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A qualitative study exploring the key determinants of information gathering to inform the management of self-care consultations in community pharmacies

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Manuscripts

1 A qualitative study exploring the key determinants of information gathering to inform the management
2 of self-care consultations in community pharmacies
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ABSTRACT

Objectives:

Gathering relevant patient information during self-care consultations increases the likelihood of safe, effective and person-centred outcomes. The aim of this study was to explore the key determinants to information gathering during self-care consultations in community pharmacies in Scotland.

Design:

Semi-structured interviews using the Theoretical Domains Framework (TDF), with community pharmacy teams across Scotland. Interviews explored participants' knowledge of current guidance, skills required to elicit information and barriers and facilitators associated with this behaviour. Theory-based content analysis was undertaken using the TDF as an initial coding framework to identify key determinants and map them to salient domains. Salience was determined by prominence or variation in views. Comparative analysis was undertaken by professional role.

Results

Thirty interviews were conducted with pharmacists (n=19) and non-pharmacists (n=11). Eight salient domains were identified: environmental context and resources (privacy); beliefs about consequences (patient safety); skills (communication, decision-making); social influences (patient awareness of pharmacist role); knowledge (awareness and use of standard operating procedures); social professional role and identity (perception of own role); behavioural regulation (training) and intention (to gather information). Similar domains were salient for pharmacists and non-pharmacists; however, different beliefs were associated with different roles. Overarching themes were identified: best practice; health literacy; decision-making; and, professionalism.

Conclusions

Results illustrate the multiple influences, complexities and challenges affecting the effective management of these consultations and demonstrate the subtle differences in how they affect different professional roles. Findings highlight the importance of ensuring interventions are tailored to meet the needs of the different roles, functions and responsibilities that exist within community pharmacies. Future work should consider the development of additional interventions for both pharmacists and non-pharmacists, to optimise this behaviour.

Strengths and Limitations of this study

- This is the first theoretically-underpinned exploration of the determinants of information gathering during self-care consultations in community pharmacies in Scotland.
- This is also the first to explore these determinants by professional role.
- We achieved representation from most Scottish Health Boards, however in some of the more remote areas not represented, participants' views may have differed due to the very different contexts within which they are working.
- This study was conducted across Scotland only, therefore the results may not be generalisable to the wider population, these findings however, are not intended to be generalisable, but to provide an insight into the behaviour of interest to inform future research, practice and policy.

Funding Statement

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2 all participating pharmacists and medical counter assistants as well as the TRiADS administrative team
3 in particular, Trish Graham, who scheduled and co-ordinated the interviews.
4

5 **Competing Interests Statement**

6 None
7

8 **Authors' Contributions**

9 HC: Manuscript production and revisions, contributed to the scientific development, conduct, data
10 collection, analysis and interpretation of the study.
11

12 EG: Contributed towards scientific development, data collection, data coding, analysis and
13 interpretation
14

15 AP: Contributed to the scientific development, conduct and interpretation of the study.

16 LY: Contributed to the scientific development, conduct and interpretation of the study.

17 ED: Contributed towards data analysis and interpretation.

18 RN: Contributed towards data coding, analysis and interpretation.

19 MW: Led the scientific development, conduct and interpretation of the study.
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INTRODUCTION

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Around 18 million general practice (GP) consultations and 650,000 emergency department consultations are for conditions which can be treated effectively using over-the-counter (OTC) medicines supplied or sold from community pharmacies in the UK¹. Community pharmacies have been identified as an 'under-utilised resource' which could substantially reduce the burden on other healthcare providers²: equivalent health outcomes can be achieved with care provided from community pharmacies compared with emergency department and GP-provided care³. It is estimated that in the UK consultations for minor ailments in emergency departments and general practice cost around £1.1 billion⁴.

In 2013, the Scottish Government highlighted their commitment towards enhancing the role of the pharmacy team through '*Prescription for Excellence*', its vision and action plan for pharmaceutical care⁵. More recently, their 2017 strategy '*Achieving Excellence in Pharmaceutical Care*'⁶ reinforced this by encouraging people to use their community pharmacy as a first port of call for healthcare advice. This strategy highlights that it is only through making full use of the clinical capacity in community pharmacies that real gains in clinical care can be achieved. This could reduce workload at general practices and other local healthcare services.

The TRiADS programme, which is funded by NHS Education for Scotland (NES) uses a framework for the translation of guidance and translation into practice⁷. The scope of the TRiADS programme was extended in 2013 to include community pharmacy. The TRiADS in Pharmacy (TRiADS-P) programme commenced with a service-driven prioritisation exercise to identify priorities for community pharmacy practice improvement in Scotland. Through a systematic, service-driven prioritisation exercise, effective management of self-care consultations was selected as the target for improvement⁸. The optimal management of self-care consultations has been shown to be dependent upon effective information gathering⁹⁻¹¹ and as such, this formed the target behaviour of this study.

METHODS

Study design and setting

This study comprised a series of semi-structured telephone interviews underpinned by the Theoretical Domain Framework (TDF)¹². This framework is derived from a number of behavioural theories and constructs and proposes that determinants of behaviour can be clustered into 14 'domains'. The TDF has been used extensively to explore and explain variation in clinical practice¹²⁻¹⁴.

Participants

Community pharmacists and medicine counter assistants (MCAs) working in community pharmacies across Scotland were eligible to participate. Invitations were emailed to all community pharmacists on the NES mailing list (approximately 4000). Potential pharmacist participants were asked to identify MCAs within their pharmacy who were also willing to participate and to complete a brief electronic questionnaire to gather information regarding their pharmacy characteristics. Hereafter, we refer to participants as pharmacists and non-pharmacists. A maximum variation sample was generated reflecting pharmacy type, Health Board and deprivation.

Data collection

Semi-structured telephone interviews were conducted using open ended questions and probing to explore information gathering during consultations in community pharmacies. The interview topic

1 guide covered all TDF domains¹³ (Supplementary File 1) and was piloted with two community
2 pharmacists before the study commenced. Pilot data were excluded from the analysis.

3
4 Interviews were conducted by two experienced qualitative researchers (EG, HC) and digitally recorded
5 with participant consent. Participants were advised that the interviewers were not pharmacists. The
6 recordings were professionally transcribed and anonymised.
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8
9 Data collection ceased when data saturation was achieved (i.e. no new information or insights were
10 gained).
11

12 **Data handling and analysis**

13 All transcripts were accuracy checked prior to analysis. Data were managed using NVivo 10 software.
14 Prior to coding, standardisation meetings were held until full agreement was met and finalised coding
15 definitions produced (Supplementary File 2). Duplicate, independent coding was undertaken (HC, EG,
16 RN). Theory-based content analysis was performed¹⁵ with transcript utterances classified using the TDF.
17 Once coding at a domain level was complete, each domain was coded into specific beliefs. Beliefs tables
18 were constructed with domains, emergent beliefs and illustrative quotations. Following the approach
19 described by Atkins et al^{16,17}, the most salient beliefs were identified based on frequency and content
20 i.e. strongly held or divergent view-points. A comparative analysis was undertaken (HC) within and
21 across pharmacists and non-pharmacists to explore convergent and divergent beliefs, based on the
22 number of utterances coded to each domain. Domains were ranked for both pharmacists and non-
23 pharmacists (Table 1). Specific beliefs within dominant domains were then explored. Where specific
24 beliefs related to similar aspects of practice, these were grouped, and overarching themes were
25 identified.
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31 As part of the analysis process, a conceptual diagram was developed (Figure 1), to illustrate how the
32 specific beliefs mapped to the salient domains. The Consolidated Criteria for Reporting Qualitative
33 Research (COREQ) (Supplementary File 3) were employed to guide reporting of the data¹⁸.
34
35

36 **Consent and ethical review**

37 Ethical approval was received from the College of Life Sciences and Medicine Ethics Review Board,
38 University of Aberdeen (CERB/2014/4/1050). Research and Development management approval was
39 conducted through the NHS Research Scotland Permission Co-ordinating Centre. Approval was granted
40 by 11 of the 14 territorial Health Boards within the timeframe of the study.
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43 **Patient Involvement**

44 Patients were not involved in this study
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48 **RESULTS**

49 **Sample characteristics**

50 Forty-nine individuals indicated an interest in participation. Thirty interviews were completed (19
51 pharmacists; 11 non-pharmacists), lasting between 15 and 60 minutes. Interviews were conducted
52 between October 2014 and January 2015. Response rates of 70% (19/27) and 50% (11/22) were
53 achieved for pharmacists and non-pharmacists, respectively. The demographic characteristics of
54 interviewees are presented in Table 2.
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Mapping to the TDF

All 14 domains were identified during analysis, some featuring more prominently than others. Specific beliefs and illustrative quotations are presented in Table 3. Quotes are labelled using 'PH' to indicate a pharmacist and 'MCA', a non-pharmacist. Eight domains were identified as most salient to the target behaviour and are described below, followed by a comparison between pharmacist and non-pharmacist interviewees.

Knowledge

(Knowledge of what information to gather)

The use of Standard Operating Procedures (SOPs) was identified as a facilitator to information gathering. This included knowledge of the WWHAM¹⁹ mnemonic to determine the Who, What, How long, Action to date and any other existing Medication being taken. Most interviewees referred to this method of questioning and spoke positively about having a standardised procedure to follow. Lack of patient knowledge of their own medical history and current medication was deemed problematic.

"We also have our standard operating procedures, there are the two WWHAM questions, which is an acronym, where they have to go through a set of five questions; basically, to find out what the patient needs." PH007

"You have to probe patients...I think sometimes patients don't realise that because they take medicines from the doctor, that if you take a set of medicines over the counter there can be interactions" PH002

Environmental context and resources

(Factors relating to the pharmacy setting or environment that influence the gathering of information)

Lack of privacy was considered a barrier to gathering information. Having access to a private area (e.g. consultation room) was perceived to facilitate information gathering, creating a greater sense of a healthcare environment rather than commercial premises. However, interviewees reported that some pharmacy users are reluctant to use them as it could be perceived (by other pharmacy users) that they have something to hide, and perhaps make them feel uncomfortable or embarrassed. Staff resources may also act as a barrier to using this confidential space, if team members leave the counter to speak privately to patients.

"I think there's got to be greater utilisation of these private spaces because I certainly wouldn't want to openly discuss some, you know, medical issues, when I've got a queue of people waiting behind to me...The problem then is you have to be able to free your pharmacist, free up your counter staff, to be able to use these spaces, to get the best out of every consultation that they give." MCA001

"Some people don't want to go into the consultation room...I mean a lot of people at our pharmacy use the consultation room for the consumption of methadone and it's just associated with that. So, there's a lot of preconceptions involved as well" PH019

Beliefs about consequences

(Perceptions about the advantages/disadvantages of gathering information)

1 Patient safety resonated strongly, with interviewees indicating that the health and wellbeing of patients
2 was their primary concern. The consequences of adverse effects motivated interviewees to elicit
3 information. Patient safety was also highlighted in relation to identifying substance abusers.
4

5 *"We need to do it [gather information] to ensure the safety of the patient; we're not there just as a
6 salesman, we're there to help people get better, offer them advice and make sure that anything that we
7 sell is going to make them better; not making them worse or interact with anything."* PH0015
8
9

10 **Skills**

11 *(The skills required to gather information)*
12

13 Effective communication skills were also deemed salient to gathering information and it was highlighted
14 that these are required to be tailored to each patient.
15

16
17 *"You need to be able to ask the right questions and tailor them to the person that you're asking, to be
18 able to listen to what you're told. And you need to be able to process the information fairly quickly so
19 that you can make the right decision."* PH001
20
21

22 **Social professional role and identify**

23 *(Perception of own role/responsibilities in relation to gathering information and comparison with other
24 roles)*
25
26

27 Pharmacists discussed their role and responsibility within the pharmacy team and described monitoring
28 information gathering by non-pharmacists and intervening when necessary. Pharmacists providing
29 reassurance and taking overall responsibility, appeared to facilitate information gathering by non-
30 pharmacists.
31

32
33 The role of non-pharmacists, how they perceive themselves and how patients view them was also
34 identified from the data. Non-pharmacists suggested that in some cases patients prefer to speak to a
35 pharmacist and this was a theme also highlighted in the pharmacist interviews.
36
37

38 *"Some people don't want to speak to a counter assistant; they want to speak to a pharmacist."* MCA006
39

40 *"...I don't mean they don't believe it, but they ask to speak to the pharmacist. The pharmacist goes out
41 and gives them exactly the same information. And they go, oh yeah, that's fine then...there's more of a
42 trust with the pharmacist..."* PH005
43
44

45 **Social influences**

46 *(How interviewees perceive others see their role and how this impacts upon the ability to gather
47 information)*
48
49

50 A perceived lack of awareness from patients about what services a pharmacy team can offer and the
51 training and expertise they hold, as well as their understanding of the rationale for the pharmacy team
52 gathering this information, was identified as a barrier. This was considered to stem from the
53 information or lack of it, that patients are provided with regarding the function/role of pharmacies.
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56 *"I think they look on us as more of like shop keepers and they want to know why we want to know, they
57 don't realise that we really need to know the information."* MCA005
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"I think it's perhaps the perception of the patient or customer, about why we're asking questions. I've always felt that the public aren't given enough information, about what we actually do and why we're asking questions. You know, I've always sort of suggested that we need to raise the profile of pharmacists." PH010

Behavioural regulation

(Procedures/methods of gathering information)

Having SOPs in place gave the pharmacy team the reassurance of having a clear protocol to follow. Interviewees suggested that having access to ongoing and hands on training could further facilitate information gathering during consultations.

'Well, we also have our standard operating procedures, which are called SOPs, and they give the general guidelines on what you should do.' PH007

Intentions

(A conscious decision to gather information)

An intention to elicit information and to provide the best service possible was evident from interviewees, who suggested that their means of providing best practice and the best possible service for patients was by gathering information. This intention to gather information and belief that by doing so they were benefiting the patient was recognised as facilitating the information gathering process during these consultations.

