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Using a patient decision aid for insulin initiation in patients with type 2 diabetes: a qualitative analysis of doctor–patient conversations in primary care consultations in Malaysia

Ayeshah Syed,[1] Zuraidah Mohd Don,[1,2] Chirk Jenn Ng,[3] Yew Kong Lee,[3] Ee Ming Khoo,[3] Ping Yein Lee,[4] Khatijah Lim Abdullah,[5] Azlin Zainal[1]

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[1]Department of English Language, Faculty of Languages and Linguistics, University of Malaya, Kuala Lumpur, Malaysia
[2]Universiti Pendidikan Sultan Idris , Tanjong Malim, Perak, Malaysia
[3]Department of Primary Care Medicine, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia
[4]Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, Serdang, Selangor, Malaysia
[5]Department of Nursing Science, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia

Correspondence to
Zuraidah Mohd Don;
zuraida@um.edu.my

ABSTRACT

Objective To investigate whether the use of apatient decision aid (PDA) for insulin initiation fulfils its purpose of facilitating patient-centred decision-making through identifying how doctors and patients interact when using the PDA during primary care consultations.

Design Conversation analysis of seven single cases of audio-recorded/video-recorded consultations between doctors and patients with type 2 diabetes, using a PDA on starting insulin.

Setting Primary care in three healthcare settings: (1) one private clinic; (2) two public community clinics and (3) one primary care clinic in a public university hospital, in Negeri Sembilan and the Klang Valley in Malaysia.

Participants Clinicians and seven patients with type 2 diabetes to whom insulin had been recommended. Purposive sampling was used to select a sample high in variance across healthcare settings, participant demographics and perspectives on insulin.

Primary outcome measures Interaction between doctors and patients in a clinical consultation involving the use of a PDA about starting insulin.

Results Doctors brought the PDA into the conversation mainly by asking information-focused 'yes/no' questions, and used the PDA for information exchange only if patients said they had not read it. While their contributions were limited by doctors' questions, some patients disclosed issues or concerns. Although doctors' PDA-related questions acted as a presequence to deliberation on starting insulin, their interactional practices raised questions on whether patients were informed and their preferences prioritised.

Conclusions Interactional practices can hinder effective PDA implementation, with habits from ordinary conversation potentially influencing doctors' practices and complicating their implementation of patient-centred decision-making. Effective interaction should therefore be emphasised in the design and delivery of PDAs and in training clinicians to use them.

Strengths and limitations of this study

- ► By providing a talk-based view of how doctors and patients use a patient decision aid (PDA), this study adds information in an area which is under-represented in research on PDAs.
- ► The data involve a range of patient perspectives which emerge in the context of starting insulin for type 2 diabetes in Malaysia's multicultural setting (the use of traditional medicine, language issues, fear of injections, resistance to insulin), showing how doctors and patients manage these perspectives in talk.
- ► As the sample size is small, it may not be possible to draw general conclusions on patterns of PDA use.
- ► However, the analysis can provide insights into how doctors' interactional practices in initiating talk on PDAs could be adapted to better fulfil their aims of supporting informed and shared decision-making.

INTRODUCTION

Shared decision-making (SDM), which involves doctors and patients exchanging information, deliberating on treatment options and reaching a mutually accepted decision,[1] is widely considered the ideal treatment decision-making model.[2–4] In contrast with paternalistic or informed decision-making, SDM emphasises partnership between doctor and patient,[5] which is particularly significant in managing chronic illnesses such as diabetes, as patient self-management plays a crucial role. One means of implementing SDM is using patient decision aids (PDAs).[6] These are designed to support treatment decision-making by providing patients with evidence-based information on their illness and treatment options in print, DVD or digital form.[6] They can also help 'create a conversation',[7] in which patients can seek clarification on information and discuss concerns, values and preferences.

Research on PDA use has identified doctors' practices and these include giving

fewer details about treatment to older or less-educated patients,[8] dominating discussions[9] and not using PDAs as prescribed, by neglecting to use them, providing inaccurate information or using PDAs to support personal biases.[10 11] Although Tiedge *et al* conclude that the flexible use of PDAs encourages discussion,[12] only a few studies describe how doctors and patients use PDAs in consultations[11 12] and these tend to overlook the collaborative nature of interaction, for example, by using quantitative methods,[8–11] or focusing only on doctors.[11]

Qualitative methods of interaction analysis, such as conversation analysis (CA), have been used to examine how doctors and patients jointly perform social actions through talk in various clinical contexts.[13–17] By analysing talk as it unfolds in consultations, CA research has identified patterns of doctor–patient interaction,[13 15] helped operationalise patient participation and shared decision-making[18–21] and produced findings applicable in medical practice and training.[22 23]

In this study, we draw on the tools of CA to explore the way doctors and patients with type 2 diabetes use a printed PDA for decisions about insulin. By examining doctor–patient talk in different patient contexts, we hope to extend the discussion on PDA use beyond doctors' practices to include the crucial but often overlooked role of the patient. Our objective is to investigate whether the use of the PDA for insulin initiation fulfils its purpose of facilitating patient-centred decision-making through identifying how doctors and patients interact when using the PDA during primary care consultations.

