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Could decision aids be helpful during medical consultations? semi-structured interviews with oncologists within the I3LUNG project

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ABSTRACT

Lung cancer patients often have difficulties in their relationships with doctors due to limited time and poor communication about their illness and treatment. Similarly, clinicians find it challenging to convey complex medical information and manage patients' and caregivers' emotional responses. These difficulties can cause anxiety and distress for both parties, potentially affecting treatment adherence. Tailored decision aid tools may enhance communication and support shared decision-making. This qualitative study involved semi-structured interviews with ten oncologists, conducted between February and April 2023, to explore their views on communication during consultations. Thematic analysis revealed that physicians often lack adequate time to explain disease details and treatment options and struggle with delivering negative prognoses. They also report difficulties in handling patients' emotional reactions and express a need for communication support. Participants emphasized the importance of tools that facilitate informed and personalized decision-making, highlighting their potential to improve patient care. The study offers insights for future research and practical recommendations for enhancing oncologist-patient communication.

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Health Conditions; Cancer; Chronic Diseases

Introduction

Lung cancer is one of the leading causes of cancer incidence and mortality, with 2.1 million new cases and 1.76 million deaths worldwide in 2018 (He et al., 2021). Targeted therapies and immunotherapies have improved patient outcomes (Duma et al., 2019; Yang et al., 2019) but also bring significant burdens such as adverse events, financial worries, and mental distress (Steven et al., 2016). Patients must weigh the benefits (e.g., extended survival) against burdens (e.g., adverse effects and cost) when making treatment decisions, which can negatively affect their quality of life for years (Sebri et al., 2023). Effective doctor-patient communication, particularly in lung cancer care, is crucial for navigating diagnosis and treatment (Blödt et al., 2016). Clinical decision-making is shifting from the paternalistic model to a shared decision-making (SDM) process about cancer treatments between physicians and patients (He et al., 2021). Many patients struggle to express preferences effectively, hindering SDM implementation (Ting et al., 2016). Conversely, others expect to be informed about all their illness characteristics and related side effects so that they may cope with adverse events in the future (Rogith et al., 2016). In this regard, patients have often reported the need to manage their emotional stability and avoid higher levels of distress and anxiety (Eraslan & İlhan, 2023). Thus, not all oncological patients prefer to be aware of cancer characteristics and related treatment outcomes (Khalil et al., 2016; Sebri et al., 2023). Generally, family involvement in treatment decisions is common but may lead to preference disparities (Durosini et al., 2021;

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Petrocchi et al., 2021; Rui, 2015). It is paramount to consider that oncologists and family members may perceive the needs and treatment preferences differently from patients (Blinman et al., 2015; Marzorati et al., 2018; Pacchiana et al., 2017). Sometimes, patients and their doctors show differences in treatment preferences. It would lead to difficulties in patients' treatment adherence due to disparities in their preferences regarding regimens and attributes, such as overall survival and convenience (McMullen et al., 2019). On the other hand, the literature lacks details about physicians' preferences in communication with their patients, although it strongly influences SDM.

To promote effective doctor-patient communication, tailored tools like Patient Decision Aids (PDAs) are recommended. PDAs are interactive tools designed to provide illness information, fostering a clearer understanding of available treatment options (Sebri et al., 2025). PDAs personalize clinical information, engage patients in decision-making, and support physicians in discussing treatment options comprehensively. Studies have shown the efficacy of PDAs in enhancing communication and supporting SDM processes (Amundsen et al., 2018; Schapira et al., 2019).

In light of these challenges, the I3LUNG project aims to explore clinicians' experiences, challenges, and perspectives in communicating treatment-related information to patients with non-small cell lung cancer (NSCLC), to inform the development of an AI-based Patient Decision Aid (PDA). By investigating current communication practices and emotional dynamics during consultations, the study seeks to identify how tailored PDAs can support SDM, reduce patient distress, and improve the quality of oncological care.