"You've always got to seek information...You can't just assume." MCA009

"I would definitely still, you know, dig for that information, to make sure what they're getting from us was what they needed, and was safe and suitable." MCA003

Pharmacists versus non-pharmacists

Table 1 illustrates mapping to the TDF by professional role. The results demonstrate clear similarities in beliefs by role as well as distinct differences.

'Beliefs about Consequences' was a dominant theme across both groups as was *'Knowledge'*, *'Environmental context and resources'* and *'Skills'*. Both groups also agreed that the impact of patient education and patients' perspectives of the pharmacy profession (*'Social influences'*) affected how they manage these consultations. When mapped to the TDF, although similar domains appeared to influence both professional roles, the specific beliefs relating to these domains tended to differ. These differences were identified most prominently within the domains, *'Environmental context and resources'*, *'Beliefs about consequences'* and *'Memory, attention and decision-making'* as detailed below.

Environmental context and resources

Both pharmacists and non-pharmacists highlighted privacy as a barrier to eliciting information and they also both reported the benefits of being able to access patient records or information regarding current medication and the challenges they face when this is unavailable. Access to patients' medical history however, appeared to be more of a concern to non-pharmacists.

1 *“Without access to a full patient record, we can’t double check.”* MCA001

2
3
4 Pharmacists highlighted the benefits of having access to other forms of support such as other
5 pharmacist colleagues or other healthcare professionals and also highlighted staff time as a barrier to
6 eliciting information, reinforcing their sense of responsibility over the team and how consultations are
7 managed. These beliefs did not feature strongly in the non-pharmacist interviews.
8

9
10 *“I have doctors, receptionists, nurses on tap. And if I’m suspicious that there is something more serious,
11 than the patient thinks there is, then I can go away and get some advice rather rapidly.”* PH007

12
13 *“When its busy, staff feel pressured and, if they don’t feel they’ve got enough support, they let their
14 standards slip.”* PH009

17 **Beliefs about consequences**

18 Pharmacists were more concerned than non-pharmacists about the impact that eliciting information
19 could have on commercial aspects of the business. They suggested that gathering information
20 effectively may result in patients experiencing a better service and promote greater loyalty/future use
21 of the pharmacy. Pharmacists also highlighted a concern of litigation and the potential impact this may
22 have on their careers.
23

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26 *“The worst scenario is that you get involved in legal situations or serious illness or death. It’s negligent...
27 I think members of staff have to be aware that it’s an important role that they’re playing.”* PH012

28
29 *“I just want to do the best for the patient, so I want to do the best job that I can.”* PH011

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32 For non-pharmacists, the consequences of not gathering information focussed on patient safety
33 primarily and avoidance of harm.
34

35 *“If you give somebody the wrong medication, it can have various side effects”* MCA002

38 **Memory, attention and decision-making**

39 Although this was not one of the most salient domains overall, in relation to the prompts that facilitate
40 gathering information from specific groups of patients, pharmacists and non-pharmacists highlighted
41 different factors that aided this process. Pharmacists discussed the benefits of administrative prompts
42 such as laminated cards illustrating the WWHAM questions and other administrative procedures. Non-
43 pharmacists suggested that patient prompts were a facilitator for them, suggesting that if the patient
44 was a minor, pregnant, or very elderly this would trigger them to ask specific questions.
45
46

47
48 *“We keep a print out at the till of the general questions that they should be asking.”* PH011

49
50 *“Any of the vulnerable patient groups, so children, people over, you know, over sort of 60, 65, anyone
51 with any long- term chronic illness, so any of the kind of red flag indicators that, all of a sudden, you
52 maybe delve into another set of questions.”* MCA001
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Conceptual mapping

A conceptual diagram was developed (Figure 1), to illustrate the eight most salient domains and the salient beliefs associated with these. Four overarching themes were identified to encapsulate these beliefs: best practice; health literacy; decision-making; and, professionalism.

Best practice

When considering the management of consultations, pharmacy team members reported wanting to offer best practice, to do what was best for the patient and highlighted the potential consequences if they did not achieve these goals. The consequences to the patient, in terms of safety, to the pharmacy as a business, to their own careers as well as to their own emotional wellbeing, were concerns of the whole pharmacy team. Whilst the consequences of not providing best practice in some cases differed by professional role the overarching theme to provide the best possible care was evident across roles.

"I'm providing the best possible care; that's what I'd want or hope that all my staff felt as well" PH009

"It does make you feel good as well, though, knowing that you've given somebody the solid information and you've helped them" MCA008

Health literacy

Patients appear to have a major influence on consultation management. Knowledge and understanding of their health and medication, their receptivity to providing information, as well as their understanding of services offered by pharmacy personnel, were perceived to act as barriers or facilitators to the information gathering process and consultation management. This was highlighted by both pharmacists and non-pharmacists.

"People have to take responsibility for their own health and their own medicine" PH005

Decision-making

Decision-making appeared to be a substantial component of pharmacy personnel's daily roles. This included whether to gather any information, the process used to gather information and whether to tailor their behaviour to each patient's circumstances and behaviour. Decision-making also included whether to refer to the pharmacist (referral by non-pharmacist staff) or to another healthcare professional (referral by pharmacists). Considerable reference was made to criteria used when making these decisions, however it was apparent that this was not a standardised process, with differences between pharmacists and non-pharmacists, as well as within and between pharmacies.

"Sometimes you catch someone off guard when you start asking them questions and you might actually be dealing with them for quite a long time, longer than you would actually need to be with them ... So that's why sometimes I will admit that I do cut down the questions." MCA008

Professionalism

The concept of professionalism was particularly evident and differed between roles. Non-pharmacists perceived that they lacked credibility with patients as healthcare advisors and that patients preferred to consult a pharmacist. This was reinforced by the participant comment used earlier in this paper: *"...there's more of a trust with the pharmacist"*. A greater sense of responsibility emerged from the pharmacists in relation to their role within the team and in respect to overseeing the management of consultations.

1 *"I think people are, on the whole, sometimes more confident to discuss with the pharmacist"* PH001
2
3

4 **DISCUSSION**

5

6 This study represents the second stage of the TRiADS-P programme, a theoretically-underpinned
7 exploration of the beliefs and key determinants of information gathering during self-care consultations
8 in community pharmacies. Eight salient domains were identified: knowledge (awareness and use of
9 standard operating procedures); environmental context and resources (privacy); beliefs about
10 consequences (patient safety); skills (communication and decision-making); social professional role and
11 identity (perception of own role); social influences (patient awareness of pharmacist role); behavioural
12 regulation (training); and intention (to gather information). Similar domains were salient for
13 pharmacists and non-pharmacists; however, the specific beliefs within these domains differed by
14 professional role. Four overarching themes were identified as part of this process: best practice; health
15 literacy; decision-making; and professionalism.
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18

19 To our knowledge this is the first application of the TDF to explore information gathering within the
20 community pharmacy team, which included interviews with both pharmacists and non-pharmacists,
21 identifying convergent and divergent beliefs. We achieved representation from most Scottish Health
22 Boards. In some of the more remote areas, participants' views may have differed due to the very
23 different contexts within which they are working, particularly in terms of access to services, training
24 and peer support and advice. Our sample was broadly representative of the population except for NHS
25 Greater Glasgow and Clyde which was under-represented and NHS Grampian which was over-
26 represented. This may have been due to the lead university being based in the latter and the strong
27 links developed with the profession through previous studies. Our original aim was to conduct
28 interviews with 20 pharmacists and 20 non-pharmacists. Although fewer non-pharmacists participated,
29 categorical and theoretical saturation was achieved (i.e. no new information or insights were gained).
30 This study was conducted across Scotland only, therefore the results may not be generalisable to the
31 wider population. However, as is the nature of qualitative research, these findings are not intended to
32 be generalisable, but to provide an insight into the behaviour of interest to inform future research,
33 practice and policy.
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39 We know from existing literature that effective consultations between pharmacy personnel and
40 patients is fundamental to ensuring appropriate prescribing and desired patient and practitioner
41 outcomes²⁰⁻²². Our approach is supported by the findings of Ffion Jones and colleagues' recent study
42 which identified time, space and a lack of qualified staff as barriers to promoting antimicrobial
43 stewardship. They recommended that resources be developed to facilitate pharmacy teams providing
44 effective self-care and compliance advice and that future research uses behavioural theory in the
45 development of interventions.
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48

49 This current study identified perceived barriers at the patient, professional and organisational level
50 which influence effective information gathering, suggesting the need for interventions targeting all
51 three of these interfaces. At the patient level, patients' own knowledge of their medical history was
52 cited, and it is also believed that patients are unaware of the healthcare advice and support that
53 pharmacies can offer. The Scottish Government's most recent strategy⁶ continues to focus upon the
54 need for patients to use pharmacies, including services such as Minor Ailments Service and Chronic
55 Medication Service, as a "first port of call", perhaps indicating a need for greater awareness at a public
56 health level. At the professional level, non-pharmacists perceived that patients do not value their input
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1 as healthcare advisors and may prefer speaking to a pharmacist. As well as raising public awareness
2 about the skills and expertise available within community pharmacy teams, potential interventions to
3 address this may also target non-pharmacist perceptions about their own professional role. Currently,
4 there is no requirement for non-pharmacist training post-qualification. This suggests the need for a
5 specific non-pharmacist intervention²³. Linked to this is the challenge of the least trained member of
6 staff dealing with the majority of patients (albeit under the supervision of the pharmacist). This again
7 points towards the need for additional and ongoing continual education for non-pharmacists to support
8 them in their role. Since this study was undertaken, the Chief Pharmaceutical Officer for Scotland
9 funded a series of educational resources and events for non-pharmacists, informed by these results²⁴.
10 Finally, at an organisational level, access to patient records was identified as a barrier for non-
11 pharmacists and staff time and privacy were identified by pharmacists as being key determinants in
12 effective information gathering during self-care consultations. The different organisational aspects
13 identified by the different professional roles within the team highlights the importance of tailoring any
14 interventions to meet the needs of the different roles, function and responsibilities that exists within
15 community pharmacy.
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20 These results illustrate the multiple influences, complexities and challenges affecting the effective
21 management of self-care consultations and supports the need for further tailored interventions. The
22 third stage of the TRiaDS-P programme will use these findings to inform the development of additional
23 interventions for both pharmacists and non-pharmacists, to optimise this behaviour and will use a
24 systematic, theory-based approach which engages both stakeholders and health professionals.
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35 in particular, Trish Graham, who scheduled and co-ordinated interviews.
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Table 1: Mapping to the Theoretical Domains Framework by Professional Role

DOMAIN	PHARMACISTS N (Rank)	NON-PHARMACISTS N (Rank)
<i>Knowledge</i>	46 (=1)	25 (1)
<i>Environmental context & resources</i>	46 (=1)	22 (2)
<i>Beliefs about consequences</i>	32 (3)	19 (=3)
<i>Skills</i>	30 (=4)	19 (=3)
<i>Social professional role & identity</i>	30 (=4)	12 (=6)
<i>Social Influences</i>	28 (6)	15 (5)
<i>Behavioural Regulation</i>	27 (7)	8 (10)
<i>Intentions</i>	20 (8)	12 (=6)
<i>Reinforcement</i>	17 (9)	10 (=8)
<i>Memory, attention & decision-making</i>	14 (10)	10 (=8)
<i>Optimism</i>	9 (11)	3 (13)
<i>Emotion</i>	8 (12)	6 (12)
<i>Beliefs about capabilities</i>	7 (13)	8 (10)
<i>Goals</i>	1 (14)	1 (14)

Domains presented in order of rank by pharmacist.

N: Refers to the number of utterances coded to each domain.

Rank was derived using weighted scores. Weighted scores were derived from the number of utterances divided by the number of participants, to ensure that findings across roles were comparable.

Table 2: Interviewee Demographics*(Figures rounded to nearest whole number)*

Health Board	Number of Interviewees % (N)	(Pharmacist, Non-Pharmacist)	Total number of pharmacies in Scotland % (N)
<i>Ayrshire and Arran</i>	13 (4)	(2,2)	8 (97)
<i>Borders</i>	3 (1)	(1,0)	2 (27)
<i>Dumfries and Galloway</i>	10 (3)	(2,1)	3 (35)
<i>Fife</i>	0 (0)	-	7 (85)
<i>Forth Valley</i>	10 (3)	(2,1)	6 (72)
<i>Greater Glasgow and Clyde</i>	13 (4)	(2,2)	25 (315)
<i>Grampian</i>	27 (8)	(5,3)	11 (131)
<i>Highland</i>	7 (2)	(1,1)	6 (78)
<i>Lanarkshire</i>	10 (3)	(2,1)	10 (121)
<i>Lothian</i>	7 (2)	(2,0)	15 (182)
<i>Orkney</i>	0 (0)*	-	<1 (4)
<i>Shetland</i>	0 (0)*	-	<1 (45)
<i>Tayside</i>	0 (0)	-	7 (92)
<i>Western Isles</i>	0 (0)*	-	<1 (3)
Scottish Index of Multiple Deprivation (SIMD)**			
<i>SIMD 1 (most deprived)</i>	17 (5)		
<i>SIMD 2</i>	37 (11)		
<i>SIMD 3</i>	20 (6)		
<i>SIMD 4</i>	13 (4)		
<i>SIMD 5 (least deprived)</i>	13 (4)		
Pharmacy Setting			
<i>Independent (single outlet)</i>	27 (8)		
<i>Small Chain (2-5 outlets)</i>	17 (5)		
<i>Large Chain define (6+ outlets)</i>	50 (15)		
<i>Supermarket</i>	7 (2)		

Pharmacist N=19 (63%)**Non-Pharmacist N=11 (37%)**

*No R&D approval granted.

**The Scottish Index of Multiple Deprivation (SIMD) is the Scottish Government's official tool for identifying places in Scotland suffering from deprivation, based on postcode. The information displayed here has been taken from the SIMD 2012 Scotland level population-weighted quintile²⁵.

Table 3: Theoretical beliefs, specific beliefs and illustrative quotes

Domains presented in order of dominance.

