016/j.pec.2008.12.001.

[7] Worrall J. What evidence in evidence-based medicine? Philos Sci 2002;69(S3):S316–30. https://doi.org/10.1086/341855.

[8] Sidnell J, Stivers T. The Handbook of Conversation Analysis. John Wiley & Sons; 2012. p. 121.

[9] Bavelas J, Gerwing J, Healing S, Tomori C. Microanalysis of face-to-face dialogue (MFD). The Sourcebook of Listening Research: Methodology and Measures. 2017. p. 445–52. https://doi.org/10.1002/9781119102991.ch47.

[10] Larsen BH, Lundeby T, Gerwing J, Gulbrandsen P, Førde R. Eh–What type of cells are these–flourishing in the liver?" Cancer patients' disclosure of existential concerns in routine hospital consultations. Patient Educ Counsel 2021. https://doi.org/10.1016/j.pec.2021.11.010. in press.

[11] Salmon P, Mendick N, Young B. Integrative qualitative communication analysis of consultation and patient and practitioner perspectives: towards a theory of authentic caring in clinical relationships. Patient Educ Counsel 2011;82(3):448–54. https://doi.org/10.1016/j.pec.2010.10.017.

[12] Dricu M, Frühholz S. Perceiving emotional expressions in others. Neurosci Biobehav Rev 2016;71:810–28. https://doi.org/10.1016/j.neubiorev.2016.10.020.

[13] Ellingsen DM, Isenburg K, Jung C, et al. Dynamic brain-to-brain concordance and behavioral mirroring as a mechanism of the patient-clinician interaction. Sci Adv 2020;6(43):eabc1304. https://doi.org/10.1126/sciadv.abc1304.

[14] Krange Ludvigsen S. The historical and situated nature design experiments - Implications for data analysis. J Comput Assist Learn 2009;25(3):268–79. https://doi.org/10.1111/j.1365-2729.2008.00307.x.