METHOD

Setting

The data were collected during a project to develop and test a PDA about starting insulin for patients with type 2 diabetes. Guided by the Ottawa Decision Support Framework,[24] the 13-page PDA covers patients' concerns; comparison of treatment options; assessment of patient knowledge and values clarification, and finally, prompts a decision if patients are ready. Patients can engage with the content, checking options or making notes about topics for discussion with their doctors (see http://dmit.um.edu.my/?modul=DMIT_PDA).

To test how the PDA could be implemented, a group of healthcare providers (HCPs), including 12 doctors, 2 nurses and 1 pharmacist, used it in consultations. HCPs received a guidebook (Healthcare Professionals' Guide to the Patient Decision Aid, http://dmit.um.edu.my/images/dmit/doc/PDA_HCP%20Guide.pdf) and 2 hours of training on implementing the PDA, which can be used preconsultation, by the patients alone or with their families, or in consultation with the HCP. The training was conducted by SDM experts with clinical experience (authors NCJ, LPY and KLA), and included lectures, interactive activities and role play. HCPs were trained in different manners of delivery of the PDA; however, the specifics of delivery were not prescribed to allow HCPs to tailor their PDA use to their setting and patients. Subsequently, consultations were held in three healthcare settings: private clinics, public community clinics and the primary care clinic of a public university teaching hospital in Negeri Sembilan and the Klang Valley in Malaysia between November 2012 and April 2013. All patients received the PDA in advance, at times ranging from the last visit to the HCP, or several months in advance to just hours before the consultation, when they were already in the waiting room.

Data collection

To capture a range of doctor and patient practices in using the PDA, purposive sampling was used, aiming for variance in healthcare settings, patient perspectives on insulin and sociodemographics. For doctors, the demographic variables were clinical qualifications (general practitioner, medical officer or specialist) and gender. Patients were selected according to age, gender, ethnicity and educational background. For linguistic reasons, participants were selected from the major ethnic groups in Malaysia, namely Malay, Chinese and Indian. Since some patients are not sufficiently fluent in the consultation language, which could be Malay or English, or as is common in Malaysia, some mixture of Malay, English, Tamil or Chinese, versions of the PDA are available in all four languages.

Fifteen consultations were audio recorded, with supplementary video recordings for four hospital-based consultations. As a preliminary exploration of PDA use in interaction, this paper reports on single-case analyses of doctor–patient consultations in English. Consultations with other HCPs were excluded in view of their different roles in decision-making, in that nurses and pharmacists may use the PDA to counsel the patient, but the treatment decision itself is made with the doctor. In line with the CA practice of analysing data in a common language (eg, 18–23), this paper focuses on consultations conducted mainly in English to facilitate comparison of language structures across the data. The final dataset for this paper comprises seven consultations by five clinicians: one general practitioner (private clinic) and four medical officers (public clinics and hospital) (see online supplementary appendix A).

Analysis

In accordance with CA methods, the recorded consultations were anonymised, and then transcribed using Jefferson's transcription conventions[25] (see online supplementary appendix B) by author AS, and reviewed by authors ZMD and AZ. Sequences of talk in which the PDA was mentioned or used were identified through repeated listening and viewing by AS, a doctoral student in applied linguistics, and reviewed by ZMD, a professor in applied linguistics. To facilitate analysis, CA research often focuses on one phase of the consultation, such as openings or examination.[16] Since PDA talk occurs at different points and with varying frequency in the consultations,

we focused on initial PDA talk to enable analysis across consultations. Because opening sequences influence how consultations unfold,[15 16 26] the initial sequences of PDA talk were considered an appropriate starting point at which to begin exploring PDA use in the data.

Given the limited research on interaction surrounding PDAs, we made preliminary investigations of several single episodes,[27 28] describing the interactional aspects of the talk (eg, turn taking, structural organisation, turn design and lexical choice[29]) in relation to patient-centred decision-making. As the analysis proceeded, the work was reviewed by the research team, the initial interactional analysis being made by the applied linguists (AS, ZMD and AZ) followed by input from the clinicians (NCJ, KEM, LPY and KLA) and healthcare sociologist (LYK).

This study received ethics approval from the Medical Research and Ethics Committee, Ministry of Health, Malaysia (Ref No: NMRR-10-1233-7299) and the Medical Ethics Committee, University of Malaya Medical Centre, Kuala Lumpur (MECRef No: 841.6). All participants gave informed consent.