THEORETICAL DOMAIN	SPECIFIC BELIEF	N	ILLUSTRATIVE QUOTATIONS
Environmental Context and Resources	Privacy	28	<i>'Occasionally there's a lot of other customers around the till and having to try and sort of discreetly move the customer to a quieter place if it's something a bit more sensitive or you feel it's inappropriate to be discussing something within earshot of other people.'</i> PH004
	Staff time/ resources	13	<i>'When it's busy staff feel pressured and, you know, if they don't feel they've got enough support, they let their standards slip, which is disappointing, but, if we're all being completely honest, it happens when you're under pressure.'</i> PH009
	Access to patient records/ information	12	<i>'That's how sometimes that you should always recommend customers to stick to the one pharmacy because if they're changing medication all the time, we have obviously got it on computer, that we know every medication that they're on'</i> MCA011
	Access to other support/ facilities	9	<i>'I have doctors, receptionists, nurses on tap. If I'm suspicious that there is something more serious, than the patient thinks, then I can go away and get some advice rather rapidly, which is a great help'</i> PH007
	Practice context	6	<i>'It's a small community pharmacy, so we tend to know most of the patients'</i> PH006. <i>'I think there's got to be greater utilisation, of these private spaces, because I certainly wouldn't want to openly discuss some, you know, medical issues, when I've got a queue of people waiting behind to me, and to my left and right-hand side.'</i> MCA001
Belief about Consequences	Patient safety	27	<i>'If they're taking something else that might not be necessary or something that's not been reviewed for a while, or is potentially harmful, you know...You can sometimes gather bits of information that you can intervene for the patient's best interest.'</i> PH004
	Professional impact	11	<i>'The worst scenario is that you get involved in legal situations or serious illness or death. It's negligent that point of view. So, I think members of staff have to be aware that it's an important role that they're playing'.</i> PH012
	Commercial impact	6	<i>'if you do your consultations right, you make the right request, the customer leaves, they feel better, they're going to come back so your business would grow....'</i> PH009
	Impact on ability to do job	5	<i>'The more that we get out of them, then the more that we can offer them.'</i> MCA001

Skills	Communication skills	26	<i>'Try our best to use kind of open questions where possible. We find just having good communication skills are obviously pretty essential' PH002. 'Skills; good listening skills, good communication skills...underpinning knowledge.'</i> PH006
	Tailoring	16	<i>'You've got to look at their body language, you've got to adapt your body language, to suit them. So, it's not just standing there, smiling, and asking a few questions because that's not going to work.'</i> PH007
	Information gathering	7	<i>'I would say it's more experience that I'd picked up, you know, from years of listening to what the pharmacist would say to them and, you know, it's basically just trying to get the information, out of every patient that you need. And that gives you the best ground to, you know, help them...'</i> MCA003
Social Influences	Patient knowledge & perspectives	25	<i>'Some people are quite, what's the word? They're not really very clued up, on what medicines either they're already taking or what medicines they can get from the pharmacy' MCA003. I think it's perhaps the perception of the patient or customer, about why we're asking questions. I've always felt that the public aren't given enough information, about what we actually do and why we're asking questions. You know, we need to raise the profile of pharmacists' PH010</i>
	Colleague/peer influence	10	<i>'if I'd picked up something new that, all three of us have been doing for many years and I thought actually this is maybe something that's a wee bit better, let's try this, I would pass that information onto the rest of the staff, including my colleagues.'</i> PH017
	Advertising	8	<i>'They've seen it on TV, or someone else has suggested it to them, so you do sometimes ask yourself the question of, "Why are they asking for this?" You know, they're maybe self-diagnosing.'</i> PH006
Knowledge	Knowledge of SOPs (inc. WWHAM)	24	<i>'WWHAM questions; the who, the what, the why, the how.'</i> MCA002
	Knowledge of training courses	14	<i>'Once you complete your training, especially from a healthcare assistant point of view, I don't think... Once you finish that structured kind of training, there's not a lot that you're proactively pushed to do. It's really off your own back, to maintain your own knowledge... there's a lot of information out there, but it's knowing where to go looking for it or actually having the inclination, to go and do it' MCA001</i>
	Patient knowledge	12	<i>'A lot of patients don't understand that difference between the medicines...so you obviously have to just take the time to make sure that they're aware of what they're actually buying.'</i> PH001
	Knowledge of guidance	11	<i>'There are the guidelines from the Royal Pharmaceutical... If we have any problems, we can get in touch with one of the support people, like the National Pharmaceutical Association or a company called Numark...'</i> PH007

	Product knowledge	7	
Social Professional Role and Identity	Role of non-pharmacists	16	<i>'If the public were more aware that the staff working within the pharmacy, not just the pharmacist, are trained in their jobs rather than they've just come off the street and they put price tickets on things'</i> MCA005
	Professional role	9	<i>'The way a patient might approach an assistant compared to how they might consult with a pharmacist might be different. Possibly.'</i> PH004. <i>'Some people don't want to speak to a counter assistant; they want to speak to a pharmacist.'</i> MCA006
	Job satisfaction	7	<i>'Sometimes you feel like you're doing your job and you've helped someone, that's really nice'</i> PH018
	Responsibility	7	<i>'The pharmacist should be aware of every P medicine that's sold in the pharmacy, so they should really be listening out for things going out'</i> PH017
	Referring to other healthcare	3	<i>'If it's a recurring problem then the pharmacist might refer them to the doctor's and say, "You've been given this several times. I can only give you certain things over the counter and obviously there is a lot that a qualified doctor can prescribe".'</i> MCA010
Behavioural Regulation	Continual training	16	<i>'I think there's always scope for making sure that people's training is up to date and, you know, making sure that any new staff that come are fully trained and review what you have and then how you sell it and that sort of thing.'</i> PH001
	SOPs (inc. WWHAM)	11	<i>'Well, we also have our standard operating procedures, which are called SOPs, and they give the general guidelines on what you should do.'</i> PH007
	Referring to guidance/wider reading	8	<i>'We're, obviously, using journals and things like that, to keep abreast of updates that we share with the staff.'</i> PH015
Intentions	To gather information	15	<i>'You need to start at the beginning and work your way through the process, regardless what the request is'</i> PH001 <i>'You've always got to seek information. You can't just assume. When somebody comes in and asks for co-codamol, we don't just sell them it. That is not what we do. It's again back to the WWHAM questions. Always the WWHAM questions; that's where you start from and always continue'</i> MCA009
	To provide best practice	12	<i>'My intention is always to get the message across so, as long as I feel that they've understood me, then I'm happy. You know, we're all humans, so maybe if someone is being slightly awkward or a wee bit rude, then you are maybe not as nice to that person or maybe not spend as much time with them. As long as you get your base message across, then I feel I've done my job.'</i> PH0018

	To refer to other healthcare professionals	3	
	To refer to a pharmacist	2	
Memory, Attention and Decision-making Processes	Administrative prompts & processes	13	<i>'I've basically stuck my WWHAM questions at the side of the tills because, if you do forget, the little prompt is there.'</i> PH009. <i>'I've got it up on a board on the wall, the four questions to ask'</i> MCA004
	Patient prompts	9	<i>'Any of the vulnerable patient groups, so children, people over 60, 65, anyone with any long term chronic illness, so any of the kind of red flag indicators that, all of a sudden, you maybe delve into another set of questions'</i> MCA001. <i>'If it's for a child, or if someone was on any other medication, it would be referred to the pharmacist'</i> PH008
	Automatic processes	2	<i>'You know, we're all so aware that it's almost second nature'</i> PH018
Reinforcement	Job satisfaction	10	<i>'The incentive we have is to help the person who's standing in front of me. I'm quite happy to do that, it being part of my job anyway. But yes, I do like to feel that I helped that person in some way.'</i> MCA005
	Impact on sales	9	<i>'If you give them advice on how to handle something, it does work and it makes them feel better, then the chances are they're going to come back to us.'</i> MCA008
	Patient safety	4	<i>'The incentive is to keep the patient safe.'</i> PH006
	Feedback	4	<i>'Just simple phrasing I've learnt previously that that kind of thing sticks with people, rather than always maybe giving financial rewards or physical rewards. A simple, "Well done," sometimes works better.'</i> MCA002
Belief about Capabilities	Confidence due to knowledge and experience	8	<i>'I'm very confident that I've got the knowledge and the appropriate skills to make sure that things are being recommended or provided safely and appropriately.'</i> PH004

1		Confidence due to ability to refer	4	<i>I would say I'm fairly confident, but then if I feel I've not asked the right questions, I would obviously refer to my pharmacist, just to make sure I wasn't giving them something that wouldn't be right for them.'</i> MCA004
2		Patient impact upon confidence	3	<i>'If you do get some of these customers that come in, particular for new staff, it can be a real blow to their confidence and then the worry is that they're not going to ask the questions to another customer and they might actually miss something that is really important.'</i> PH012
3	Optimism	Pessimism	7	<i>'There are some patients that you just can't win with in a way.'</i> PH012
4		Positivity	5	<i>'I'm providing the best possible care; that's what I'd want or hope that all my staff felt as well.'</i> PH009
5	Emotion	Frustration	4	<i>'Sometimes it's frustrating, because you know they're not listening or they don't believe your advice, and go anyway, and so that's quite frustrating.'</i> PH018
6		Worry	4	<i>'Can be slightly worried for the likes of a customer if they're continuously buying something, like, I don't know, if we're talking say co-codamol.'</i> MCA009
7		Uncomfortable/ Nervous	4	<i>'You see the same people buying the same things day in day out, and it can be quite hard when you want to refuse a request. It can be very difficult; it makes a lot of staff, particularly the younger staff, feel quite uncomfortable.'</i> PH009
8		Empathy	1	<i>'You certainly kind of empathise with their feelings.'</i> MCA003
9		Under pressure	1	<i>'People come in, and they've made their made up that they want codeine linctus, for a cough, we know that therapeutically it might not be the best thing for them... feel stuck a bit between a rock and a hard place, but you make the supply, and the patient takes that medication and feels they've got the benefit, from it.'</i> MCA001
10	Goals	Decision to cut out questions/ shorten the process	2	<i>'I always cover the areas that are vital but sometimes if it's busy and things like that, it can take up a good part of your time having to deal with it when there's an easier and proper way to go about it.'</i> MCA008

PH: Pharmacist

MCA: Medical Counter Assistant

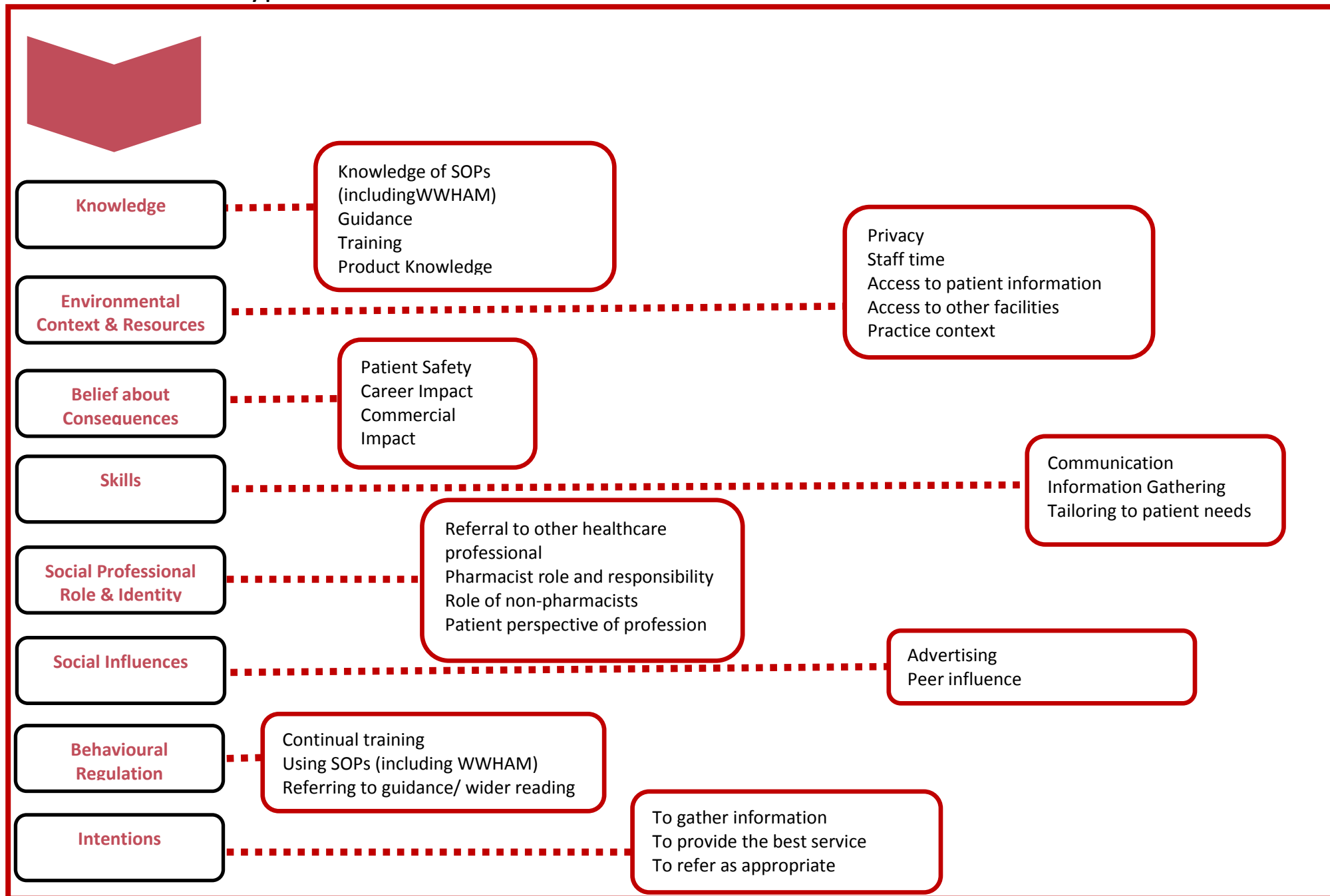
N: Refers to the number of interviewees who referred to each specific belief

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Figure 1: Conceptual Diagram illustrating salient domains and specific beliefs associated with the key determinants of quality in self-care consultations in community pharmacies



Domains presented in order of rank by pharmacists

SOP: Standard Operating Procedure

For peer review only - <http://bmjopen.bmj.com/site/about/guidelines.xhtml>

WWHAM: Who, What, How long, Action to date, other existing Medication being taken.