The significance of this study lies in its contribution to addressing a crucial gap in the literature. While numerous studies have highlighted patients' unmet communication needs, there is a relative lack of research focuses on physicians' communication challenges when discussing NSCLC treatments and their side effects. Several studies have shown that PDAs can help improve communication and decision quality by providing structured, evidence-based, and emotionally sensitive tools (Razmak & Aouni, 2015; Stacey & Volk, 2021). However, most of the existing evidence focuses on patient outcomes, with less attention to physicians' practical needs and expectations regarding using such tools (Søndergaard et al., 2019). This study addresses that gap by offering an in-depth understanding of clinicians' perspectives, ultimately informing the development of a PDA that is not only patient-centered but also clinically feasible and emotionally attuned to the real-world dynamics of oncological consultations.

Materials and methods

Institutional Review Board statement

This study was performed in accordance with the principles of the Declaration of Helsinki and approved by the Institutional Review Board (IRB) of the National Tumor Institute, Milan (N. 147/22).

Participants

Clinicians with expertise in the oncological field for at least 5 years have been included. Additionally, they must read, accept, and sign the Informed Consent before the interview. The lack of an Informed Consent signature was considered an exclusion criterion. In accordance with the study design, we proposed conducting semi-structured interviews with physicians to satisfy data saturation and variability related to the main topic of this study's interest. Following Hennink et al. (2017), we expected that 10 interviews would be sufficient to reach data saturation. Accordingly, fewer physicians would have been involved if saturation had been reached before the 10th interview. Data saturation is reached when no new ideas or information emerge from the data collection (Faulkner & Herman, 2017). Conversely, if ten interviews had not been enough to get data saturation, more participants would have been involved.

Design and procedure

To achieve the study's objective of informing the development of a tailored PDA for NSCLC care, we conducted semi-structured interviews with experienced oncologists to gather qualitative insights into their communication experiences, challenges, and perspectives.

In this qualitative study, ten semi-structured interviews were conducted with clinicians (e.g., oncologists and specialists in palliative care) involved in the treatment of NSCLC. Clinicians were affiliated with two European Oncological clinical centers: five from the Medical Oncology Department, Foundation IRCCS National Tumor Institute of Milan, Milan, Italy, and five from the Metropolitan Hospital of Greece. Clinicians were contacted by phone, briefed about the project, and sent an invitation email with study

details and an informed consent form. They filled out socio-demographic and professional information online one week before the interview and received a ZOOM link for the interview. Participants were asked to stay in a quiet room without noise for the entire duration of the interview. Interviewers were also in an isolated and quiet room, avoiding interruption and external disturbances. The interviews, lasting 30-40 minutes, were conducted separately via ZOOM and recorded for analysis, with personal information removed from the transcripts.

Data collection

Data collection was conducted between February and April 2023. Two researchers conducted the semi-structured interviews, one as an interviewer and the other as a note-taker and assistant. The semi-structured interviews were conducted in the physicians' native language.

Semi-structured interview

The draft of the semi-structured interviews was developed by the Italian researchers (VS, CM, LP) starting from the existing literature on implementing a PDA in lung cancer patients during medical consultations (Lau et al., 2015; Søndergaard et al., 2019). The interviews aimed to obtain in-depth knowledge of clinicians' experiences, expectations, difficulties, and attitudes to communicating and sharing the main information about lung cancer treatments during medical consultations. Four expert psycho-oncologists (two in the Italian clinical center and two in the Greek Clinical center) with extensive professional experience in doctor-patient communication conducted ten semi-structured interviews.

The interview primarily explored oncologists' perspectives on their interactions with patients during medical consultations, mainly focusing on describing available treatments for NSCLC, including their procedures, benefits, and harms. The interview was divided into two main phases. In phase I, researchers delved into specific lung cancer treatment topics, such as characteristics of the illness, available treatments, and side effects, as per healthcare guidelines. Physicians were queried about how they usually decide on treatments with their patients and whether clinicians have to follow national guidelines to choose a specific lung cancer treatment. The interview also probed into areas for potential improvement in consultations, including whether time constraints hinder the sharing of relevant information and the potential role of PDAs in aiding decision-making. Phase II explored the relationship between oncologists and lung cancer patients during consultation. This involved investigating physicians' perceptions of their emotional involvement, communication style, and how much they provide information on treatment options. Clinicians were asked about their approach to presenting treatment options, whether they inquire about patient doubts or questions, and if patients typically ask questions about proposed treatments during or after consultations. Clinicians shared their experience with lung cancer and its available treatments to outline clinical possible differences referring to oncological treatments (see Supplementary Material).