RESULTS

Doctors began by asking whether patients had read and understood the PDA, which is unsurprising given their legal and ethical duty to ensure patients make informed decisions. The PDA was then used to exchange information or to initiate deliberation on treatment depending on whether the patients had read it or not.

Exchanging information

In two consultations (B8 and B15) in community clinics, the patient disclosed that she had not read the PDA. The doctor did not bring up the PDA immediately, but began by addressing test results (B8) or asking about the patient's lifestyle (B15). Both patients initially affirmed they had read the PDA, and only revealed that they had not on further questioning. The doctors then began going through the PDA with the patients, using it to provide information or to elicit patient perspectives towards starting insulin. Here, we present an extract from consultation B8 to exemplify the interactional practices observed in this context.

The doctor (DR1) has given the patient (P1) her recent test results, showing a high sugar level. P1 has disclosed that she had stopped taking her oral medication, and is only taking *Ayurvedic* (traditional Indian) medicine. After explaining the complications of sustained high sugar, DR1 brings up the PDA 6 min into the consultation, with a polar question (requiring a yes/no response) on whether P1 has read it (table 1: extract 1, 283).

P1's affirmation of this ("*Yap*") is hurried, overlapping DR1's turn. Acknowledging P1's response (286), DR1 shifts the topic away from the PDA to ask two polar questions, to confirm P1's preference for *Ayurvedic* medicine (286–287) and to explore the reasons behind her preference (291–292 "*you feel that Ayurvedic can help you?*"). P1 responds with affirmations but does not elaborate (288, 293). DR1's next question (294–295) appears to seek P1's view on the effectiveness of *Ayurvedic* medicine. However, by foregrounding P1's high sugar against *Ayurvedic* medicine, DR1's question presents a rhetorical contradiction which limits P1's ability to respond affirmatively. P1 then challenges DR1 to defer her evaluation until the next appointment (296–297), which receives DR1's overlapped acceptance (298). P1's laughter (297, 299) indicates her orientation towards a delicate situation.[30 31]

The 'but' that prefaces DR1's response after her initial acceptance (table 2: extract 1a, 300) suggests she intends to continue the topic. She asks again whether P1 has read the PDA. After a hesitant affirmation, P1 discloses that she has not read the PDA. In response, DR1 echoes P1's 'not yet' followed by 'Okay' uttered four times, indicating she now understands the situation (304). DR1 begins explaining the content of the PDA, going through the first section, "What are your concerns?" with P1. It is here that the doctor shifts from merely topicalising the PDA to going through it. Reading from a list of common patient concerns, DR1 rephrases the affirmative sentences in the PDA as questions (310, 314 and 316), attempting

Table 1 Extract 1—*consultation B8 (public clinic)*

```
283  DR1   So u::m, have you read about ↑↑this? Your,
284        a:[: ]
285  P1      [Y:]a:p=
286  DR1   =Okay. You feel that you want (.) to still
287        try the ayurve↑dic?=
288  P1    =Y:as, still
289  DR1   O::hm-[kay]
290  P1          [Goi]ng ]on with it=
291  DR1   =So it means you feel that you::,(0.7) you
292        feel that ayurvedic can help you?
293  P1    Yah can <help me>.
294  DR1   >Okay< from this sugar level nineteen point nine,
295        do you feel that it's helping ↑you?=
296  P1    =You can see me in the £next appoint↑ment,
297        whe[ther it's help]inghh me or not [hh hh]
298  DR1      [oka:y alri:ght]                [fine]
299  P1    =[hh hh] ((laughs))
```

Table 2 Extract 1a—*continued*

300	DR1	=[Fi:ne] But you have read about this book
301		ri:ght?
302	P1	Y- y:a:h. N- not yet, not [yet just a::]
303	DR1	[not ye::t]
304		Okay-okay. So, oka:y. There a:re, okay, w-, this
305		is s- trying to show what are the concerns ↑lah=
306	P1	=Y:a:h
307	DR1	Okay what is the concerns of, um, taking the
308		insulin?=
309	P1	=[M:h?]
310		=[Ai-,] so it >was telling< "Are you afraid of
311		injection and ↑pain?"
312	P1	No, I'm [not] afraid. Yup=
313	DR1	[No:]
314		=Afraid of sugar getting too lo:w?
315	P1	.h No::.
316	DR1	No=no. Afraid of getting, a:, gaining
317		wei:ght? (0.5) A- d' you know about insulin?
318		After I have explained=
319	P1	[Ya: I guess]
320	DR1	=[to you and]so ↑on?=
321	P1	=Yah, I guess I [will gain] weight. Mm=
322	DR1	[Ye:s, ye:s]
323		=So, oka:y. (0.7)↑How=ho:w a- y- the rea:so:n
324		is because you want to try something else ↓lah
325		a::?=
326	P1	=Y:a:h,

to elicit P1's concerns. For example, DR1 reformulates the sentence "I am afraid of injections and pain" as "*Are you afraid of injections and pain?*" (310). After P1 gives several negative responses, DR1 seeks confirmation that P1's decision against insulin is due to her preference for *Ayurvedic* medicine, rather than unstated concerns. This sequence is repeated several times throughout the consultation (not shown), with DR1 going through the sections of the PDA and P1 reiterating her preference for *Ayurvedic* medicine.