Supplementary File 1: Interview Topic Guide

Behaviour of interest: Gathering information during consultations for Pharmacy medicine requests.

Research question: What are the key determinants to eliciting information during consultations for Pharmacy medicines?

Domain	Interview Questions
Knowledge	What guidelines are you aware of for managing consultations for Pharmacy medicine requests? If guidelines are named: What do those guidelines recommend? – for symptom-based consultations; for product requests How do you use the guidelines?
Skills	What skills are required to elicit information during Pharmacy medicine request? How do you go about obtaining information from a customer who asks about symptoms they are experiencing? How do you go about obtaining information from a customer who asks for a specific Pharmacy medicine by product name?
Social/professional role and identity	How do you think that customers coming in for Pharmacy medicines see you? Is there anything about your training/experience that influences the way you manage Pharmacy medicine requests? Do you see your role differently when a customer asks for a specific Pharmacy medicine rather than describing a set of symptoms to you?
Beliefs about capabilities	What problems/difficulties do you encounter eliciting information during Pharmacy medicine consultations? What would help you overcome these difficulties? How confident are you asking customers for information during Pharmacy medicine requests?
Beliefs about consequences	What are the benefits of gathering information during Pharmacy medicine requests? What are the potential problems of not gathering exchanging information during Pharmacy medicine requests? (harms avoided, benefits to customer, pharmacy, NHS, financial, long/short term)
Motivation and goals	How important do you feel seeking information is in the work of the pharmacy during Pharmacy medicine consultations? How important do you feel seeking information to the customer during Pharmacy medicine requests?
Intentions	How do you intend to seek information from customers during Pharmacy medicine requests? Do your intentions differ when a customer approaches with a specific Pharmacy medicine request rather than a description of their symptoms? If so, how?
Reinforcement	Are there any incentives to elicit information from customers during Pharmacy medicine requests? If so, what are those incentives? Do they work? If not, what would be a suitable incentive?

Optimism	Do you believe that eliciting information during Pharmacy medicine requests can be improved? Are you confident that you give your patient the best service possible/Are you happy/content with the service you deliver?
Memory, attention and decision processes	What prompts you to think about guidelines/recommendations when eliciting information during Pharmacy medicine requests? In what situations might it be difficult to elicit information from a customer during Pharmacy medicine requests? For MCAs: What prompts you to involve the pharmacist when eliciting information during a Pharmacy medicine request? For MCAs: What makes it easy for you to involve the pharmacist when eliciting information during a Pharmacy medicine request?
Environmental context and resources	What factors within the pharmacy influence how you seek information from a customer who requests a Pharmacy medicine? What aspects of the pharmacy environment (lack of privacy, locations of products...) that help or hinder gathering information during Pharmacy medicine requests?
Social influences	Would you say that the way you elicit information during Pharmacy medicine requests is influenced by your colleagues? For MCAs: specify other counter staff/pharmacist How does that influence the way that you gather information during Pharmacy medicine requests? Do customers have views on the management of Pharmacy medicine requests? Do these differ according to whether they presented with symptoms or asked for a specific medicine? How do these views affect you?
Emotion	What feelings surround/are linked with eliciting information during Pharmacy medicine requests for you? Do these feelings lead to worry or work stress?
Behavioural regulation	If you were thinking about changing the way you elicit information during Pharmacy medicine requests how could you do this? What could you do to increase information seeking with customers asking for specific Pharmacy medicines? Are there procedures or ways of working that might encourage you to seek information from customers requesting Pharmacy medicines?

Participants will also be given the opportunity to add any further thoughts on barriers or enablers for eliciting information during Pharmacy medicine requests if they wish to do so.

□

Summary post interview general points about place and time, environments, atmosphere, interviewee's tone of voice etc

Supplementary File 2: Interview Coding Guide

Pharmacy Interview Study: Guide for interview coding and analysis

Behaviour of interest: Gathering information during consultations for Pharmacy medicine requests.

Research question: What are the key determinants to gathering information during consultations for Pharmacy medicines?

Coding guidelines

Coding employs directed content analysis (Hsieh & Shannon, 2005) and the 14 domains of the TDF (Cane, O'Connor & Michie, 2012).

1. Objectives of coding are to identify:
 - a) What we conclude about each TDF domain (is it a barrier or enabler to managing SELF-CARE consultations for Pharmacy medicine request?)
 - b) What we conclude about each participant's experiences of pharmacy medicine requests.
2. Where multiple domains are raised by interviewees within one utterance, judge which domain the main message of the utterance lies and code accordingly however it may be necessary to break up paragraphs into smaller chunks.
3. Where uncertain of which domain is appropriate, go with first hunch and asterisk quote in table to show uncertainty and highlight for team discussion.
4. Coding to more than one domain is possible
5. If insufficient information to justify a code but information deemed useful code to "other" category.
6. If after discussion, uncertainties remain then utterance to be 'double badged' within more than one domain.
7. Coding is to discuss the pharmacy staff own behaviour not that of the patients
8. If topics come up more than once in transcript then code again.

1 2 3 4 5 6 1. Knowledge	<ul style="list-style-type: none"> • Knowledge of named guidelines for eliciting information (Buttercups, WWHAM questions) • Procedural knowledge of use of guidelines to elicit information (how the guidelines are used)
7 8 9 2. Skills	<ul style="list-style-type: none"> • Ability to elicit information (e.g. communication skills) • Competence in obtaining information (e.g. building rapport)
10 11 12 13 14 15 16 17 3. Behavioural Regulation	<ul style="list-style-type: none"> • Ways of doing things that relate to pursuing and achieving desired goals, standards or targets (CPD courses, training) • Methods used when asking questions • Translating intentions into actions (e.g. at the individual level action planning; at the organisational level – guidelines)
18 19 20 21 4. Social/Professional role and identity	<ul style="list-style-type: none"> • Expression of own professional identity / job/ role professional boundaries • Comparisons about their role with that of other professions (GPs and other members of pharmacy team)
22 23 24 5. Social influences	<ul style="list-style-type: none"> • External pressure from other people e.g. views of other professions or members of the team • Influence of customers' views on their ability to elicit information
25 26 27 28 29 30 6. Beliefs about capabilities	<ul style="list-style-type: none"> • Perceptions of own competence in eliciting information during pharmacy medicine requests. • Perceptions about control of own behaviour e.g. whether seeking information is within their control • Self –efficacy - confidence and lack of confidence in employing skills necessary to elicit information and resist temptation, cope with stress and mobilize own resources to meet demand of the situation.
31 32 33 34 35 7. Beliefs about consequences	<ul style="list-style-type: none"> • Perceptions about outcomes and advantages and disadvantages of eliciting information (e.g. avoiding harm to patient, benefits to customer, harm or benefit to pharmacy business, NHS, financial long and short-term harms and benefits)
36 37 38 39 40 8. Goals	<ul style="list-style-type: none"> • Prioritising eliciting information – competing tasks • Importance of eliciting information • Commitment to eliciting information during pharmacy medicine requests

9. Intentions	<ul style="list-style-type: none"> • A conscious decision to perform a behaviour (when someone states “I always” or “I usually”) • Stability of intentions (always intend to elicit information during pharmacy medicine requests)
10. Reinforcement	<ul style="list-style-type: none"> • Any financial / non-financial incentives influence behaviour when eliciting information during pharmacy medicine request • Any positive or negative consequences that influence behaviour when eliciting information • Legal aspects
11. Optimism	<ul style="list-style-type: none"> • The confidence expressed that the best possible service is given to patients • Pessimism also coded within this domain i.e. eliciting information poorly achieved during busy periods
12. Memory attention and decision processes	<ul style="list-style-type: none"> • Attention control and decision-making. • Is eliciting information a problem because people forget to do this? • Any prompts that help memory • May be characteristics of the patient that influences decisions on how to elicit information i.e. red flag indicators (vulnerable groups) • Relating to the decisions they make and steps they consciously make when approaching a patient
13. Environmental context and resources	<ul style="list-style-type: none"> • Factors relating to the pharmacy setting • Environmental factors that influence the elicitation of information • Workload and time pressures
14. Emotion	<ul style="list-style-type: none"> • Feelings or affect about eliciting information (stress, anxiety)

Supplementary File 3: Consolidated Criteria for Reporting Qualitative Research (COREQ): 32 Item Checklist

Adapted from:

Tong A, Sainsbury P, Craig P. Consolidated criteria for reporting qualitative research (COREQ): 32 item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007; Volume 19, Number 6: pp. 394-357

	GUIDE QUESTION/DESCRIPTION	REPORTED ON PAGE #
DOMAIN 1: Research team and Reflexivity		
Personal characteristics		
1. Interviewer	Which authors conducted the interviews?	Page 4
2. Credentials	What were the researcher's credentials?	Page 4
3. Occupation	What was their occupation?	See submission form
4. Gender	Was the researcher male or female?	Female
5. Experience and Training	What training or experience did the researcher have?	Experienced qualitative researchers
Relationship with participants		
6. Relationship established	Was a relationship established prior to study commencement?	No
7. Participant knowledge of interviewer	What did the participants know about the researcher?	Brief introduction provided at start of interview (name/ role/ purpose of research)
8. Interviewer characteristics	What characteristics were reported about the interviewer?	As above.
DOMAIN 2: Study Design		
Theoretical framework		
9. Methodological orientation and theory	What methodological orientation was stated to underpin the study	Page 3
Participant selection		
10. Sampling	How were participants selected?	Page 3
11. Method of approach	How were participants approached?	Page 3
12. Sample size	How many participants were in the study?	Page 4
13. Non-participation	How many people refused to participate/ dropped out? Reasons?	Page 4 Some of those contacted did not return consent forms.
Setting		
14. Setting of data collection	Where was the data collected?	Telephone interviews
15. Presence of non-participants	Was anyone else present besides the participants and researchers?	No
16. Description of sample	What are the important characteristics of the sample?	Pages 4, 13 Table 2

Data collection		
17. Interview guide	Were questions, prompts, guides provided by the author? Was it pilot tested?	Page 3 Supplementary file 1 Yes, Page 4
18. Repeat interviews	Were repeat interviews carried out?	No
19. Audio/visual recording	Did the researcher use audio or visual recording equipment?	Page 4
20. Field notes	Were field notes made during and/or after the interviews?	No
21. Duration	What was the duration of the interviews?	Page 4
22. Data saturation	Was data saturation discussed?	Pages 4 and 10 Data saturation was discussed as part of the standardisation meetings.
23. Transcripts returned	Were transcripts returned to participants for comment and/or correction	No
DOMAIN 3: Analysis and Findings		
Data analysis		
24. Number of data coders	How many data coders coded the data?	Page 4
25. Description of the coding tree	Did authors provide a description of the coding tree?	Table 3 Nvivo database available on request
26. Derivation of themes	Were themes identified in advance or derived from the data?	Page 4. Themes derived from the data and mapped the TDF
27. Software	What software was used to manage the data?	Nvivo 10
28. Participant checking	Did participants provide feedback on the findings	No
Reporting		
29. Quotations presented	Were participant quotations presented to illustrate the themes/findings? Was each participant identified?	Pages 5-9; Table 3 Yes, each participant was given an ID number.
30. Data and findings consistent	Was there consistency between the data presented and the findings?	Yes
31. Clarity of major themes	Were major themes clearly presented in the findings?	Pages 5-9 Figure 1
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes	Table 3 Figure 1

BMJ Open

A qualitative study exploring the key determinants of information gathering to inform the management of over-the-counter (OTC) consultations in community pharmacies

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Manuscripts

A qualitative study exploring the key determinants of information gathering to inform the management of over-the-counter (OTC) consultations in community pharmacies

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Keywords:

Community Pharmacy Services; Quality Improvement; Health Care Research; Theoretical Domains Framework; Qualitative research.

Word Count: 4,442.

ABSTRACT (263/300)**Objectives:**

Gathering relevant patient information during over-the-counter (OTC) consultations increases the likelihood of safe, effective and person-centred outcomes. The aim of this study was to explore the key determinants to information gathering during consultations for non-prescription medicine requests in community pharmacies in Scotland.

Design:

Semi-structured interviews using the Theoretical Domains Framework (TDF), with community pharmacy teams across Scotland. Interviews explored participants' knowledge of current guidance, skills required to elicit information and barriers and facilitators associated with this behaviour. Theory-based content analysis was undertaken using the TDF as an initial coding framework to identify key determinants and map them to salient domains. Salience was determined by prominence or variation in views. Comparative analysis was undertaken by professional role.

Results

Thirty interviews were conducted with pharmacists (n=19) and Medicine Counter Assistants (MCAs) (n=11). Eight salient domains were identified: environmental context and resources (privacy); beliefs about consequences (patient safety); skills (communication, decision-making); social influences (patient awareness of pharmacist role); knowledge (awareness and use of standard operating procedures); social professional role and identity (perception of own role); behavioural regulation (training) and intention (to gather information). Similar domains were salient for pharmacists and MCAs; however, different beliefs were associated with different roles. Overarching themes were identified: best practice; health literacy; decision-making; and, professionalism.

Conclusions

Multiple influences and complexities affect the effective management of OTC consultations. While similar factors impact upon both pharmacists and MCAs at a patient, professional and environmental level, subtle differences exist in how these influence their management of OTC consultations. This study highlights the importance of tailoring interventions to reflect different roles, functions and responsibilities of community pharmacy personnel.

Strengths and Limitations of this study

- This is the first theoretically-underpinned exploration of the determinants of information gathering during OTC consultations in community pharmacies in Scotland.
- This is also the first study to explore these determinants by professional role.
- We achieved a wide representation of participants from across Scotland, however remote and rural areas were under-represented.
- This study was conducted across Scotland; therefore, the results may not be generalisable to community pharmacy personnel in other countries. These findings, however, are not intended to be generalisable, but to provide an insight into the behaviour of interest to inform future research, practice and policy.