Corpus preparation

All the reports were translated from Italian and Greek into English. The length of the answers was heterogeneous, ranging from a brief statement of a few words to a paragraph of (120) words. Finally, personal references (e.g., names, locations, and dates) were anonymized.

Data analysis

First of all, an Italian (GO) and a Greek (ES) researcher who were not involved in the interviews translated the entire transcription into English. Therefore, we followed the stages of the analytical process for qualitative thematic analysis with a bottom-up and semantic approach, allowing the analysis of the physicians' opinions (Boyatzis, 1998; Braun & Clarke, 2006). Accordingly, the authors discussed and defined themes and sub-themes. We aimed to identify the more frequent words that the participants used to speak about decision aids, physicians' interactions with patients during medical consultations, and patient-and-doctor communication. Specifically, three main themes and nine related sub-themes were identified following the five steps proposed by Braun and Clarke (2006). Adopting an inductive approach, we did not try to fit the data into a pre-existing frame. Starting from main themes, subthemes were identified through a 'bottom-up' process (Clarke & Braun, 2017). As described by Braun and Clarke (2006), the analytical process followed the main phases of qualitative thematic analysis, involving multiple readings of each participant's text by two authors (VS and PD) to familiarize and

fully understand the contents. Initial data coding using Microsoft Excel was then carried out by DM and CM, assigning codes to segments of textual reports to identify semantic contents. This way, researchers considered a single segment when the answer reported a single main content. Distinct codes were grouped into potential main themes and sub-themes by VS and PD, with discrepancies resolved by a third author (RG). The main themes and sub-themes were reviewed and refined by VS and PD with input from other authors (AP, LP, ND, and GO). Therefore, a thematic map was reviewed by two authors (VS and PD), and possible discrepancies were resolved through discussion. Finally, the sub-themes were labeled by VS and ES to provide explicit definitions for each. The entire process was reviewed by GP, who did not participate in the previous analysis phases, to further validate the final thematic map.

Table 1. Socio-demographic and clinical characteristics of clinicians (N = 10).

	Mean	Rage age	SD
Age	30.8	27–33	2.50
		N	%
Gender			
Male		4	40
Female		6	60
Medical specialization			
Oncologist		8	80
Palliative care physician		2	20
How many years have you been working with lung cancer patients?			
<5 Years		6	60
5–10 Years		4	40

Results

Physicians had a mean age of 30.8 years (age range 27–33). Most participants were female (60%) and oncologists (80%), with a small percentage working in palliative care (20%) (Table 1). Findings revealed three main themes: Communication, Patient and Doctor Relationship, and Implementation of Patient Decision Aid. Within these themes, three sub-themes were identified for Communication, two for Relationship, and four for Decision Aids (see Table 2). Results are presented in a non-numerical form, following Hannah and Lautsch (2011). Participants' quotations are coded using ID numbers.

Communication

Doctor-patient communication is the first theme that emerged. Participants highlighted the need to promote effective communication tailored to patients' needs. Three main sub-themes were detected: the need to be listened to by patients (i.e., *listening to patients' questions*), difficulties in communicating bad news (i.e., *bad news*), and the desire to inform patients about their condition (i.e., *patients' awareness)*. Firstly, physicians highlighted the relevance of explaining illness characteristics and treatments comprehensively to address patient doubts. For example, a Greek participant stated: 'I ask each patient to hear me out first and then ask questions. I may answer a patient's question before they ask it because I systematically explain the different treatments. I always ask at the end if any clarifications need to be made' (ID001). Additionally, another sub-theme was the communication of *bad news* due

Table 2. Themes and sub-themes emerged from semi-structured interviews.