Opening up deliberation on treatment

Having confirmed that a patient has read the PDA, the doctor can ascertain further the patient's preparedness for decision-making. Initial considerations are largely information-focused: whether the patient understands the content or has any questions. Also relevant are patient concerns, values and opinions. We present extracts from four consultations involving patients who claim to have read the PDA. The extracts show four patient responses to doctors' initiation of deliberation on treatment: 1) not raising issues/concerns; 2) raising issues about the PDA; 3) disclosing fears; and 4) disclosing a preference against insulin.

Patient does not raise issues or concerns

Two patients (consultations A4 and C14) do not raise issues or express concerns in response to the doctors' PDA-related questions. After asking about the patients' comprehension and opinion of the PDA, the doctors elicit a decision from the patients. Extract 2 (tables 3-4) is from consultation A4, a triadic consultation involving

Table 3 Extract 2—*consultation A4 (private clinic)*

001	DR2	Mrs B and Mr B, ye:?=
002	H	=[Yes]
003	P2	[A::]
004	DR2	[You] have read the book ri:ght?=
005	H	=Y[es]
006	P2	[Ya]::=
007	DR2	=A::, so what you think of the boo:k?
008		(0.5)
009	P2	<I thi:nk,> >I'm no:t sure< mh h h=((laughs))
010	DR2	=Herh [↑herh herh] ((laughs))
011	H	[Er, the] book=
012	P2	=Is er=
013	H	=Is in very simple langua:[:ge]
014	P2	[Ve]ry=
015	DR2	=Ye:[:s?]
016	P2	[sim][ple]
017	H	[And] very easy to understand.

Table 4 Extract 2a—*continued*

```
((lines 018-36 omitted as P2 and H explain how long it took
them to read the PDA))
037  DR2  Right. So what [do you] think of the book.
038  P2                  [and so]
039       (.) I think very easy lah [(can,) better]
040  DR2                            [Aha:,  do you]
041       understand what it's trying to tell you?=
042  P2   =Tell you a::, what a:: (0.2) must (.) tell
043       her? ((Speaking Tamil))[hh     hh ]    ((laughs))
044  DR2                         [herh herh ]herh=((laughs))
045  H                           [Ya lah, sh]
046       =she understands.=
047  P2   =[Hm:: ]
048  DR2   [You  ]understand ya?
049  P2   Hm::=
050  DR2  =a:::.Do you (.) agree or not?
051       (.)
052  P2   Ag- agree lah=
053  DR2  =You agree?=
054  P2   =M[:h
055  DR2    [E:r, you know why you have to take the insulin?
056  P2   Y:a:h, Because I:'m- cannot take a med'cine
057       already.
058  DR2  Aha::?
059  P2   A- no choice,(.) ↑lah=
060  DR2               =erhh((laughs)), £(you) no
061       choice?£ [A-ha]
062  P2            [A::,] must take the:(.)[insulin]
063  DR2                                   [So you ]
064       right, so you agree to start the insulin
065       injection?
066  P2   Y:a::
```

the patient's husband (H), who helps interpret between English and Tamil. The doctor (DR2) initiates the PDA talk early in the consultation, by asking whether the patient has read it.

DR2's initial reference to the PDA is formulated as a question (004), and comes immediately after a brief identity-confirmation sequence, which functions as a greeting. Ending with a tag question, the enquiry ("*You have read the book, right?*") favours an affirmative response, which both P2 and H provide (005, 006). DR2 then asks for P2's views on the PDA using a Wh-question (open-ended question). After a silence, P2's response displays uncertainty ("*I think, I'm not sure*"). Her laughter, which is reciprocated by DR2, indicates a delicate situation.[30 31] H resumes discussing the PDA (011), delivering a favourable assessment of it ("…*very simple language*"). P2 then partially echoes her husband, briefly interrupted by DR2's encouragement to complete her utterance ("*Yes?*" 015). Overlapped by H's elaboration, P2 completes her brief assessment of the PDA.