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4 pharmacists and MCAs as well as the TRiADS administrative team in particular, Trish Graham, who
5 scheduled and co-ordinated the interviews.
6

Competing Interests Statement

7
8
9 None
10

Authors' Contributions

11
12
13 HC: Manuscript production and revisions, contributed to the scientific development, conduct, data
14 collection, analysis and interpretation of the study.

15 EG: Contributed towards scientific development, data collection, data coding, analysis and
16 interpretation
17

18 AP: Contributed to the scientific development, conduct and interpretation of the study.

19 LY: Contributed to the scientific development, conduct and interpretation of the study.

20 ED: Contributed towards data analysis and interpretation.

21 RN: Contributed towards data coding, analysis and interpretation.

22 MW: Led the scientific development, conduct and interpretation of the study.
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INTRODUCTION

1 Around 18 million general practice (GP) consultations and 650,000 emergency department (ED)
2 consultations are for conditions which could be treated using over-the-counter (OTC) medicines
3 supplied from community pharmacies (1). It is estimated that in the UK, consultations for minor
4 ailments in EDs and GP cost around £1.1 billion, however equivalent health outcomes can be achieved
5 with care provided from community pharmacies (2). Community pharmacies have been identified as an
6 'under-utilised resource' with the potential to reduce the burden on other primary care providers (3).
7 Recently, there has been an increasing recognition of the contribution that community pharmacy can
8 have on improving public health and a drive towards integrating pharmacy into the wider UK public
9 health workforce (4).
10
11

12
13 In 2013, the Scottish Government highlighted their commitment towards enhancing the role of the
14 pharmacy team through '*Prescription for Excellence*', its vision and action plan for pharmaceutical care
15 (5). More recently, their 2017 strategy '*Achieving Excellence in Pharmaceutical Care*' (6) reinforced this,
16 encouraging people to use their community pharmacy as a first port of call for healthcare advice. This
17 strategy highlights that it is only through making full use of the clinical capacity in community
18 pharmacies that real gains in clinical care can be achieved.
19
20

21
22 In the UK there are three broad categories of medicines: POM (prescription only medicines), P
23 (Pharmacy only), and GSL (general sales list) (7). OTC consultations involve P and GSL medicines.
24 Medicine counter assistants (MCAs) are the members of community pharmacy personnel most often
25 involved in the sale of OTC medicines (8, 9). MCAs work under the supervision of a pharmacist and
26 must complete an accredited MCA course or relevant units of a dispensing assistant or pharmacy
27 technician course to undertake this role (10). Currently, there is no requirement for further MCA
28 training post-qualification (11). Concerns exist regarding the risks associated with the public's enhanced
29 access to these medicines, as well as with the ability of community pharmacy staff to ensure the safe
30 and effective supply of reclassified medicines (12-15).
31
32

33
34 One means of ensuring optimal management of these consultations is through effective information
35 gathering (16-18). Whilst several frameworks exist to promote information gathering, with WWHAM
36 (19) being the most commonly cited in the UK, there is substantial evidence to suggest that the
37 information gathered during OTC consultations is sub-optimal (20, 21).
38
39

40 The TRiADS programme, funded by NHS Education for Scotland (NES) uses a framework for the
41 translation of guidance and translation into practice (22). The scope of the TRiADS programme was
42 extended in 2013 to include community pharmacy. The TRiADS in Pharmacy (TRiADS-P) programme
43 comprised four stages: (1) A service-driven prioritisation exercise to identify priorities for community
44 pharmacy practice improvement in Scotland. Through a systematic, service-driven prioritisation
45 exercise, effective management of OTC consultations was selected as the target for improvement (23);
46 (2) Semi-structured interviews to explore the key determinants to information gathering during OTC
47 consultations; (3) A national theory-based survey to identify key determinants of the target behaviour;
48 (4) Intervention development comprising identification of options for practice improvement
49 interventions.
50
51

52
53 Stage 1 of the programme identified that the optimal management of OTC consultations is dependent
54 upon effective information gathering (13, 16, 17) and as such, this formed the target behaviour of stage
55 2, explored by this current study, the purpose of which was to identify the key determinants to
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information gathering during consultations for P medicine requests in community pharmacies in Scotland.

METHODS

Study design and setting

This study comprised a series of semi-structured telephone interviews underpinned by the Theoretical Domain Framework (TDF) (24). The TDF was developed as a theoretical framework for use in implementation research. It includes a number of behavioural theories and constructs and proposes that determinants of healthcare professionals' behaviour can be clustered into 14 'domains'. The TDF has been widely used to identify barriers and facilitators to evidence-based practice, as well as to explain variation in practice and fits into an intervention development methodology (Behaviour change wheel) that assists with developing a theory-based intervention (24-26). One of the benefits of applying this theory is the ability to assess implementation problems and support intervention design (27). In addition, interviews guided by the TDF have been found to encourage participants to consider a wider range of influences on behaviour than other interview approaches (28).

Participants

Community pharmacists and medicine counter assistants (MCAs) working in community pharmacies across Scotland were eligible to participate. Invitations were emailed to all community pharmacists registered on the NES Portal (approximately 4000). This is a national online course booking and management system. Potential pharmacist participants were asked to identify MCAs within their pharmacy who were also willing to participate and to complete a brief electronic questionnaire to gather information regarding their pharmacy characteristics. A maximum variation sample was generated reflecting pharmacy type, Health Board and deprivation. This is appropriate when the sample size is small and if carefully drawn, can be as representative as a random sample (29).

Data collection

Semi-structured telephone interviews were conducted using open ended questions and probing to explore information gathering during consultations in community pharmacies. The interview topic guide covered all TDF domains (25) (Supplementary File 1) and was piloted with two community pharmacists before the study commenced. Pilot data were excluded from the analysis.

Interviews were conducted by two experienced qualitative researchers (EG, HC) and digitally recorded with participant consent. Participants were advised that the interviewers were not pharmacists. The recordings were professionally transcribed and anonymised.

Data collection ceased when data saturation was achieved (i.e. no new information or insights were gained).

Data handling and analysis

All transcripts were accuracy checked prior to analysis. Data were managed using NVivo 10 software. Prior to coding, standardisation meetings were held until full agreement was met and finalised coding definitions produced (Supplementary File 2). Duplicate, independent coding was undertaken (HC, EG, RN). Theory-based content analysis was performed (30) with transcript utterances classified using the TDF. Once coding at a domain level was complete, each domain was coded into specific beliefs. Beliefs tables were constructed with domains, emergent beliefs and illustrative quotations. Following the approach described by Atkins et al (27, 31), the most salient beliefs were identified based on frequency

and content i.e. strongly held or divergent view-points. A comparative analysis was undertaken (HC) within and across pharmacists and MCAs to explore convergent and divergent beliefs, based on the number of utterances coded to each domain. Domains were ranked for both pharmacists and MCAs (Table 1). Specific beliefs within dominant domains were then explored. Where specific beliefs related to similar aspects of practice, these were grouped, and overarching themes were identified.

As part of the analysis process, a mapping diagram was developed (Figure 1), to illustrate how the specific beliefs mapped to the salient domains. The Consolidated Criteria for Reporting Qualitative Research (COREQ) (Supplementary File 3) and Standards for Reporting Qualitative Research (SRQR) (Supplementary File 4) were employed to guide reporting of the data (32).

Consent and ethical review

Ethical approval was received from the College of Life Sciences and Medicine Ethics Review Board, University of Aberdeen (CERB/2014/4/1050). Research and Development management approval was conducted through the NHS Research Scotland Permission Co-ordinating Centre. Approval was granted by 11 of the 14 territorial Health Boards within the timeframe of the study.

Patient Involvement

Patients were not involved in this study

RESULTS

Sample characteristics

Forty-nine individuals indicated an interest in participation. Thirty interviews were completed (19 pharmacists; 11 MCAs), lasting between 15 and 60 minutes. Interviews were conducted between October 2014 and January 2015. Response rates of 70% (19/27) and 50% (11/22) were achieved for pharmacists and MCAs, respectively. The demographic characteristics of interviewees are presented in Table 2.

Mapping to the TDF

All 14 domains were identified during analysis, some featuring more prominently than others. Specific beliefs and illustrative quotations are presented in Table 3. Quotes are labelled using 'PH' to indicate a pharmacist and 'MCA', an MCA. Eight domains were identified as most salient to the target behaviour and are described below, followed by a comparison between pharmacist and MCA interviewees.

Knowledge

(Knowledge of what information to gather)

The use of Standard Operating Procedures (SOPs) was identified as a facilitator to information gathering. This included knowledge of the WWHAM mnemonic to determine the Who, What, How long, Action to date and any other existing Medication being taken. Most interviewees referred to this method of questioning and spoke positively about having a standardised procedure to follow. Lack of patient knowledge of their own medical history and current medication was deemed problematic.

"We also have our standard operating procedures, there are the two WWHAM questions, which is an acronym, where they have to go through a set of five questions; basically, to find out what the patient needs." PH007

1 *"You have to probe patients...I think sometimes patients don't realise that because they take medicines*
2 *from the doctor, that if you take a set of medicines over the counter there can be interactions"* PH002
3

4 **Environmental context and resources**

5 *(Factors relating to the pharmacy setting or environment that influence the gathering of information)*
6
7

8 Lack of privacy was considered a barrier to gathering information. Having access to a private area (e.g.
9 consultation room) was perceived to facilitate information gathering, creating a greater sense of a
10 healthcare environment rather than commercial premises. However, interviewees reported that some
11 pharmacy users are reluctant to use them as it could be perceived (by other pharmacy users) that they
12 have something to hide, and perhaps make them feel uncomfortable or embarrassed. Staff resources
13 may also act as a barrier to using this confidential space, if team members leave the counter to speak
14 privately to patients.
15
16

17
18 *"I think there's got to be greater utilisation of these private spaces because I certainly wouldn't want to*
19 *openly discuss some, you know, medical issues, when I've got a queue of people waiting behind to*
20 *me...The problem then is you have to be able to free your pharmacist, free up your counter staff, to be*
21 *able to use these spaces, to get the best out of every consultation that they give."* MCA001
22
23

24 *"Some people don't want to go into the consultation room...I mean a lot of people at our pharmacy use*
25 *the consultation room for the consumption of methadone and it's just associated with that. So, there's*
26 *a lot of preconceptions involved as well"* PH019
27
28

29 **Beliefs about consequences**

30 *(Perceptions about the advantages/disadvantages of gathering information)*
31
32

33 Patient safety resonated strongly, with interviewees indicating that the health and wellbeing of patients
34 was their primary concern. The consequences of adverse effects motivated interviewees to elicit
35 information. Patient safety was also highlighted in relation to identifying substance abusers.
36
37

38 *"We need to do it [gather information] to ensure the safety of the patient; we're not there just as a*
39 *salesman, we're there to help people get better, offer them advice and make sure that anything that we*
40 *sell is going to make them better; not making them worse or interact with anything."* PH0015
41
42

43 **Skills**

44 *(The skills required to gather information)*
45
46

47 Effective communication skills were also deemed salient to gathering information and it was highlighted
48 that these are required to be tailored to each patient.
49

50 *"You need to be able to ask the right questions and tailor them to the person that you're asking, to be*
51 *able to listen to what you're told. And you need to be able to process the information fairly quickly so*
52 *that you can make the right decision."* PH001
53
54

55 **Social professional role and identify**

56 *(Perception of own role/responsibilities in relation to gathering information and comparison with other*
57 *roles)*
58
59

1 Pharmacists discussed their role and responsibility within the pharmacy team and described monitoring
2 information gathering by MCAs and intervening when necessary. Pharmacists providing reassurance
3 and taking overall responsibility, appeared to facilitate information gathering by MCAs.
4

5
6 The role of MCAs, how they perceive themselves and how patients view them was also identified from
7 the data. MCAs suggested that in some cases patients prefer to speak to a pharmacist and this was a
8 theme also highlighted in the pharmacist interviews.
9

10 *"Some people don't want to speak to a counter assistant; they want to speak to a pharmacist."* MCA006

11
12
13 *"...I don't mean they don't believe it, but they ask to speak to the pharmacist. The pharmacist goes out
14 and gives them exactly the same information. And they go, oh yeah, that's fine then...there's more of a
15 trust with the pharmacist..."* PH005
16

17 **Social influences**

18 *(How interviewees perceive others see their role and how this impacts upon the ability to gather
19 information)*
20

21
22
23 A perceived lack of awareness from patients about what services a pharmacy team can offer and the
24 training and expertise they hold, as well as their understanding of the rationale for the pharmacy team
25 gathering this information, was identified as a barrier. This was considered to stem from the
26 information or lack of it, that patients are provided with regarding the function/role of pharmacies.
27

28
29 *"I think they look on us as more of like shop keepers and they want to know why we want to know, they
30 don't realise that we really need to know the information."* MCA005
31

32
33 *"I think it's perhaps the perception of the patient or customer, about why we're asking questions. I've
34 always felt that the public aren't given enough information, about what we actually do and why we're
35 asking questions. You know, I've always sort of suggested that we need to raise the profile of
36 pharmacists."* PH010
37

38 **Behavioural regulation**

39 *(Procedures/methods of gathering information)*
40

41
42 Having SOPs in place gave the pharmacy team the reassurance of having a clear protocol to follow.
43 Interviewees suggested that having access to ongoing and hands on training could further facilitate
44 information gathering during consultations.
45

46
47 *'Well, we also have our standard operating procedures, which are called SOPs, and they give the general
48 guidelines on what you should do.'* PH007
49

50 **Intentions**

51 *(A conscious decision to gather information)*
52

53
54 An intention to elicit information and to provide the best service possible was evident from
55 interviewees, who suggested that their means of providing best practice and the best possible service
56 for patients was by gathering information. This intention to gather information and belief that by doing
57
58

so they were benefiting the patient was recognised as facilitating the information gathering process during these consultations.

"You've always got to seek information...You can't just assume." MCA009

"I would definitely still, you know, dig for that information, to make sure what they're getting from us was what they needed, and was safe and suitable." MCA003

Pharmacists versus MCAs

Table 1 illustrates mapping to the TDF by professional role. The results demonstrate clear similarities in beliefs by role as well as distinct differences.