Theme	Sub-theme	Theme descriptions
Communication	Listening to patients' questions	Physicians emphasized the need to promote effective communication with patients. They underlined the importance of being fully listened to by patients before receiving questions to resolve doubts and address any confusion arising from the medical information.
	Bad News	Physicians reported difficulties in choosing the words to communicate bad news to patients.
	Patients' awareness	Physicians would be more able to make patients aware of their chronic illness characteristics.
Patient and doctor Relationship	Lack of time during consultation	Physicians underlined the lack of time to communicate treatment information and answer patient doubts.
	Difficulties in managing the patients' psychological issues	Physicians reported difficulties in managing the strong emotional impact of the chronic disease.
Implementation of Individual Patient Decision Aid	Tailored support	A decision tool would facilitate the physician in medical communications tailored to patients' needs.
	Avoid patient misunderstanding	Physicians reported that IPDAS could be a helpful tool to avoid patient misunderstanding about oncological diagnosis and treatment.
	Clarify oncological information also to family members	A visual and audio tool language could help family members better understand oncological treatment and what to expect.
	Need for an online meeting	An online, dedicated meeting where patients and professionals can discuss their needs, doubts, and possible issues about oncological treatments would increase patients' well-being.

to patients' emotional reactions. An Italian physician remarked: 'The quality of the communication of bad news depends so much on the patient…there are those who are more anxious and interrupt you all the time to explore that topic, while others prefer not to ask questions…they do not ask for fear of knowing the answers, especially those patients who show more negative health conditions' (ID009). As stated above, family members can also damage communication between patients and their physicians. Particularly, an Italian oncologist affirmed: 'I noticed that patients who receive certain news, without knowing you, feel distressed and anxious… it is difficult to speak about prognosis and treatments, especially with family members who sometimes often ask you to limit communication to the patient' (ID010). Thus, family members could make communication more difficult by making the patient less autonomous and unable to decide what medical information they need. Thirdly, another sub-theme related to communication is the physicians' need to know that patients are well-informed about medical issues. It aligns with *promoting patients' awareness about their diagnosis and related treatments*. Particularly, an Italian physician reported: 'Sometimes it is very hard to make patients aware that they have a chronic illness…thus, they will not recover from their disease. Maybe the most important thing is to make the patient aware that they must live with this disease forever' (ID008). Referring to this point, some physicians expressed uncertainties about using medical reports as tools to promote patients' awareness. Specifically, a physician reported: 'At the end of the visit, we always issue a report in which we try to be clear and precise. However, few patients tend to read what is in the file, and they tend to ask other questions during the following medical consultations. Thus, I am not sure that making an available report could avoid further questions or how much it could also help the patients-and-doctor communication' (ID010).

Patient and doctor relationship

The patient-and-clinician relationship is the second main theme, with physicians highlighting the need to improve this relationship, particularly during the first consultation. Two sub-themes were described as barriers: the *lack of time during consultation* and *difficulties in managing the patients' psychological issues*. Firstly, physicians underline the *lack of time* to forge an efficacious relationship with their patients, sharing treatment information and emotions. For example, a physician reported: 'In the first consultation, especially, the time to communicate information related to treatments is very short. Moreover, I do not always have the time to resolve all possible patient questions during the first communication of diagnosis' (ID001). Referring to the *difficulty in managing the patients' psychological issues,* physicians reported harboring apprehensions about causing distress to patients with negative consequences on the doctor-patient relationship, as follows: 'We would provide less information to patients due to the emotional impact of diagnosis…we know that it impacts on the understanding of medical information negatively' (ID006). Physicians reported their difficulties in facing patients' emotional distress during the first medical consultation - which is indeed fundamental to improving a good relationship, as in the following sentences: 'Considering that we are coping with chronic illness, it is very difficult to dedicate attention to patients' emotions during consultation" (ID008). An Italian oncologist expanded upon this: 'In the first consultation, we communicate to patients that they are facing a chronic disease, so they have no chance to improve, to get well. This information leads to a strong emotional impact…and we have no time to cope' (ID010). Moreover, a physician said that bureaucratic procedures lead to a waste of time, which diminishes time dedicated to fully understanding patients' needs and preferences, enhancing a positive relationship with patients: 'There are many documents that patients have to sign, so we have less time to answer and solve patients' doubts and questions' (ID008).