Following further elaboration by P2 and H (omitted), DR2 resumes questioning (table 4: extract 2a—continued), with a Wh-question (037). Although designed to allow P2 to express her opinion, the question remains focused on the PDA ("*the book*"), rather than the decision on starting insulin. Producing a preferred response, P2 describes the PDA as "*easy*" (038). DR2 then asks whether P2 understands the PDA. P2's pauses, hesitation and incomprehensible utterance indicate her difficulty comprehending the doctor's question, leading to her delayed response (042–043). She speaks in Tamil to H, who then confirms that P2 has, in fact, understood (045–046). DR2 seeks this confirmation from P2 ("*You understand, ya?*" 048), receiving a weak affirmation (049). Taking the unmarked token as confirmation of understanding, the doctor commences talk on the treatment decision with a series of questions, soliciting P2's agreement to start insulin (050), and her explanation for (055) and confirmation of (063–065) this decision. DR2's question presents the decision as a proposal, with P2 providing the relevant and preferred acceptance through minimal responses (*Mh*-054, *Ya*-066). This shows DR2 orienting, however minimally, to P2's right to accept or reject the recommended treatment. Yet, in exploring P2's decision, DR2's use of 'have to' depicts starting insulin as an obligation ("*you know why you have to take the insulin?*" 055–056), which is mirrored in P2's response that she has "*no choice*" and "*must take the insulin*".

Table 5 Extract 3—*consultation A3 (private clinic)*

```
001  DR2  -ning. E:rm, e:rm, e:rm, e:rm I believe
002       you have read the: ↑book?
003  P3   Yea:h
004  DR2       Yes, [er  what d' you think?  ]=
005  P3            [yes I've read, I've read]
006  DR2    =A:h, what do you think of the ↑book ?
007       (0.5)
008  P3   That's just basi:c information nah
009  DR2  [Right]
010  P3   [There's] not, there's not, much
011       information that (0.7)that I'd like to::
012       find out lah [actually I nee::d]
013  DR2               [E:r, what kind of] information
014       do you like to find out?
015  P3   You ↑see this ↓e:r without insulin, [what ]=
016  DR2                                     [yerh?]
017  P3   =are the effect, if you sta:y if your
018       glucose level sta:y (0.7) at the high level.
019       It doesn't state ↑here lah.
020  DR2  Right
021  P3   E:r what if you: over-control yourse:lf.
022  DR2  Right
```

Patient raises issues about the PDA

Consultation A3 is also conducted by D2, who begins as she does in consultation A4, by enquiring whether the patient has read *"the book"* (table 5: extract 3). The rising intonation of DR2's confirmation-seeking statement indicates a response is required, and the wording shows affirmation is expected (lines 001–002). P3 responds with a minimal affirmation, which the doctor echoes ("*Yes*" 004). She then asks a Wh-question to elicit P3's opinion, repeating it (006) after P3's overlapping turn (005). After a silence (007), P3 produces an assessment of the PDA (008–012), describing its contents as *"just basic"*. DR2 then asks about the information P3 requires.

P3 begins listing questions he would like the PDA to address, beginning with the effects of sustained high glucose level (017–018). DR2's response, a minimal acknowledgement token ("*Right*" 020), leads P3 to continue, with a question about 'overcontrol' (021), which refers to hypoglycaemia, a side effect of insulin.

Patient discloses fear of injections

Consultation C12 is conducted in a public hospital by DR3, who had given the patient (P4) the PDA on her previous visit. The doctor brings the PDA up early, after a brief greeting (not shown in table 6: extract 4). As video recording was possible, participants' physical actions were also transcribed.

Unlike the other doctors, DR3 initiates the topic of the PDA with statements (17–26), referring to the previous consultation when the PDA was given. DR3 describes the PDA as "*something on starting insulin*" rather than something to help the patient decide whether or not to start insulin, and asks if P4 has read it (028). P4's affirmative response is acknowledged by DR3, who asks another yes/no question on P4's experience of reading the PDA (033). P4's contributions throughout these sequences are minimal, namely continuers "*mm*" (020) and *"hm"* (031), nodding (023) or brief confirmation (029). Her pause after DR3's question in line 033, followed by nodding, smiling and the drawn-out final syllable of her one-word echo response (036-*Easy*), indicate some hesitation. Using 'but' to signal a topic shift, P4 then voices her fear of needles. Laughter from both sides indicates that they recognise the situation as being delicate. However, while acknowledging P4's fears with a confirmation-type question (040), DR3 does not immediately address them. Instead, he asks whether P4 understands the content in the PDA (042–049), with P4 giving minimal affirmations. DR3 starts addressing P4's fears only after several question-answer sequences (not shown).

Patient discloses the decision not to start insulin

Throughout consultation C11, the doctor (DR4) refers several times to the PDA. Extract 5 (table 7) is from the beginning of the consultation. The transcript records the participants' physical actions.