'Beliefs about Consequences' was a dominant theme across both groups as was 'Knowledge', 'Environmental context and resources' and 'Skills'. Both groups also agreed that the impact of patient education and patients' perspectives of the pharmacy profession ('Social influences') affected how they manage these consultations. When mapped to the TDF, although similar domains appeared to influence both professional roles, the specific beliefs relating to these domains tended to differ. These differences were identified most prominently within the domains, 'Environmental context and resources', 'Beliefs about consequences' and 'Memory, attention and decision-making' as detailed below.

Environmental context and resources

Both pharmacists and MCAs highlighted privacy as a barrier to eliciting information and they also both reported the benefits of being able to access patient records or information regarding current medication and the challenges they face when this is unavailable. Access to patients' medical history however, appeared to be more of a concern to MCAs.

"Without access to a full patient record, we can't double check." MCA001

Pharmacists highlighted the benefits of having access to other forms of support such as other pharmacist colleagues or other healthcare professionals and also highlighted staff time as a barrier to eliciting information, reinforcing their sense of responsibility over the team and how consultations are managed. These beliefs did not feature strongly in the MCA interviews.

"I have doctors, receptionists, nurses on tap. And if I'm suspicious that there is something more serious, than the patient thinks there is, then I can go away and get some advice rather rapidly." PH007

"When its busy, staff feel pressured and, if they don't feel they've got enough support, they let their standards slip." PH009

Beliefs about consequences

Pharmacists were more concerned than MCAs about the impact that eliciting information could have on commercial aspects of the business. They suggested that gathering information effectively may result in patients experiencing a better service and promote greater loyalty/future use of the pharmacy. Pharmacists also highlighted a concern of litigation and the potential impact this may have on their careers.

"The worst scenario is that you get involved in legal situations or serious illness or death. It's negligent... I think members of staff have to be aware that it's an important role that they're playing." PH012

1 *"I just want to do the best for the patient, so I want to do the best job that I can."* PH011

2
3 For MCAs, the consequences of not gathering information focussed on patient safety primarily and
4 avoidance of harm.
5

6
7 *"If you give somebody the wrong medication, it can have various side effects"* MCA002

8 9 **Memory, attention and decision-making**

10 Although this was not one of the most salient domains overall, in relation to the prompts that facilitate
11 gathering information from specific groups of patients, pharmacists and MCAs highlighted different
12 factors that aided this process. Pharmacists discussed the benefits of administrative prompts such as
13 laminated cards illustrating the WWHAM questions and other administrative procedures. MCAs
14 suggested that patient prompts were a facilitator for them, suggesting that if the patient was a minor,
15 pregnant, or very elderly this would trigger them to ask specific questions.
16
17

18
19 *"We keep a print out at the till of the general questions that they should be asking."* PH011

20
21 *"Any of the vulnerable patient groups, so children, people over, you know, over sort of 60, 65, anyone
22 with any long- term chronic illness, so any of the kind of red flag indicators that, all of a sudden, you
23 maybe delve into another set of questions."* MCA001
24
25

26 A mapping diagram was developed (Figure 1), to illustrate the eight most salient domains and the
27 salient beliefs associated with these. Four overarching themes were identified to encapsulate these
28 beliefs: best practice; health literacy; decision-making; and, professionalism.
29
30

31 **Best practice**

32 When considering the management of consultations, pharmacy team members reported wanting to
33 offer best practice, to do what was best for the patient and highlighted the potential consequences if
34 they did not achieve these goals. The consequences to the patient, in terms of safety, to the pharmacy
35 as a business, to their own careers as well as to their own emotional wellbeing, were concerns of the
36 whole pharmacy team. Whilst the consequences of not providing best practice in some cases differed
37 by professional role the overarching theme to provide the best possible care was evident across roles.
38
39

40
41 *"I'm providing the best possible care; that's what I'd want or hope that all my staff felt as well"* PH009

42
43 *"It does make you feel good as well, though, knowing that you've given somebody the solid information
44 and you've helped them"* MCA008
45
46

47 **Health literacy**

48 Patients appear to have a major influence on consultation management. Knowledge and understanding
49 of their health and medication, their receptivity to providing information, as well as their understanding
50 of services offered by pharmacy personnel, were perceived to act as barriers or facilitators to the
51 information gathering process and consultation management. This was highlighted by both pharmacists
52 and MCAs.
53
54

55
56 *"People have to take responsibility for their own health and their own medicine"* PH005
57
58
59

Decision-making

Decision-making appeared to be a substantial component of pharmacy personnel's daily roles. This included whether to gather any information, the process used to gather information and whether to tailor their behaviour to each patient's circumstances and behaviour. Decision-making also included whether to refer to the pharmacist (referral by MCA staff) or to another healthcare professional (referral by pharmacists). Considerable reference was made to criteria used when making these decisions, however it was apparent that this was not a standardised process, with differences between pharmacists and MCAs, as well as within and between pharmacies.

"Sometimes you catch someone off guard when you start asking them questions and you might actually be dealing with them for quite a long time, longer than you would actually need to be with them ... So that's why sometimes I will admit that I do cut down the questions." MCA008

Professionalism

The concept of professionalism was particularly evident and differed between roles. MCAs perceived that they lacked credibility with patients as healthcare advisors and that patients preferred to consult a pharmacist. This was reinforced by the participant comment used earlier in this paper: *"...there's more of a trust with the pharmacist"*. A greater sense of responsibility emerged from the pharmacists in relation to their role within the team and in respect to overseeing the management of consultations.

"I think people are, on the whole, sometimes more confident to discuss with the pharmacist" PH001

DISCUSSION

This study represents the second stage of the TRIaDS-P programme, a theoretically-underpinned exploration of the beliefs and key determinants of information gathering during OTC consultations in community pharmacies. Eight salient domains were identified: knowledge (awareness and use of standard operating procedures); environmental context and resources (privacy); beliefs about consequences (patient safety); skills (communication and decision-making); social professional role and identity (perception of own role); social influences (patient awareness of pharmacist role); behavioural regulation (training); and intention (to gather information). Similar domains were salient for pharmacists and MCAs; however, the specific beliefs within these domains differed by professional role. Four overarching themes were identified as part of this process: best practice; health literacy; decision-making; and professionalism.

To our knowledge this is the first application of the TDF to explore information gathering within the community pharmacy team, which included interviews with both pharmacists and MCAs, identifying convergent and divergent beliefs. We achieved representation from most Scottish Health Boards. In some of the more remote areas (e.g. the islands of Orkney and Shetland), participants' views may have differed due to the very different contexts within which they are working, particularly in terms of travel to access services, training, peer support and advice. Our sample was broadly representative of the population except for NHS Greater Glasgow and Clyde which was under-represented and NHS Grampian which was over-represented. This may have been due to the lead university being based in the latter and the strong links developed with the profession through previous studies. Our original aim was to conduct interviews with 20 pharmacists and 20 MCAs. Although fewer MCAs participated, categorical and theoretical saturation was achieved (i.e. no new information or insights were gained). This study was conducted across Scotland only, therefore the results may not be generalisable to the wider population. However, as is the nature of qualitative research, these findings are not intended to

1 be generalisable, but to provide an insight into the behaviour of interest to inform future research,
2 practice and policy. Telephone interviews, like face-to-face interviews, allow a two-way interaction
3 between the researcher and the participant, with the added advantage of being more cost effective
4 and easier to schedule. It could be argued that cues picked up through body language may be missed
5 over the telephone, however given the topic being discussed we would argue this did not have a
6 detrimental impact upon data collection.
7

8 We know from existing literature that effective consultations between pharmacy personnel and
9 patients is fundamental to ensuring appropriate recommendations and desired patient and practitioner
10 outcomes(12-15, 33, 34). Our approach is supported by the findings of Ffion Jones and colleagues'
11 recent study which identified time, space and a lack of qualified staff as barriers to promoting
12 antimicrobial stewardship (35). They recommended that resources be developed to facilitate pharmacy
13 teams providing effective self-care and compliance advice and that future research uses behavioural
14 theory in the development of interventions.
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18 This current study identified perceived barriers at the patient, professional and organisational level
19 which influence effective information gathering. At the patient level, patients' own knowledge of their
20 medical history was cited, and it is also believed that patients are unaware of the healthcare advice and
21 support that pharmacies can offer. The Scottish Government's most recent strategy (6) continues to
22 focus upon the need for patients to use pharmacies, including services such as Minor Ailments Service
23 as a "first port of call" for these conditions, perhaps indicating a need for greater awareness at a public
24 health level. Previous work in this area has identified incentives which could be utilised to encourage
25 this, such as avoiding long waiting times for GP appointments and long waits whilst in the surgery,
26 however lay beliefs around the perceived inadequacy of self-medication products and perceptions
27 about the legitimacy of pharmacists' role as advice givers, may counteract this initiative (36). It is likely
28 that patient's decision-making around whether to use a pharmacy as a first port of call may be
29 influenced upon their own previous experience or their ability to afford the cost of OTC medicines (37).
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34 Linked to this, at the professional level, MCAs perceived that patients do not value their input as
35 healthcare advisors and may prefer speaking to a pharmacist. As well as raising public awareness about
36 the skills and expertise available within community pharmacy teams, potential interventions to address
37 this may also target MCA perceptions about their own professional role. Currently, there is no
38 requirement for MCA post-qualification training. Specific MCA-targeted interventions might also be
39 needed (38). Linked to this is the challenge of the least trained member of staff dealing with the
40 majority of patients (albeit under the supervision of the pharmacist). This again points towards the need
41 for additional and ongoing continual education for MCAs to support them in their role. Since this study
42 was undertaken, the Chief Pharmaceutical Officer for Scotland funded a series of educational resources
43 and events for MCAs, informed by these results (39). Finally, at an organisational level, access to patient
44 records was identified as a barrier for MCAs and staff time and privacy were identified by pharmacists
45 as being key determinants in effective information gathering during OTC consultations. The different
46 organisational aspects identified by the different professional roles within the team highlights the
47 importance of tailoring any interventions to meet the needs of the different roles, function and
48 responsibilities that exists within community pharmacy.
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53 These results illustrate the multiple influences, complexities and challenges affecting the effective
54 management of OTC consultations and supports the need for further tailored interventions. The third
55 stage of the TRiADS-P programme will use these findings to inform the development of additional
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1 interventions for both pharmacists and MCAs, to optimise this behaviour and will use a systematic,
2 theory-based approach which engages both stakeholders and health professionals.
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Table 1: Mapping to the Theoretical Domains Framework by Professional Role

DOMAIN	PHARMACISTS N (Rank)	MCAS N (Rank)
<i>Knowledge</i>	46 (=1)	25 (1)
<i>Environmental context & resources</i>	46 (=1)	22 (2)
<i>Beliefs about consequences</i>	32 (3)	19 (=3)
<i>Skills</i>	30 (=4)	19 (=3)
<i>Social professional role & identity</i>	30 (=4)	12 (=6)
<i>Social Influences</i>	28 (6)	15 (5)
<i>Behavioural Regulation</i>	27 (7)	8 (10)
<i>Intentions</i>	20 (8)	12 (=6)
<i>Reinforcement</i>	17 (9)	10 (=8)
<i>Memory, attention & decision-making</i>	14 (10)	10 (=8)
<i>Optimism</i>	9 (11)	3 (13)
<i>Emotion</i>	8 (12)	6 (12)
<i>Beliefs about capabilities</i>	7 (13)	8 (10)
<i>Goals</i>	1 (14)	1 (14)

Domains presented in order of rank by pharmacist.

N: Refers to the number of utterances coded to each domain.

Rank was derived using weighted scores. Weighted scores were derived from the number of utterances divided by the number of participants, to ensure that findings across roles were comparable.

Table 2: Interviewee Demographics*(Figures rounded to nearest whole number)*

Health Board	Number of Interviewees % (N)	(Pharmacist, MCA)	Total number of pharmacies in Scotland % (N)
<i>Ayrshire and Arran</i>	13 (4)	(2,2)	8 (97)
<i>Borders</i>	3 (1)	(1,0)	2 (27)
<i>Dumfries and Galloway</i>	10 (3)	(2,1)	3 (35)
<i>Fife</i>	0 (0)	-	7 (85)
<i>Forth Valley</i>	10 (3)	(2,1)	6 (72)
<i>Greater Glasgow and Clyde</i>	13 (4)	(2,2)	25 (315)
<i>Grampian</i>	27 (8)	(5,3)	11 (131)
<i>Highland</i>	7 (2)	(1,1)	6 (78)
<i>Lanarkshire</i>	10 (3)	(2,1)	10 (121)
<i>Lothian</i>	7 (2)	(2,0)	15 (182)
<i>Orkney</i>	0 (0)*	-	<1 (4)
<i>Shetland</i>	0 (0)*	-	<1 (45)
<i>Tayside</i>	0 (0)	-	7 (92)
<i>Western Isles</i>	0 (0)*	-	<1 (3)
Scottish Index of Multiple Deprivation (SIMD)**			
<i>SIMD 1 (most deprived)</i>	17 (5)		
<i>SIMD 2</i>	37 (11)		
<i>SIMD 3</i>	20 (6)		
<i>SIMD 4</i>	13 (4)		
<i>SIMD 5 (least deprived)</i>	13 (4)		
Pharmacy Setting			
<i>Independent (single outlet)</i>	27 (8)		
<i>Small Chain (2-5 outlets)</i>	17 (5)		
<i>Large Chain define (6+ outlets)</i>	50 (15)		
<i>Supermarket</i>	7 (2)		

Pharmacist N=19 (63%)**MCA N=11 (37%)**

*No R&D approval granted.

**The Scottish Index of Multiple Deprivation (SIMD) is the Scottish Government's official tool for identifying places in Scotland suffering from deprivation, based on postcode. The information displayed here has been taken from the SIMD 2012 Scotland level population-weighted quintile²⁵.

Table 3: Theoretical beliefs, specific beliefs and illustrative quotes

Domains presented in order of dominance.

