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Confidentiality and family involvement in healthcare: a mixed-method approach of physicians' perspectives in Jordan

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Abstract

Background With the evolving person-centered care approach, the importance of family involvement is increasingly recognized to promote comprehensive treatment. However, determining when and how to disclose patient information to families without compromising privacy rights while ensuring optimal patient care poses an ethical challenge. Therefore, we aimed to explore physicians' attitudes regarding sharing patient data with family members and protecting patient information.

Methods A convergent (i.e., concurrent) mixed-methods approach was employed, integrating quantitative data collected through a questionnaire distributed to physicians and qualitative data were obtained through semi-structured interviews.

Results Data from 221 physicians in Jordan revealed that only 48% would consistently seek patient consent before data disclosure, with the majority agreeing that they would share patient information with families under circumstances where family assistance is crucial ($n = 180$, 81.4%) or when the patient is unable to understand the information ($n = 181$, 81.9%). This was justified by the active involvement of family members in the treatment process ($n = 182$, 81.4%). Qualitative data from 14 physicians were obtained, and their perspectives revealed two main themes: 1) "Attitudes Toward Data Sharing with Patients' Families," which encompassed "inability of patients to make decisions," "family involvement due to concerns," and "pressure from family members and 2) "Significance of Patient Confidentiality " which included "building patient trust" and "preventing harm to patients."

Conclusion A balanced approach that addresses complexities in patient data disclosure and family involvement in healthcare is necessary for fostering trust, supporting informed decision making and facilitating better health outcomes.

Keywords Confidentiality, Family, Healthcare, Patient-centered, Health outcomes

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Background

Professional responsibility of physicians requires delivering ethical, high quality, and safe patient care [1, 2]. Therefore, family conferences may be necessary to identify possible treatment goals and preferences and thus obtain better health outcomes [3, 4]. This may highlight the evolving concept of person-centred approach, a primary care practice aimed at fostering multidisciplinary collaboration, communication, and sharing information between the patient, family, and physicians, and considers their cultures to achieve better health outcomes [5, 6]. In fact, family members are often caregivers who may accompany the patient during hospital or clinic visits, where they may hear complaints, diagnosis, and treatment [7–11]. In certain situations, family members may also be the decision-makers on behalf of the patient in addition to covering patient's medical costs [9–11].

This parental role assumed by patient's family is thought to manipulate the patient and to provide authorization to complete disclosure of patient's information [8, 12]. Therefore, physicians may find themselves where they are required to disclose certain data to family members without patient consent. This was observed in a study that included 600 participants in which almost all respondents reported that their families knew about their conditions and that they did not wish for their information to be disclosed to their families by doctors [13]. In reality, patients and their families are apparently two separate parties as discussed in the literature of families and bioethics [14–16]. Balancing the need for patient autonomy and confidentiality with the culturally expected role of family members in healthcare can be ethically challenging [17]. Physicians should have sufficient skills and competencies of showing understanding and considerate to families concerns towards the patient and preserving the duty of confidentiality with respect to patient's health data [8]. Indeed, it is essential to ensure that professional obligations start and remain with the patient despite the necessary role of family involvement for achieving treatment goals [18]. Precisely, physicians must always protect patient privacy and obtaining patient consent is paramount and should be sought in all situations, except when the patient is incapacitated or otherwise unable to provide informed consent [18–20]. On the other hand, physicians may find that dealing with families problematic particularly as the perception of family roles, qualifications, and concerns may differ [21, 22].

Several studies outlined the knowledge and practices of physicians regarding data sharing and confidentiality [23–27], however, few have focused on data shared with families. Understanding physicians' perspectives particularly with the culturally embedded role of families in medical care is important to formulating guidelines that respect both patients' autonomy and family's role in healthcare [5, 8]. Therefore, in our study we aimed to explore physicians' attitudes regarding sharing patient data with family members and protecting patient information.