DR4 initiates PDA talk (001) by enquiring whether P5 has any problems with *"the book"*, or whether she understands it, beginning what appears to be an invitation to talk or ask questions (*"or you want to"*). P5 interrupts this (003), denying she has any difficulty understanding it (*"yes, no, no"*), and then affirms this with the statement "*I understand*". She intercepts DR4's next turn, and instead of discussing the PDA, pursues her own agenda. Using 'but' to introduce a contrasting topic (005), she proposes her decision to wait with a strong modal ('have to') and refuses insulin without explicitly mentioning it. DR4 acknowledges this with "*Okay*", but continues asking P5 if she understands the PDA (006). P5 briefly affirms this, handing DR4 her PDA (008). She

Table 6 Extract 4—*consultation C12 (primary care clinic)*

```
017  DR3   =Fi:ne. Oka:y. So a:::h, if you can reme:mbe:r
018        the last visit er I have given you: (.)a::, a
019        booklet,=
020  P4    =M:[m:: ]
021  DR3      [E::r] that booklet is basically: is something on
022        e:r,e:r starting in in er insu[lin     ]=
023  P4                                 [((nods))]
024  DR3   = Okayh? And then that= booklet have e:r contents
025        about er insulin and the way of injectio:n and
026        then de:: e::rm:(.) tsk, e:r and the the side
027        effects and ev'↑rything. Okay? Did you go through the
028        booklet?
029  P4    Yes I did ((nodding))
030  DR3   Ah, you went through the booklet.=
031  P4    =[ Hm]
032  DR3   =[↑Ok]ay quite good that you went through hh
033        e:r was it easy to read? E:rhh hh=((small
034        laugh))
035         [(0.5)            ]
036  P4    =[((nods, smiling))] Easy:::,
037  DR3    Is [i:t? ]
038  P4        [but I]'m very scared of needle ↑hh-
039        [hh-hh  ]((laughs))
040  DR3   [Aha-↑ha]((laughs)) you're scared of needle?
041        Oh-kay, ↑so a::h, do you want to discuss e:rh,
042        did you understand the booklet
043  P4    Ye:s [   (((nodding repeatedly))     ]
044  DR3        [You understand quite we:ll     ]
045        Okay. .h  you know about the side [effects]=
046  P4                                      [((nod))]
047  DR3   =and everything
048  P4    Ye:s [   (((nodding repeatedly))     ]
049  DR3        [You understand quite we:ll     ]
```

responds only with a nod (012, 014) to DR4's further talk on the PDA. P5's lack of uptake forces the doctor to focus on her preference, for which DR4 solicits confirmation (015). P5 nods again, adding a minimally verbalised confirmation that she does not want insulin (016).

DISCUSSION

Our analysis of the initial sequences of doctor–patient talk shows that the use of the PDA did not effectively support patient-centred decision-making. The main barriers to fulfilling the PDA's informational purpose are that patients' disclosures about having read it may not be reliable, and that it is unclear whether patients understood the PDA content since its use was limited in most consultations. Also, while PDA talk led towards deliberation on treatment, the doctors' interaction was not patient-centred, even when patients mentioned their concerns or showed that they found these conversations difficult. Moreover, if the patients did not bring up issues,

Table 7 Extract 5—*consultation C11 (primary care clinic)*

```
001  DR4   …problem about the:: y-you understand (.)
002        about the book or you want to-
003  P5    =[Yes, no, no, I understand ]=
            [((looking for PDA in bag))]
004  DR4   =Yes, [perfect]
005  P5         [But I  ] have to wait, now I don't want.
006  DR4   Oh, okay, but, anyway, you understand most of the
007        things is talking in book la?
008  P5    Yes. ((nods, finds PDA & hands it to DR4))
009  DR4   Okay. ((takes PDA & starts looking through it))
010        So aright, okay so because this is all about
011        whether, what is the things=
012  P5     [((nods))]
013  DR4   =[   What ] is your concerns and everythings right=
014  P5    =((nods))
015  DR4   So, you, you saying you don't want insulin right?
016  P5    Mmh((nods))
```