THEORETICAL DOMAIN	SPECIFIC BELIEF	N	ILLUSTRATIVE QUOTATIONS
Environmental Context and Resources	Privacy	28	'Occasionally there's a lot of other customers around the till and having to try and sort of discreetly move the customer to a quieter place if it's something a bit more sensitive or you feel it's inappropriate to be discussing something within earshot of other people.' PH004
	Staff time/ resources	13	'When it's busy staff feel pressured and, you know, if they don't feel they've got enough support, they let their standards slip, which is disappointing, but, if we're all being completely honest, it happens when you're under pressure.' PH009
	Access to patient records/ information	12	'That's how sometimes that you should always recommend customers to stick to the one pharmacy because if they're changing medication all the time, we have obviously got it on computer, that we know every medication that they're on' MCA011
	Access to other support/ facilities	9	'I have doctors, receptionists, nurses on tap. If I'm suspicious that there is something more serious, than the patient thinks, then I can go away and get some advice rather rapidly, which is a great help' PH007
	Practice context	6	'It's a small community pharmacy, so we tend to know most of the patients' PH006. 'I think there's got to be greater utilisation, of these private spaces, because I certainly wouldn't want to openly discuss some, you know, medical issues, when I've got a queue of people waiting behind to me, and to my left and right-hand side.' MCA001
Belief about Consequences	Patient safety	27	'If they're taking something else that might not be necessary or something that's not been reviewed for a while, or is potentially harmful, you know...You can sometimes gather bits of information that you can intervene for the patient's best interest.' PH004
	Professional impact	11	'The worst scenario is that you get involved in legal situations or serious illness or death. It's negligent that point of view. So, I think members of staff have to be aware that it's an important role that they're playing'. PH012
	Commercial impact	6	'if you do your consultations right, you make the right request, the customer leaves, they feel better, they're going to come back so your business would grow....' PH009
	Impact on ability to do job	5	'The more that we get out of them, then the more that we can offer them.' MCA001

Skills	Communication skills	26	<i>'Try our best to use kind of open questions where possible. We find just having good communication skills are obviously pretty essential' PH002. 'Skills; good listening skills, good communication skills...underpinning knowledge.'</i> PH006
	Tailoring	16	<i>'You've got to look at their body language, you've got to adapt your body language, to suit them. So, it's not just standing there, smiling, and asking a few questions because that's not going to work.'</i> PH007
	Information gathering	7	<i>'I would say it's more experience that I'd picked up, you know, from years of listening to what the pharmacist would say to them and, you know, it's basically just trying to get the information, out of every patient that you need. And that gives you the best ground to, you know, help them...'</i> MCA003
Social Influences	Patient knowledge & perspectives	25	<i>'Some people are quite, what's the word? They're not really very clued up, on what medicines either they're already taking or what medicines they can get from the pharmacy' MCA003. I think it's perhaps the perception of the patient or customer, about why we're asking questions. I've always felt that the public aren't given enough information, about what we actually do and why we're asking questions. You know, we need to raise the profile of pharmacists' PH010</i>
	Colleague/peer influence	10	<i>'if I'd picked up something new that, all three of us have been doing for many years and I thought actually this is maybe something that's a wee bit better, let's try this, I would pass that information onto the rest of the staff, including my colleagues.'</i> PH017
	Advertising	8	<i>'They've seen it on TV, or someone else has suggested it to them, so you do sometimes ask yourself the question of, "Why are they asking for this?" You know, they're maybe self-diagnosing.'</i> PH006
Knowledge	Knowledge of SOPs (inc. WWHAM)	24	<i>'WWHAM questions; the who, the what, the why, the how.'</i> MCA002
	Knowledge of training courses	14	<i>'Once you complete your training, especially from a healthcare assistant point of view, I don't think... Once you finish that structured kind of training, there's not a lot that you're proactively pushed to do. It's really off your own back, to maintain your own knowledge... there's a lot of information out there, but it's knowing where to go looking for it or actually having the inclination, to go and do it' MCA001</i>
	Patient knowledge	12	<i>'A lot of patients don't understand that difference between the medicines...so you obviously have to just take the time to make sure that they're aware of what they're actually buying.'</i> PH001
	Knowledge of guidance	11	<i>'There are the guidelines from the Royal Pharmaceutical... If we have any problems, we can get in touch with one of the support people, like the National Pharmaceutical Association or a company called Numark...'</i> PH007

	Product knowledge	7	
Social Professional Role and Identity	Role of MCAs	16	<i>'If the public were more aware that the staff working within the pharmacy, not just the pharmacist, are trained in their jobs rather than they've just come off the street and they put price tickets on things' MCA005</i>
	Professional role	9	<i>'The way a patient might approach an assistant compared to how they might consult with a pharmacist might be different. Possibly.' PH004. 'Some people don't want to speak to a counter assistant; they want to speak to a pharmacist.' MCA006</i>
	Job satisfaction	7	<i>'Sometimes you feel like you're doing your job and you've helped someone, that's really nice' PH018</i>
	Responsibility	7	<i>'The pharmacist should be aware of every P medicine that's sold in the pharmacy, so they should really be listening out for things going out' PH017</i>
	Referring to other healthcare	3	<i>'If it's a recurring problem then the pharmacist might refer them to the doctor's and say, "You've been given this several times. I can only give you certain things over the counter and obviously there is a lot that a qualified doctor can prescribe".' MCA010</i>
Behavioural Regulation	Continual training	16	<i>'I think there's always scope for making sure that people's training is up to date and, you know, making sure that any new staff that come are fully trained and review what you have and then how you sell it and that sort of thing.' PH001</i>
	SOPs (inc. WWHAM)	11	<i>'Well, we also have our standard operating procedures, which are called SOPs, and they give the general guidelines on what you should do.' PH007</i>
	Referring to guidance/wider reading	8	<i>'We're, obviously, using journals and things like that, to keep abreast of updates that we share with the staff.' PH015</i>
Intentions	To gather information	15	<i>'You need to start at the beginning and work your way through the process, regardless what the request is' PH001 'You've always got to seek information. You can't just assume. When somebody comes in and asks for co-codamol, we don't just sell them it. That is not what we do. It's again back to the WWHAM questions. Always the WWHAM questions; that's where you start from and always continue' MCA009</i>
	To provide best practice	12	<i>'My intention is always to get the message across so, as long as I feel that they've understood me, then I'm happy. You know, we're all humans, so maybe if someone is being slightly awkward or a wee bit rude, then you are maybe not as nice to that person or maybe not spend as much time with them. As long as you get your base message across, then I feel I've done my job.' PH0018</i>

	To refer to other healthcare professionals	3	
	To refer to a pharmacist	2	
Memory, Attention and Decision-making Processes	Administrative prompts & processes	13	<i>'I've basically stuck my WWHAM questions at the side of the tills because, if you do forget, the little prompt is there.'</i> PH009. <i>'I've got it up on a board on the wall, the four questions to ask'</i> MCA004
	Patient prompts	9	<i>'Any of the vulnerable patient groups, so children, people over 60, 65, anyone with any long term chronic illness, so any of the kind of red flag indicators that, all of a sudden, you maybe delve into another set of questions'</i> MCA001. <i>'If it's for a child, or if someone was on any other medication, it would be referred to the pharmacist'</i> PH008
	Automatic processes	2	<i>'You know, we're all so aware that it's almost second nature'</i> PH018
Reinforcement	Job satisfaction	10	<i>'The incentive we have is to help the person who's standing in front of me. I'm quite happy to do that, it being part of my job anyway. But yes, I do like to feel that I helped that person in some way.'</i> MCA005
	Impact on sales	9	<i>'If you give them advice on how to handle something, it does work and it makes them feel better, then the chances are they're going to come back to us.'</i> MCA008
	Patient safety	4	<i>'The incentive is to keep the patient safe.'</i> PH006
	Feedback	4	<i>'Just simple phrasing I've learnt previously that that kind of thing sticks with people, rather than always maybe giving financial rewards or physical rewards. A simple, "Well done," sometimes works better.'</i> MCA002
Belief about Capabilities	Confidence due to knowledge and experience	8	<i>'I'm very confident that I've got the knowledge and the appropriate skills to make sure that things are being recommended or provided safely and appropriately.'</i> PH004

	Confidence due to ability to refer	4	<i>I would say I'm fairly confident, but then if I feel I've not asked the right questions, I would obviously refer to my pharmacist, just to make sure I wasn't giving them something that wouldn't be right for them.'</i> MCA004
	Patient impact upon confidence	3	<i>'If you do get some of these customers that come in, particular for new staff, it can be a real blow to their confidence and then the worry is that they're not going to ask the questions to another customer and they might actually miss something that is really important.'</i> PH012
Optimism	Pessimism	7	<i>'There are some patients that you just can't win with in a way.'</i> PH012
	Positivity	5	<i>'I'm providing the best possible care; that's what I'd want or hope that all my staff felt as well.'</i> PH009
Emotion	Frustration	4	<i>'Sometimes it's frustrating, because you know they're not listening or they don't believe your advice, and go anyway, and so that's quite frustrating.'</i> PH018
	Worry	4	<i>'Can be slightly worried for the likes of a customer if they're continuously buying something, like, I don't know, if we're talking say co-codamol.'</i> MCA009
	Uncomfortable/ Nervous	4	<i>'You see the same people buying the same things day in day out, and it can be quite hard when you want to refuse a request. It can be very difficult; it makes a lot of staff, particularly the younger staff, feel quite uncomfortable.'</i> PH009
	Empathy	1	<i>'You certainly kind of empathise with their feelings.'</i> MCA003
	Under pressure	1	<i>'People come in, and they've made their made up that they want codeine linctus, for a cough, we know that therapeutically it might not be the best thing for them... feel stuck a bit between a rock and a hard place, but you make the supply, and the patient takes that medication and feels they've got the benefit, from it.'</i> MCA001
Goals	Decision to cut out questions/ shorten the process	2	<i>'I always cover the areas that are vital but sometimes if it's busy and things like that, it can take up a good part of your time having to deal with it when there's an easier and proper way to go about it.'</i> MCA008

PH: Pharmacist

MCA: Medicine Counter Assistant

N: Refers to the number of interviewees who referred to each specific belief

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Table 1: Mapping to the Theoretical Domains Framework by Professional Role

Table 2: Interviewee Demographics

Table 3: Theoretical beliefs, specific beliefs and illustrative quotes

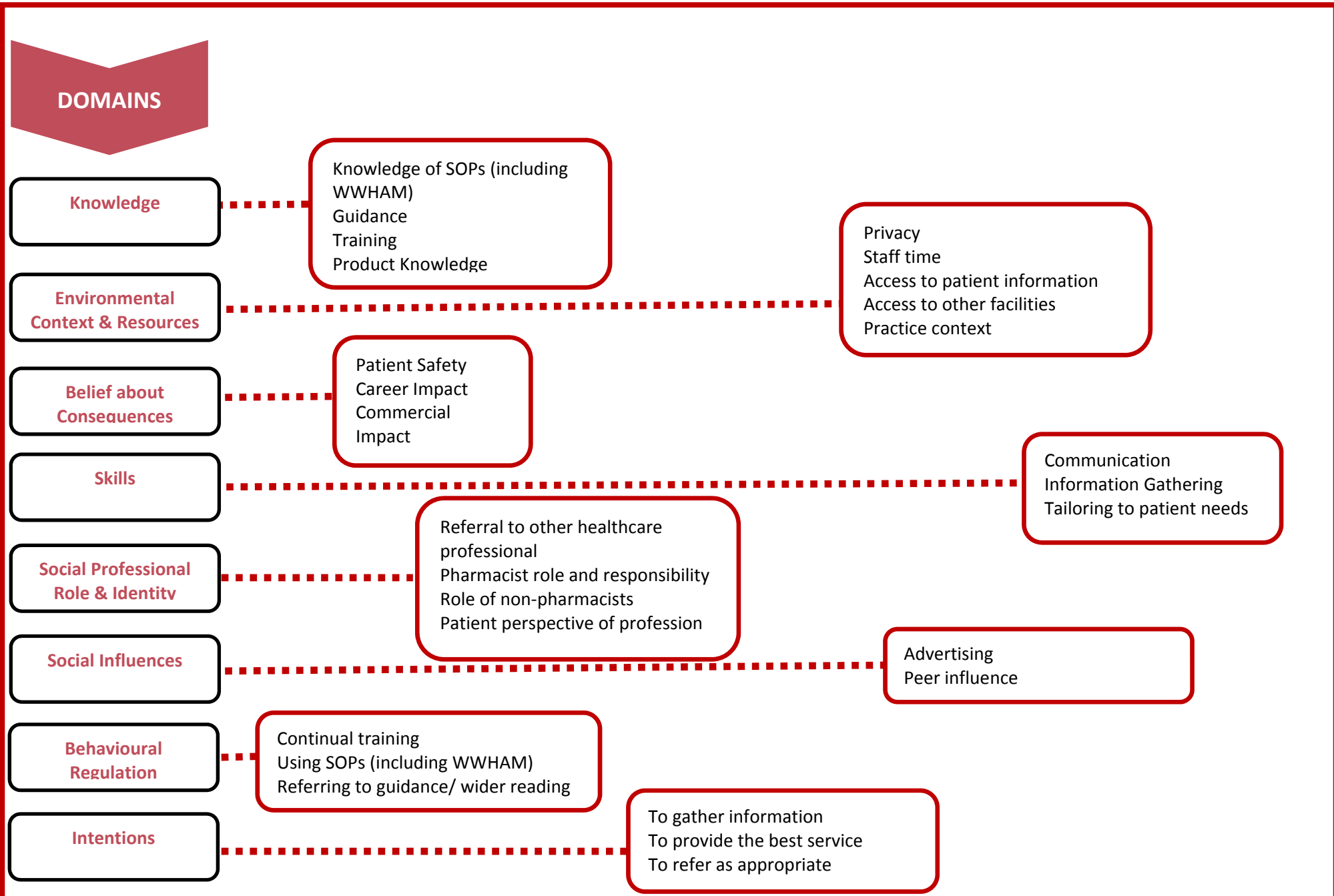
Supplementary file 1: Interview topic guide

Supplementary file 2: Interview Coding Guide

Supplementary file 3 Consolidated Criteria for Reporting Qualitative Research (COREQ) Checklist

Supplementary file 4: Standards for Reporting Qualitative Research (SRQR) Checklist

Figure 1: Mapping Diagram illustrating salient domains and specific beliefs associated with the key determinants of quality in self-care consultations in community pharmacies.