Methods

Study design

A convergent (i.e., concurrent) mixed method design was used in this study, where both quantitative and qualitative data were collected and analyzed separately, allowing for a comprehensive understanding and enhancing the depth and breadth of the findings [28]. The quantitative data were collected first, preliminarily analyzed, and used to inform physicians' attitudes towards patient consent, and predictors for physicians' attitudes and explanatory reasons for sharing patients' data with their families. The qualitative data was then collected through semi-structured telephone interviews and comprised of open-ended questions developed for this study with input from a qualitative research expert among the authors [MN]. Interviews aimed to explore physicians' reasons regarding data sharing and breaching patient confidentiality and significance of data protection (see Additional file 1). Ethical approval for this study was obtained from the institutional review board (IRB) at the authors' institution (IRB, Reference# 16/121/2019).

Quantitative approach

Study population and sampling

A cross-sectional survey was used to recruit eligible participants. These include physicians from any medical speciality with clinical experience from either public or private healthcare institutions in Jordan.

Data collection

Invitations were sent via email and social media announcements targeting professional networks. An anonymous online survey (Google forms) was used with a brief description of the study was included in the survey. Participants were acknowledged that their participation is confidential and voluntary, with withdrawal being possible at any point throughout the study. Only physicians who consented to participate in the study were able to submit their response.

Instrument

The study tool was developed by authors based on a review of the literature [19, 20]. The questionnaire was also reviewed by experts in the field in addition to 5 physicians who were excluded from the sample of this study. It was divided into several main sections; it started with physicians' demographics section. Secondly, physicians' attitudes for confidential data sharing with patients' families (3 questions) and their explanatory reasons for sharing patient's data (4 questions). This section consisted of a 4-point Likert scale ranging from "strongly agree" to "strongly disagree". The third part consisted of three questions on physician's attitude towards patient consent: 1) circumstances of disclosing patients data to family (always with patient consent, patient consent is not necessary, only if the patient was a minor or never at any circumstances), 2) form of disclosed data (verbal, written, both, or none), 3) amount of disclosed information to families (the same information provided to the patient, additional information physician did not want to provide to the patient himself, and brief information about the patient's condition, or none).

Qualitative approach

Study population and sampling

The qualitative portion of the present mixed-methods study included semi-structured interviews with physicians from February 2021 to September 2021. Physicians with clinical experience and working in either public or private healthcare institutions in Jordan were invited to take part in this study.

Data collection

Posters and flyers were distributed inviting physicians to participate. One researcher followed up with participants to schedule appointments for telephone interviews and conduct them. All participating physicians were informed that the telephone interviews would be recorded for research purposes and were assured that their data and interviews would be kept anonymous and confidential. All participating physicians provided written informed consent to take part in the study. Each participant was given an alphanumeric code identifying the participant's specialty and age. For example, the alphanumeric code P12INT28 indicates that participant number 12 is a 28-year-old internist.

Data analysis

Quantitative statistical analysis was conducted using IBM SPSS version 24. Descriptive statistics were performed to summarize participants' characteristics and attitudes toward patient consent and data sharing. Continuous variables were expressed as means and standard deviations while categorical variables were presented as frequencies and percentages. Multiple regression analyses were conducted to determine the predictors of physicians' attitudes for data sharing with patients' family and explanatory reasons for data sharing with patients' families. Demographic and professional characteristics were included as predictor variables. Sum scores were calculated and used as dependant variables in the model development. The sum score for physicians' attitudes for data sharing with patients' families ranged from 3 to 12 while the sum score for explanatory reasons for data sharing with patients' families ranged from 4 to 16. The Model's significance was assessed to ensure that predictors contributed meaningfully to the outcomes using the F-statistics, with a threshold of $p < 0.05$ was considered statistically significant. Standardized coefficients (Beta) were used to facilitate interpretation of the effect sizes of the predictors.

For qualitative analysis, audio recordings of the telephone interviews were transcribed by professional transcribers. All transcripts were stored and organized using QSR International's NVivo 11 software. Two researchers reviewed the transcripts for accuracy and independently coded and analyzed the data and discrepancies were resolved by consensus. Thematic analysis was employed following the approach described by Braun & Clarke (2006) [29]. This approach ensures a systematic and rigorous analysis of qualitative data through six stage process that includes familiarization with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and writing up the report. All identified themes and subthemes were reviewed, discussed, and agreed on by the researchers.

For the convergent mixed methods approach, findings from both quantitative and qualitative approaches were compared during interpretation to identify areas of convergence and divergence.