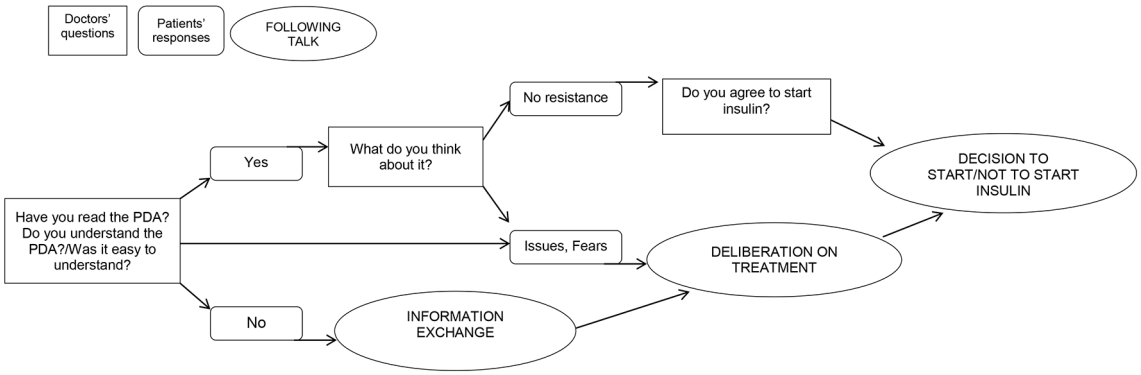

Figure 1 Initial patient decision aid (PDA) talk and decision-making trajectory.

treatment was not deliberated at length, and doctors presented the decision as acceptance or refusal of insulin, rather than a choice among several options.

While the initial sequences of PDA talk are not consultation 'openings' in the traditional sense, they mark the beginning of decision-making, in that patient responses to doctors' PDA-related questions lead to different trajectories of PDA use: *information exchange*, or *deliberation*, culminating in a decision on whether or not to start insulin. Although the trajectories correspond with the analytical stages of SDM,[1] the interaction in the initial sequences of talk show that patients' knowledge, concerns and preference are not sufficiently explored, which has implications for the decision-making process that follows.

As figure 1 shows, the doctors' initial questions are information-focused, mostly yes/no questions. Yet some patients respond by disclosing issues or even refusing insulin. If patients do not resist, doctors move the consultation towards closure, seeking patient acceptance of the recommended treatment. Treatment is only deliberated on if patients resist insulin and the PDA is used as a tool for information exchange only if patients say they have not read it. While this uses time efficiently, it does raise questions about whether patients are actually informed and their contributions are given due priority.

Our findings show further how doctors' questioning practices constrain patient contributions.[19 22 32 33] By asking mainly yes/no questions about whether patients have read or understood the PDA, the doctors rely on single-word responses to decide if further information exchange is needed. As extract 1 (tables 1-2) shows, a patient's first response to "Have you read the PDA?" may be unreliable. Other comprehension-focused questions also tend to generate 'no issue' responses, for example, patients say 'yes' to enquiries such as "Do you understand?"/"You know why you have to take the insulin, right"; and 'no', to "Do you have any questions?". Because the doctors move quickly from PDA-related questions to deliberation on insulin, superficial assessment of patient knowledge means they risk making a decision with uninformed patients.

Heritage's[32] proposition that norms from ordinary conversation cause dysfunction in doctor–patient interaction may provide an explanation, since the doctors' tendency not to thoroughly explore patient knowledge may be influenced by norms of news delivery. Given the deeply ingrained tendency to avoid telling others information they already know,[32] doctors may habitually avoid probing if a patient claims to have understood the PDA, especially when several doctors manage one patient, as they may not know what was discussed in previous consultations.

Preference organisation, or the bias that phrasing conveys towards specific responses,[32–35] may both explain and offer solutions for patients' hesitation to disclose that they have not read the PDA. Yes/no questions generally prefer 'yes-type' responses, unless negative polarity, for example, 'any', is introduced; moreover, doctors' questions tend to favour 'no problem' responses.[32 33] For example, patients tend to disclose unmet concerns when doctors use 'some/other', rather than 'any', in closing questions (eg, "Do you have other problems you want to discuss?").[33 35] Additionally, the preference for an affiliative response[36] may prevent patients from admitting that they have not read the PDA as recommended. Patient disclosures may be encouraged through repeated questioning (eg, extract 1), but doctors could also err on the side of caution by using questions that prefer negative responses, (eg, "Did you have any time to read the PDA?") or that provide patients with a built-in reason for not reading the PDA, (eg, "I know you've been busy, but did you manage to read the PDA?"). Since reading the PDA does not necessarily mean understanding it, similar care must be taken in eliciting patients' questions. Doctors should resist the habit of using 'any,' and instead formulate 'yes'-preferring questions, for example, "Do you have some questions?" or "Is there something you don't understand?". However, this is only the beginning of the conversation. The reliable assessment of patient knowledge requires going beyond yes/no questions to apply the 'teach-back' method, by asking patients to reformulate the PDA content.[3]

The doctors' initial PDA-related questions act as presequences, allowing them to approach treatment deliberation without explicitly mentioning 'insulin' or 'decision'. This may be useful, given the patients' fears,[37]

misperceptions[38] and resistance[39] linked to insulin. Yet patients may still regard questions about the PDA as pressure to discuss or accept the recommended treatment. In extracts 4 and 5, the patients respond by initiating new topics (needle fear and refusal of insulin) rather abruptly, although topic shift is usually collaborative and prolonged.[40] This 'minimal response-topic shift',[41] along with paralinguistic features such as laughter, repetition and interjections, may indicate that patients find the conversation difficult.