Implementation of individual patient decision aid

The third theme that emerged was the implementation of a PDA. They declare that PDAs could facilitate communication in routine clinical care. Specifically, four sub-themes were: PDA as a *tailored support* to help patients make informed, value-based decisions about their treatments with their healthcare professionals; the need to *prevent and reduce patient misunderstanding* after consultations (i.e., *Avoid patient misunderstanding*); the possibility to *help family members* understand treatment information better, for example having more information about drugs and their side-effects (i.e., *Clarify oncological information also to family members*); scheduling an *online meeting* in which patients and professionals could discuss

their needs, doubts, and possible issues about oncological treatments. According to the first sub-theme, physicians underline that PDAs could facilitate the possibility of providing *tailored support* for patients, fostering their engagement and shared decisions about oncological treatment: 'Decision aids could be an important support to describe the available options of treatments and their benefits and harms. Consequently, patients can assess the options personally and promote a shared decision-making process' (ID001). Following this point of view, Greek physicians underline that clinical information could be presented in simple language, maybe through a video that could summarize the main oncological information: 'Side effects, the treatment information plan, and how to deal with them are relevant pieces of information that have to be known by patients…a digital form, such as an illustrative video that summarized all main information, could be a great idea!' (ID002). Second, physicians reported that PDAs could be a helpful tool to *avoid patient misunderstanding* about oncological diagnoses and treatments: 'When I have had the occasion of using some decision aids, I find them as a great way to solve patients' concerns. I suggest it could be a very good solution, maybe asking for any doubts that need clarification during the face-to-face consultation' (ID009). Furthermore, an Italian clinician suggested providing personalized PDAs for each patient: 'We would need more personalized tool. It's hard, in my opinion, to give something that would somewhat fit everybody. Personalized information could reduce confusion and help patients to understand the treatment information' (ID010). Moreover, implementing PDAs could improve patients' knowledge and clarify their doubts about oncological treatment. Above all, some participants declared that a personalized PDA could reduce the search for medical information on websites and not increase feelings of fear and anxiety: 'Patients tend to search information on websites… and then, they ask about whatever they find …the problem is that sometimes these websites do not contain scientific and appropriate information, increasing confusion, doubts, and fear' (ID008). Lastly, many clinicians consider PDA as *a support to explain and clarify all oncological information also to family members*, reducing doubts, as follows: 'Having a visual and audio tool in simple Greek could help family members to understand better the oncological treatment and what to expect" (ID003). Lastly, physicians proposed the idea of including *online meetings* with the oncological team in one of the interactive elements of PDAs, as follows: 'Online meetings with our patients could allow us to discuss oncological treatments and assess patients' needs and address any problems they are having in the course of treatment. That reinforces patients to manage better and tolerate treatments" (ID005).

Discussion

The present paper aims to describe the considerations of physicians concerning consultations with lung cancer patients. Communication is well known to represent a cornerstone in medicine. In this regard, physicians often report difficulties communicating with patients and caregivers during consultations. Three main themes and related sub-themes emerged from the semi-structured interviews conducted by psychologists, specifically: the doctor-patient communication, the relevance of the relationship between physicians and patients, and the possible implementation of PDAs.

First, oncologists highlighted the relevance of appropriate communication with their patients. In particular, physicians reported their need to listen to, aiming to inform patients about their illness characteristics and treatment options appropriately. Accordingly, physicians highlighted the need for adequate time to explain and share information. Peer-reviewed publications underline the importance of accurately delivering the diagnosis (Dahm & Crock, 2017). Healthcare professionals must be mindful of their communication approaches, integrating diagnostic reasoning strategies to foster collaborative conversations (Dahm et al., 2023). Enhancing patients' knowledge about their illness and available treatments is crucial, leading to more informed questions and greater treatment adherence (Suarez et al., 2023). Aligned with the SDM model in medicine, our research underscores the interest of physicians in heightening their communication style to navigate SDM phases effectively, fostering a communication environment that encourages the sharing of information and patients' knowledge. Second, physicians discussed the quality of their relationship with patients during consultations, addressing sub-themes related to time constraints and their difficulties in managing patients' psychological issues. Many physicians expressed concerns about the limited time available during consultations, a common barrier noted in the literature (Al-Zahrani et al., 2015). Research by Konieczny et al. (2020) further underscores the impact of time spent with a doctor on patients' Quality of Life, emphasizing the importance of sufficient time allocation to enhance the effectiveness of doctor-patient care. Moreover, oncologists emphasized the need to better address patients'