Results

Quantitative approach

A total of 221 physicians participated in the study. Physician's demographic and professional characteristics are illustrated in Table 1. The average age was 33 years (SD =10.3), with men representing 67.9% (n= 150) of the study population. Higher percentages of the participating physicians were with family medicine specialty (33.5%) and practitioners from university hospital (29.9%).

Attitudes toward patient consent

Physicians' attitude of data disclosure to patients' families is shown in Fig. 1. Around half of physicians claimed that they would always ask for patients' consent before disclosure of information to their families (48%) and that they would provide only brief information about the patient's condition (50.7%). However, most of disclosed data is delivered verbally (72.9%).

Attitudes towards data sharing

Physicians' attitudes for data sharing with patients' families are shown in Table 2. Most physicians agreed or

Table 1 Physicians' demographic and professional characteristics ($N = 221$)

Variable	N	%
Age (M = 33. SD = 10.3)		
Experience (M = 7.02 SD = 9.4)		
Sex		
Men	150	67.9
Women	71	32.1
Marital status		
Single	108	48.9
Married	112	50.7
Divorced	1	0.5
Specialty		
General Surgery	16	7.2
Special surgery	5	2.3
Family Medicine	74	33.5
Internal Medicine	37	16.7
Obstetrics and gynecology	5	2.3
Pediatrics	12	5.4
Emergency Medicine	27	12.2
Neurology	43	19.5
Type of practice		
Health center	31	14.0
Public hospital	44	19.9
Private hospital	35	15.8
Private clinic	9	4.1
Military medical services	36	16.3
University hospital	66	29.9
Number of patients treated/day		
Less Than 30	75	33.9
31–40	77	34.8
40 To 60	24	10.9
More Than 60	45	20.4

strongly agreed that data should be shared with patients' relatives or friends only to enable them to assist the patient ($n = 180$, 81.4%); or if the patient is unable to understand ($n = 181$, 81.9%). However, only 55.2% ($n = 123$) agreed or strongly agreed that relatives or friends should only be given information that the patient cannot tolerate.

On the other hand, sharing data with relatives was mainly explained by the family's crucial involvement in the patient's treatment process ($n = 182$, 81.4%) and as they are primary caregivers ($n = 166$, 75.1%). While fewer proportions believed that family connections inherently grant the right to receive information ($n = 82$, 38.1) (Table 3).

Multiple linear regression model was significant for physicians' attitudes for data sharing with patients' family (F = 3.89, $P < 0.001$). Marital status (B = − 0.168, $p = 0.027$) and sex (B = − 0.204, $p = 0.003$) were significant predictors of physicians' attitudes. Physicians who were single and men exhibited more confidentiality commitment compared to other factors. The model was also significant for predictors of physicians' explanatory reasons for data sharing with patients' family (F = 2.88, $P < 0.008$). These factors were sex (B = − 0.174, $p = 0.013$), marital status (B = − 0.172, $p = 0.028$), age (B = 0.275, $p = 0.029$), and number of patients treated per day (B = 0.137, $P = 0.044$). Physicians who were single, men, older, and treated more patients showed more empathy for explaining sharing information with families.

Qualitative approach

Fourteen physicians participated in the qualitative semi-structured interviews. The majority of participants were men ($n = 9$), working full-time ($n = 12$) at teaching hospitals ($n = 9$). Interviews were conducted until a saturation point was reached. Two main themes, "Attitudes Toward Data Sharing with Patients' Families" and "Significance of Patient Confidentiality," were identified through thematic analysis. Themes and subthemes are summarized in Table 4.

The first theme, "Attitudes Toward Data Sharing with Patients' Families," describes physicians' attitudes and decision-making processes regarding sharing information with family members. It included three subthemes: "inability of patients to make decisions," "family involvement due to concerns," and "pressure from family members."

"Inability of patients to make decisions" refers to situations where patients cannot make decisions regarding their care due to unconsciousness, cognitive impairment, or any other condition that could compromise their capacity to make decisions. The majority of physicians reported that it would be justifiable to share information with patients' family members if their patients were in situations where they could not make an informed decision (e.g., cognitive or mental impairment). "I only share a patient's medical information when the patient is incapable of comprehending or has a mental impairment or incapable of making decisions regarding his health" (P2INT31). Some physicians reported that sharing information with family members when patients were uncooperative was also justifiable. "I would share data with the patient's family if the patient was not cooperative with the medical team" (P1URO27).