The interactions are largely physician-centred and doctors' questions are mostly closed-ended questions, which limit patients' opportunities to participate. The doctors also seem to prioritise their own agendas over patient cues and contributions, continuing to refer to the PDA after patients disclose fears (extract 4) or state their preference against insulin (extracts 1 and 5). This may be related to the Observer's Paradox, that is, the doctors' awareness of the research focus, or because they want to ensure patients are informed before engaging in further discussion. However, being more patient-centred would involve following the patient's lead, for example, addressing fears immediately or acknowledging patients' preferences, and then asking if they want to continue discussing treatment options. Awareness of interactional cues, for example, that minimal responses and silence (extract 5) can indicate resistance,[14 42] and that laughter (extracts 1, 2 and 4) can accompany talk on 'delicate' matters[30 31] or disaffiliation,[43] can also help doctors be more responsive. Moreover, even though insulin is the medically recommended option, doctors can choose more neutral vocabulary to describe the PDA and to elicit patients' views on treatment. Presenting treatment options, instead of limiting patients to acceptance or refusal of insulin[20] can reduce the interactional and social burden imposed on patients by having to disagree with the doctor if they prefer not to start insulin.

The complex and chronic nature of type 2 diabetes, along with relatively low success in achieving glycaemic control,[44 45] makes it necessary to improve treatment decision-making practices. Several PDAs have been developed and tested among patients with type 2 diabetes, including to empower patients in goal-setting[46] and to support treatment decisions on statins[47] and antihyperglycaemics.[48] While enhanced decision-making[47] and patient involvement[48] are reported for the treatment PDAs, the goal-setting PDA had little effect on patient empowerment and was not fully used by many participants.[46] Referring to the latter study, Hargraves and Montori[49] recommend examining the doctor–patient consultation because PDAs 'function or fail to function in this environment'. However, the randomised trials mentioned rely largely on patient self-report measures, with only one coding doctors' interaction using the observing patient involvement in decision making (OPTION) scale;[48] there is little information about what occurred in the consultations, and how this may relate to the reported outcomes.

Through the microanalysis of interaction in several single cases, we have exemplified the intricacies of implementing a PDA on insulin for treating type 2 diabetes in Malaysia, providing insights which may be useful in other contexts. This approach, however, especially in view of the sample size, does not make it possible to identify general patterns of PDA use. Nevertheless, our dataset has enabled us to describe some practices of doctors and patients in using a PDA in consultations in which the talk throws light on salient patient factors, including preference for complementary medicine, language barriers and varying perspectives on insulin. Future studies involving a larger collection of consultations, including by other HCPs and in other languages, and looking at PDA use through the entire consultation, could build on our findings for a broader perspective on PDA use in the Malaysian context.

Although our focus is on interaction, we are mindful that our findings may be limited by other possible influencing factors, including doctors' paternalism and communication skills, PDA design and delivery, and systemic or individual barriers to SDM. First, the interactions may have been affected by differences between healthcare settings, particularly the time available for consultations and continuity of care, both of which are barriers/facilitators of SDM.[50 51] Four of the patients (A3, A4 in the private clinic and C11, C12 in the public hospital) had seen the same doctor for their previous consultations, when they were given the PDA. This could explain the doctors' cursory enquiries, as patient knowledge and concerns could have been discussed previously.

Moreover, as most consultations were in public settings, limited consultation time may have constrained the interaction of both doctors and patients. The varying time that patients had to read the PDA must also be noted, although the data showed that more time does not ensure that patients will read the PDA. Finally, the generally low level of education among the patients (see online supplementary appendix A) may be a factor in their lack of participation, as suggested by research on SDM barriers.[50 51]

CONCLUSION

Our analysis shows how doctor-centred practices impede the effective implementation of the PDA in initial sequences of talk, in that the doctors' PDA-focused enquiries can overshadow patient contributions while also failing to ascertain patients' knowledge. While the PDA aimed to support patient-centred decision-making, patients' knowledge, concerns and preference are not sufficiently explored by the doctors, which may be attributed to many factors including the influence of habits from ordinary conversation. Effective interaction should therefore be emphasised both in training clinicians to use PDAs and in designing the content and delivery of PDAs. Further studies

on PDA use in different clinical contexts can inform these efforts by identifying patterns of interaction and effective practices in implementing PDAs, from when they are given to patients up to the conclusion of decision-making.

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