psychological issues, particularly in instances where consultations are complicated by patients' anxiety and distress, hindering effective communication (Ratna, 2019). At the same time, they reported their difficulties in facing patients' emotional reactions, which could emerge during medical consultations. Recognizing the significance of patients' emotional reactions in patient care, recent attention has been given to the patient-and-doctor relationship, particularly underscoring the well-being of patients and emotions (Childers & Arnold, 2019). On one side, it is crucial to provide physicians with emotional strategies to cope with patients' reactions, requesting support from psycho-oncologists (Schwartz et al., 2022). On the other side, considering physicians' emotional reactions is crucial, too. For this reason, it is recommended that they be assisted during their clinical practice on an emotional level (Frey Nascimento et al., 2019).

Lastly, physicians reported the relevance of implementing PDAs to provide tailored supportive tools for patients, which could support communication with their families. This also follows from the biomedical literature that underlines positive patient evaluations regarding tools that could promote decisions (Razmak & Aouni, 2015). This way, the International PDA standards shared an evidence-based framework to develop the implementation of decision aids and to support value-based reasoning and engagement with healthcare professionals (Stacey & Volk, 2021). Similarly, physicians reported the useful implementation of PDAs to avoid misunderstanding during consultations, improve knowledge and decision quality, and decrease the risk of poor doctor-patient communications (Tate et al., 2021). At the same time, recognizing the crucial role of family members during medical consultations, physicians expressed interest in involving them appropriately. Davis and colleagues (2022) demonstrated the effective role of decision aids in involving patients' families, thereby enhancing their knowledge and decision-making abilities.

Study limitations

The present study shows some limitations. Firstly, while this study provides insights into physicians' perspectives of PDA in lung cancer, future research could explore other cancer types and stages to identify potential differences in illness information needs. Secondly, the present study shows a self-selection bias of the sample, as participating physicians may have been more inclined to express their experience due to existing interest in decision aid tools. Thirdly, the small sample size limits the ability to generalize the findings to the wider population of oncologists and makes it challenging to ensure data saturation and the completeness of the findings; increasing the sample size could highlight differences across countries and enrich the present suggestions with additional insights. Lastly, this study was conducted in Italy and Greece, so caution is necessary when generalizing our findings to other regions, especially non-Western countries, as each country's healthcare system structure and cultural context shape cancer care. Furthermore, changes in healthcare policies, decision tools, or oncologists' training may affect communication practices over time, emphasizing the need to consider potential changes in future contexts.

Clinical implications

The clinical implications of this study are centered on the potential for integrating PDA into clinical practice. Based on physicians' feedback, PDAs could offer valuable support in enhancing patient understanding of treatment options, reducing misunderstandings, and helping clinicians guide patients through complex decisions in lung cancer care. Incorporating PDAs into clinical practice can address emotional challenges, especially during initial and difficult conversations, such as delivering bad news, and improve the overall quality of the physician-patient relationship. However, clinicians emphasized the need for practical training on using these tools and considering time constraints during consultations for effective integration. Implementing PDAs and structured decision-making tools could optimize clinic workflows, allowing healthcare professionals to provide high-quality care while ensuring that patients' emotional and informational needs are adequately addressed. Additionally, future research would involve using Artificial Intelligence to support the effectiveness of PDAs in terms of diagnostic support, identification of treatment, and patient health management (Triberti et al., 2022).

Conclusions

The findings emphasize the importance of clear and personalized communication between healthcare providers and patients in lung cancer treatment, particularly in decision-making. Feedback from clinicians suggests that integrating PDA into clinical practice could enhance communication and support SDM in

the treatment of NSCLC. This study provides valuable insights into how PDA can be designed to meet the specific needs of patients, offering a pathway for future research to explore further development and refinement of these tools.

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Authors' contributions

V.S. conceived the ideas presented in the study protocol and wrote the first draft. P.D., D.M., and C.M. contributed with discussion on the ideas presented and revised the first draft of the Protocol. R.G., A.P., G.O., and L.P. edited the Manuscript. N.D. and E.S. contributed with important intellectual content, while G.P. supervised the whole process.

Disclosure statement

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Data availability statement

The data presented in this study are available on request from the corresponding author. The data are not publicly available.

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