"Family involvement due to concerns": this subtheme refers to situations where physicians felt the necessity to share information with family members and get them involved to address concerns related to the patient's condition. These concerns were often associated with serious medical conditions, self-harm, or life-threatening

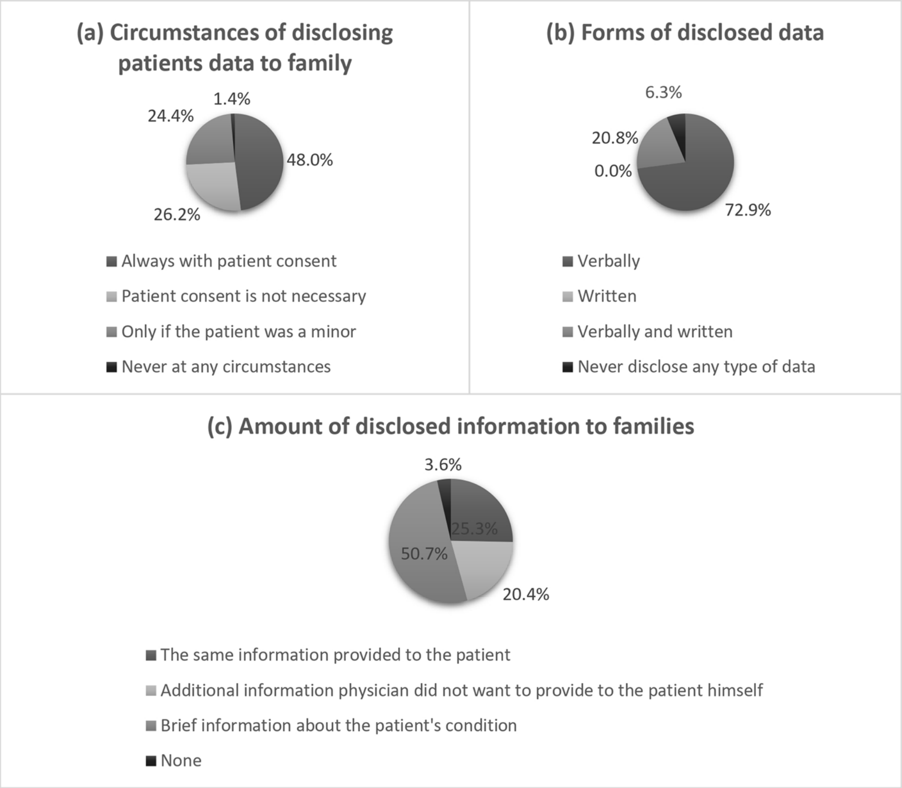

Fig. 1 Physician's attitude of data disclosure to patients'families (**a**) circumstances of disclosing patient data to family, (**b**) forms of disclosed data, and (**c**) amount of disclosed information to families

Table 2 Physicians' attitudes for data sharing with patients' family

Statement	Strongly disagree N (%)	Disagree N (%)	Agree N (%)	Strongly agree N (%)
▪ Relatives should only be given information that enables them to assist the patient	20 (9.0)	21 (9.5)	113 (51.1)	67 (30.3)
▪ Relatives should only be given information that the patient cannot carry or accept	48 (21.7)	51 (23.1)	97 (43.9)	25 (11.3)
▪ Relatives should be given information only when the patient is unable to understand it	10 (4.5)	30 (13.6)	91 (41.2)	90 (40.7)

Table 3 Physicians' explanatory reasons for data sharing with patients' family

Reason	Strongly disagree N (%)	Disagree N (%)	Agree N (%)	Strongly agree N (%)
▪ To alleviate the anxiety and concerns experienced by family members	25 (11.3)	36 (16.3)	128 (57.9)	32 (14.5)
▪ Family connections inherently grant the right to receive information	59 (26.7)	80 (36.2)	61 (27.6)	21 (9.5)
▪ Family members are primary caregivers	17 (7.7)	38 (17.2)	129 (58.4)	37 (16.7)
▪ Family members are actively involved in the treatment process	13 (5.9)	26 (11.8)	125 (56.6)	57 (25.8)

situations. P3 FM35 reported that he would share patient data "if the patient has a serious medical condition that is life-threatening or limits the quality of life, or if the patient is a threat to him/herself or others."

Moreover, physicians reported that if they had to choose between maintaining confidentiality and optimum patient care through family involvement, they would choose the latter, even if it was against the

Table 4 Summary of themes, subthemes, definitions, and quotes from physician interviews

Theme	Subtheme	Definition	Example
Attitudes Toward Data Sharing	Inability of patients to make decisions	Patients cannot make decisions regarding their care due to unconsciousness, cognitive impairment, or any other condition that could compromise their capacity to make decisions	"I only share a patient's medical information when the patient is incapable of comprehending or has a mental impairment or incapable of making decisions regarding his health" (P2INT31)
	Family involvement due to concerns	Physicians felt the necessity to share information with family members and get them involved to address concerns related to the patient's condition	"if the patient has a serious medical condition that is life-threatening or limits the quality of life, or if the patient is a threat to him/herself or others." (P3 FM35)
	Pressure from family members	Physicians experienced pressure from patients' family members to share patient information with them	"It is tough to hide it from the patients' families. They constantly pressure us to share all the details" (P5 ANES27)
Significance of Patient Confidentiality	Building patient trust	The importance of confidentiality in building trust and effective therapeutic relationship between patients and physicians	"If you share patients' medication information, you will lose their trust. Some families cannot deal with or understand mental illness" (P7PSYC29)
	Preventing harm to patients	Protecting patients' information prevents potential harm to psychological and emotional well-being, and relationships	"It is essential to keep patients' medical information confidential. Sharing patients' private information may affect their psychological well-being" (P5 ANES27)

patient's. " When I prescribe a medication to a patient that may cause serious side effects, I have to inform his family so they can help the patient to make a decision and watch for these side effects……..even if the patient does not want me to inform their family, I have to inform the family in case of any emergency" (P12INT28).

"Pressure from family members": this subtheme refers to situations where physicians experienced pressure from patients' family members to share patient information. Most participants reported being constantly pressured by patients' families to disclose patients' data. In most cases, the pressure came from families' cultural and social expectations. "It is tough to hide it from the patients' families. They constantly pressure us to share all the details. I never feel pressured if the patient was conscious and did not give me permission to share" (P5 ANES27). In some cases, physicians reported that families' anxiety and concerns pressure them to disclose patients' data: "I occasionally do it when the family is worried and stressed" (P9OPH27).

The second theme, "Significance of Patient Confidentiality," highlights physicians' acknowledgment of protecting patients' confidentiality and the ramifications of breaching it. It included two sub-themes: "building patient trust" and "preventing harm to patients."

The "building patient trust" subtheme highlights the importance of confidentiality in building trust between patients and physicians. Trust, as a result, strengthens the therapeutic relationship that encourages patients, particularly vulnerable patients with mental or socially stigmatized conditions, to share private and sensitive information openly with their providers.

> *"If you share patients' medication information, you will lose their trust. Some families cannot deal with or understand mental illness. Therefore, sharing information with families will only make things worse and jeopardize patients' psychological wellbeing" (P7PSYC29).*

Physicians also highlighted that trust can be essential to achieve better clinical outcomes.

> *"Some patients may not adhere to therapy if they receive any special treatment from their families, so these patients trust me to protect their privacy and not share their data" (P6 FM28).*

The "Preventing harm to patients" subtheme highlighted physicians' views on how protecting patients' information prevents potential harm. Breaching confidentiality can affect patients' psychological wellbeing and cause emotional distress and conflicts within families.

> *"It is essential to keep patients' medical information confidential. Sharing patients' private information may affect their psychological well-being" (P5 ANES27).*

Physicians also highlighted the importance of confidentiality in preventing social judgment. "When I suspect a sexually transmitted disease, I make sure to talk to the patient alone. It is a sensitive topic to discuss, and these diseases are associated with social stigma" (P9OPH27). Another participant (P12ENT74) reported that if a woman patient comes to his clinic with a companion, he makes sure to discuss the details of her medical condition (e.g., hearing impairment) in the examination room away from the companion to protect her from social stigma that would complicate her marital status.

Convergent mixed-methods approach The convergence of the quantitative and qualitative findings highlighted a consistent pattern in physicians' attitudes toward data sharing. Most physicians were found to share patient information under circumstances where family assistance is crucial (81.4%) or if the patient is incapacitated (81.9%), which was supported by the "inability of patients to make decisions" and "family involvement due to concerns" subthemes observed in the qualitative approach.

Furthermore, the "preventing harm to patients" subtheme was consistent with the reported physicians' response that they would not share patients' information without consent or only if the patient was a minor (72%).

Moreover, similar themes for attitudes toward data sharing with family members were observed in the quantitative and qualitative results. Most physicians (72.4%) agreed and strongly agreed that they would share patients' information to alleviate the anxiety and concerns experienced by family members consistent with the identified "pressure from family members" subtheme.

Discussion

This mixed-method study is the first to investigate physicians' attitudes towards data sharing and to examine the reasons for confidentiality breaches as well as the significance of patient confidentiality within the family context. The converging of quantitative and qualitative thematic analysis used in this study provided a comprehensive understanding of the complex dynamic between physicians, patients, and families in healthcare systems. It allowed for the capture of breadth and depth of physicians' conceptualization about confidentiality, including physicians' attitudes towards data sharing, reasons for disclosure of information to families, and significance of data protection.

Physicians in our study agreed to share brief amount of information with the patient's family and only with patient consent. This is consistent with the findings of an Australian study in which 53% of physicians reported that families should only be given information already known to the patient and only at the patients request (71%) [30]. Patient consent was also believed to be necessary for providing information by 55.9% of physicians in Spain, however; the main kind of information offered to families was complementary to that provided to the patient (52.4%) [31]. Furthermore, in Pérez-Cárceles et al. study, higher percentages of physicians agreed that relatives should be given information only when the patient is incapable of understanding it (64.3%) compared to other reasons [31]. This is similar to our findings in which attitudes towards data sharing and explanatory reasons encompassed a range of factors, mainly incapacity and concern.

Regrettably, confidentiality breaches, which can be considered medical misconduct, may occur intentionally or unintentionally within hospital settings, and their rates are alarming [8, 27, 32]. Our study explored why physicians might breach patient confidentiality and share information with families without explicit consent. This attitude was attributed to the common perspective among physicians that families are integral members of the healthcare team as they actively participate in the treatment process [32]. The perception portrays families as extensions of the patient's healthcare system, not just external entities [5]. These beliefs may be based on the cultural norms of sharing information with families and friends, which consider not doing so a rare incident [33]. This is emphasized in cultures that prioritize family involvement in healthcare decisions as observed in the Spanish study of Pérez-Cárceles et al. in which physicians strongly agreed that they would give information to family members as they are collaborating in the treatment (80%) and are looking after the patient (75%) [31]. However, in multicultural societies, more structured communication practices and privacy laws may be observed as evident in the Australian study in which 24% of physicians would share information at the carer's request [30].

The ethical challenge becomes more complex with the disclosure of patients' information caused by families' complaints about the standard of care, which exerts pressure on physicians, as observed in our study [34]. The collective nature of illnesses further complicates the matter as sharing information may have been accepted or required at one point during illness but not another. In Gold et al. study, physicians reported updating carer's when there was a major change in an inpatient's condition (73%) or when carers asked for the updates on outpatient (60%) [30]. In fact, physicians may find themselves compelled to share patients' information with families without patient consent, perhaps to calm their anxiety, as observed in our study. However, maintaining patient confidentiality is paramount, particularly when the disease has a social stigma. This concern was evident in Pérez-Cárceles et al. study where more than 90% of physicians emphasized the importance of confidentiality in sexual health matters [31]. Furthermore, physicians who used to disclose information to families should be aware that even silence at one point in time may be misinterpreted to be explained to the patient's disadvantage [33].

Significance of patient confidentiality as shown in our study included preventing harm to patients and building patient trust. Physicians are expected to preserve patients' confidentiality and to protect their data, even from their families, unless consent is obtained from the patient [14, 16]. As observed in our study, this is vital for reasons of autonomy that recognize patients as information owners and have the right to decide who accesses their data for reasons of trust [16, 35]. This may be considered a breach of Health Insurance Portability and Accountability Act (HIPAA) guidelines that assert that physicians should not share information with family members unless the patient consents or if the patient does not reject the disclosure [36]. The critical role of confidentiality in the process of effective communication was evidenced in several studies [37, 38]. Physicians in our study recognized that building patient trust underscores the significance of maintaining patient confidentiality in healthcare. This was evidenced in several studies where patients were found not to accept sharing their information with third parties, including their families [39]. In a qualitative study on cancer care, patients' families had an essential role in caregiving, decision-making, and communication with physicians. Despite that, patients were found to be less able to convey important information to their physicians. This would highlight the necessity of having private communication with the physician at some point during the consultation and would shed light on the perceived ownership of patients' data [5, 9]. Adolescent patients may add challenge as their fear of their families knowing about their visit to a family physician would prevent them from doing so indicating devastated trust in the confidentiality of the medical system and leading to adverse health outcomes [23, 24, 40].

On the other hand, effective communication with patients' families may be hindered by concerns over compromising confidentiality. Such disclosures may not always align with the patient's best interest [41]. However, through frameworks like the Communication Privacy Management (CPM) theory, physicians can better understand and navigate these ethical complexities and thus ensure that disclosures are justified and balanced with the need to maintain patient privacy [18, 42]. In fact, the observed privacy boundaries control by physicians reflects an individualized healthcare approach in which unique needs and circumstances of each patient are tailored to the medical information communication [6, 35]. This would stipulate a thoughtful consideration to the person-centred approach in which physicians can navigate the complexities of information disclosure more effectively by fostering culturally sensitive communication and respecting family values with the ultimate goal of improving patients' health outcomes [5, 6, 43, 44].

While the study provides comprehensive insight into ethical challenges of confidentiality and information sharing with families, several limitations should be acknowledged. The cross-sectional design of the study limits the ability to infer causality and assess changes of attitudes over time. Furthermore, the study relied on self-reported data, which may have introduced social desirability bias. However, this bias is less likely to affect our results as anonymity and confidentiality were assured encouraging honest responses. Recall bias may also has been introduced, however; the impact of this bias is likely limited, as the study focused on attitudes rather than requiring precise recall of specific details. In addition, recruitment bias due to variability in responses may have been introduced with the variation of attitudes toward confidentiality and information-sharing by specialty, as some fields (e.g., psychiatry, palliative care) deal with more sensitive patient information than others. However, the core ethical principles governing confidentiality are consistent across medical practice making it less likely affecting our results.

Conclusions

This study highlights the complex decisions that physicians encounter when considering patient confidentiality, particularly when family involvement is necessary for patient care. In certain circumstances, physicians feel compelled to breach confidentiality due to family pressure or the necessity for family contribution in decision-making. Future research that provides a better understanding of these challenges and addresses complexities may inform the ethical balance between maintaining patient confidentiality and family involvement in healthcare and thus improving both patient outcomes and the trust between patients, families, and physicians.

Supplementary Information

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Additional file 1.

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Authors' contributions

RK contributed to project conceptualization, study design, data collection tools, analysis, and manuscript preparation and development. SA contributed to the project conceptualization, study design, mentorship and manuscript development. MN contributed to project design, data collection tools, data collection, analysis, manuscript development. AA contributed to project design, data collection, and manuscript development. MA and IM contributed to project design, mentorship, and manuscript development. All authors read and approved the final manuscript.

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Data availability

The author confirms that all data generated or analysed during this study are included in the manuscript figure and tables.

Declarations

Ethics approval and consent to participate

All participants in the quantitative part provided informed consent before participation, and written informed consent was obtained in the qualitative part. All participants were assured that their data and interviews would be kept anonymous and confidential. The study was conducted in line with the principles of the Declaration of Helsinki. It was approved by the Institutional Review Board of King Abdullah University Hospital and Jordan University of Science and Technology (Ref. Number 16/121/2019).

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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