Domains presented in order of rank by pharmacists
 SOP: Standard Operating Procedure For peer review only - <http://bmjopen.bmj.com/site/about/guidelines.xhtml>
 WWHAM: Who, What, How long, Action to date, other existing Medication being taken.

Supplementary File 1: Interview Topic Guide

Behaviour of interest: Gathering information during consultations for Pharmacy medicine requests.

Research question: What are the key determinants to eliciting information during consultations for Pharmacy medicines?

Domain	Interview Questions
Knowledge	What guidelines are you aware of for managing consultations for Pharmacy medicine requests? If guidelines are named: What do those guidelines recommend? – for symptom-based consultations; for product requests How do you use the guidelines?
Skills	What skills are required to elicit information during Pharmacy medicine request? How do you go about obtaining information from a customer who asks about symptoms they are experiencing? How do you go about obtaining information from a customer who asks for a specific Pharmacy medicine by product name?
Social/professional role and identity	How do you think that customers coming in for Pharmacy medicines see you? Is there anything about your training/experience that influences the way you manage Pharmacy medicine requests? Do you see your role differently when a customer asks for a specific Pharmacy medicine rather than describing a set of symptoms to you?
Beliefs about capabilities	What problems/difficulties do you encounter eliciting information during Pharmacy medicine consultations? What would help you overcome these difficulties? How confident are you asking customers for information during Pharmacy medicine requests?
Beliefs about consequences	What are the benefits of gathering information during Pharmacy medicine requests? What are the potential problems of not gathering exchanging information during Pharmacy medicine requests? (harms avoided, benefits to customer, pharmacy, NHS, financial, long/short term)
Motivation and goals	How important do you feel seeking information is in the work of the pharmacy during Pharmacy medicine consultations? How important do you feel seeking information to the customer during Pharmacy medicine requests?
Intentions	How do you intend to seek information from customers during Pharmacy medicine requests? Do your intentions differ when a customer approaches with a specific Pharmacy medicine request rather than a description of their symptoms? If so, how?
Reinforcement	Are there any incentives to elicit information from customers during Pharmacy medicine requests? If so, what are those incentives? Do they work? If not, what would be a suitable incentive?

Optimism	Do you believe that eliciting information during Pharmacy medicine requests can be improved? Are you confident that you give your patient the best service possible/Are you happy/content with the service you deliver?
Memory, attention and decision processes	What prompts you to think about guidelines/recommendations when eliciting information during Pharmacy medicine requests? In what situations might it be difficult to elicit information from a customer during Pharmacy medicine requests? For MCAs: What prompts you to involve the pharmacist when eliciting information during a Pharmacy medicine request? For MCAs: What makes it easy for you to involve the pharmacist when eliciting information during a Pharmacy medicine request?
Environmental context and resources	What factors within the pharmacy influence how you seek information from a customer who requests a Pharmacy medicine? What aspects of the pharmacy environment (lack of privacy, locations of products...) that help or hinder gathering information during Pharmacy medicine requests?
Social influences	Would you say that the way you elicit information during Pharmacy medicine requests is influenced by your colleagues? For MCAs: specify other counter staff/pharmacist How does that influence the way that you gather information during Pharmacy medicine requests? Do customers have views on the management of Pharmacy medicine requests? Do these differ according to whether they presented with symptoms or asked for a specific medicine? How do these views affect you?
Emotion	What feelings surround/are linked with eliciting information during Pharmacy medicine requests for you? Do these feelings lead to worry or work stress?
Behavioural regulation	If you were thinking about changing the way you elicit information during Pharmacy medicine requests how could you do this? What could you do to increase information seeking with customers asking for specific Pharmacy medicines? Are there procedures or ways of working that might encourage you to seek information from customers requesting Pharmacy medicines?

Participants will also be given the opportunity to add any further thoughts on barriers or enablers for eliciting information during Pharmacy medicine requests if they wish to do so.

Summary post-interview – general points about place and time, environments, atmosphere, interviewee's tone of voice etc

Supplementary File 2: Interview Coding Guide

Pharmacy Interview Study: Guide for interview coding and analysis

Behaviour of interest: Gathering information during consultations for Pharmacy medicine requests.

Research question: What are the key determinants to gathering information during consultations for Pharmacy medicines?

Coding guidelines

Coding employs directed content analysis (Hsieh & Shannon, 2005) and the 14 domains of the TDF (Cane, O'Connor & Michie, 2012).

1. Objectives of coding are to identify:
 - a) What we conclude about each TDF domain (is it a barrier or enabler to managing SELF-CARE consultations for Pharmacy medicine request?)
 - b) What we conclude about each participant's experiences of pharmacy medicine requests.
2. Where multiple domains are raised by interviewees within one utterance, judge which domain the main message of the utterance lies and code accordingly however it may be necessary to break up paragraphs into smaller chunks.
3. Where uncertain of which domain is appropriate, go with first hunch and asterisk quote in table to show uncertainty and highlight for team discussion.
4. Coding to more than one domain is possible
5. If insufficient information to justify a code but information deemed useful code to "other" category.
6. If after discussion, uncertainties remain then utterance to be 'double badged' within more than one domain.
7. Coding is to discuss the pharmacy staff own behaviour not that of the patients
8. If topics come up more than once in transcript then code again.

1 2 3 4 5 6 1. Knowledge	<ul style="list-style-type: none"> • Knowledge of named guidelines for eliciting information (Buttercups, WWHAM questions) • Procedural knowledge of use of guidelines to elicit information (how the guidelines are used)
7 8 9 2. Skills	<ul style="list-style-type: none"> • Ability to elicit information (e.g. communication skills) • Competence in obtaining information (e.g. building rapport)
10 11 12 13 14 15 16 17 3. Behavioural Regulation	<ul style="list-style-type: none"> • Ways of doing things that relate to pursuing and achieving desired goals, standards or targets (CPD courses, training) • Methods used when asking questions • Translating intentions into actions (e.g. at the individual level action planning; at the organisational level – guidelines)
18 19 20 21 4. Social/Professional role and identity	<ul style="list-style-type: none"> • Expression of own professional identity / job/ role professional boundaries • Comparisons about their role with that of other professions (GPs and other members of pharmacy team)
22 23 24 5. Social influences	<ul style="list-style-type: none"> • External pressure from other people e.g. views of other professions or members of the team • Influence of customers' views on their ability to elicit information
25 26 27 28 29 30 6. Beliefs about capabilities	<ul style="list-style-type: none"> • Perceptions of own competence in eliciting information during pharmacy medicine requests. • Perceptions about control of own behaviour e.g. whether seeking information is within their control • Self –efficacy - confidence and lack of confidence in employing skills necessary to elicit information and resist temptation, cope with stress and mobilize own resources to meet demand of the situation.
31 32 33 34 35 7. Beliefs about consequences	<ul style="list-style-type: none"> • Perceptions about outcomes and advantages and disadvantages of eliciting information (e.g. avoiding harm to patient, benefits to customer, harm or benefit to pharmacy business, NHS, financial long and short-term harms and benefits)
36 37 38 39 40 8. Goals	<ul style="list-style-type: none"> • Prioritising eliciting information – competing tasks • Importance of eliciting information • Commitment to eliciting information during pharmacy medicine requests

9. Intentions	<ul style="list-style-type: none"> • A conscious decision to perform a behaviour (when someone states “I always” or “I usually”) • Stability of intentions (always intend to elicit information during pharmacy medicine requests)
10. Reinforcement	<ul style="list-style-type: none"> • Any financial / non-financial incentives influence behaviour when eliciting information during pharmacy medicine request • Any positive or negative consequences that influence behaviour when eliciting information • Legal aspects
11. Optimism	<ul style="list-style-type: none"> • The confidence expressed that the best possible service is given to patients • Pessimism also coded within this domain i.e. eliciting information poorly achieved during busy periods
12. Memory attention and decision processes	<ul style="list-style-type: none"> • Attention control and decision-making. • Is eliciting information a problem because people forget to do this? • Any prompts that help memory • May be characteristics of the patient that influences decisions on how to elicit information i.e. red flag indicators (vulnerable groups) • Relating to the decisions they make and steps they consciously make when approaching a patient
13. Environmental context and resources	<ul style="list-style-type: none"> • Factors relating to the pharmacy setting • Environmental factors that influence the elicitation of information • Workload and time pressures
14. Emotion	<ul style="list-style-type: none"> • Feelings or affect about eliciting information (stress, anxiety)

Supplementary File 3: Consolidated Criteria for Reporting Qualitative Research (COREQ): 32 Item Checklist

Adapted from:

Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

	GUIDE QUESTION/DESCRIPTION	REPORTED ON PAGE #
DOMAIN 1: Research team and Reflexivity		
Personal characteristics		
1. Interviewer	Which authors conducted the interviews?	Page 4
2. Credentials	What were the researcher's credentials?	Page 4
3. Occupation	What was their occupation?	See submission form
4. Gender	Was the researcher male or female?	Female
5. Experience and Training	What training or experience did the researcher have?	Experienced qualitative researchers
Relationship with participants		
6. Relationship established	Was a relationship established prior to study commencement?	No
7. Participant knowledge of interviewer	What did the participants know about the researcher?	Brief introduction provided at start of interview (name/ role/ purpose of research)
8. Interviewer characteristics	What characteristics were reported about the interviewer?	As above.
DOMAIN 2: Study Design		
Theoretical framework		
9. Methodological orientation and theory	What methodological orientation was stated to underpin the study	Page 3
Participant selection		
10. Sampling	How were participants selected?	Page 3
11. Method of approach	How were participants approached?	Page 3
12. Sample size	How many participants were in the study?	Page 4
13. Non-participation	How many people refused to participate/ dropped out? Reasons?	Page 4 Some of those contacted did not return consent forms.
Setting		
14. Setting of data collection	Where was the data collected?	Telephone interviews
15. Presence of non-participants	Was anyone else present besides the participants and researchers?	No
16. Description of sample	What are the important characteristics of the sample?	Pages 4, 13 Table 2

Data collection		
17. Interview guide	Were questions, prompts, guides provided by the author? Was it pilot tested?	Page 3 Supplementary file 1 Yes, Page 4
18. Repeat interviews	Were repeat interviews carried out?	No
19. Audio/visual recording	Did the researcher use audio or visual recording equipment?	Page 4
20. Field notes	Were field notes made during and/or after the interviews?	No
21. Duration	What was the duration of the interviews?	Page 4
22. Data saturation	Was data saturation discussed?	Pages 4 and 10 Data saturation was discussed as part of the standardisation meetings.
23. Transcripts returned	Were transcripts returned to participants for comment and/or correction	No
DOMAIN 3: Analysis and Findings		
Data analysis		
24. Number of data coders	How many data coders coded the data?	Page 4
25. Description of the coding tree	Did authors provide a description of the coding tree?	Table 3 Nvivo database available on request
26. Derivation of themes	Were themes identified in advance or derived from the data?	Page 4. Themes derived from the data and mapped the TDF
27. Software	What software was used to manage the data?	Nvivo 10
28. Participant checking	Did participants provide feedback on the findings	No
Reporting		
29. Quotations presented	Were participant quotations presented to illustrate the themes/findings? Was each participant identified?	Pages 5-9; Table 3 Yes, each participant was given an ID number.
30. Data and findings consistent	Was there consistency between the data presented and the findings?	Yes
31. Clarity of major themes	Were major themes clearly presented in the findings?	Pages 5-9 Figure 1
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes	Table 3 Figure 1

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3 **Supplementary File 4: Standards for Reporting Qualitative Research (SRQR) Checklist**

4
5 **Standards for Reporting Qualitative Research (SRQR)***

6 <http://www.equator-network.org/reporting-guidelines/srqr/>

7
8 Page/line no(s).

9 **Title and abstract**

<p>10 Title - A qualitative study exploring the key determinants of information gathering to inform the management of over-the-counter (OTC) consultations in community pharmacies.</p>	Page 1
<p>11 12 13 14 Abstract -</p> <p>15 Objectives: Gathering relevant patient information during over-the-counter (OTC) consultations increases the likelihood of safe, effective and person-centred outcomes. The aim of this study was to explore the key determinants to information gathering during consultations for non-prescription medicine requests in community pharmacies in Scotland.</p> <p>16 17 18 19 20 21 22 Design: Semi-structured interviews using the Theoretical Domains Framework (TDF), with community pharmacy teams across Scotland. Interviews explored participants' knowledge of current guidance, skills required to elicit information and barriers and facilitators associated with this behaviour. Theory-based content analysis was undertaken using the TDF as an initial coding framework to identify key determinants and map them to salient domains. Salience was determined by prominence or variation in views. Comparative analysis was undertaken by professional role.</p> <p>23 24 25 26 27 28 29 30 31 32 Results: Thirty interviews were conducted with pharmacists (n=19) and Medicine Counter Assistants (MCAs) (n=11). Eight salient domains were identified: environmental context and resources (privacy); beliefs about consequences (patient safety); skills (communication, decision-making); social influences (patient awareness of pharmacist role); knowledge (awareness and use of standard operating procedures); social professional role and identity (perception of own role); behavioural regulation (training) and intention (to gather information). Similar domains were salient for pharmacists and MCAs; however, different beliefs were associated with different roles. Overarching themes were identified: best practice; health literacy; decision-making; and, professionalism.</p> <p>33 34 35 36 37 38 39 40 41 42 43 44 Conclusions: Multiple influences and complexities affect the effective management of OTC consultations. While similar factors impact upon both pharmacists and MCAs at a patient, professional and environmental level, subtle differences exist in how these influence their management of OTC consultations. This study highlights the importance of tailoring interventions to reflect different roles, functions and responsibilities of community pharmacy personnel.</p>	Page 2

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52 **Introduction**

<p>53 Problem formulation – Around 18 million general practice (GP) consultations and 650,000 emergency department (ED) consultations are for conditions which could be treated using over-the-counter (OTC) medicines supplied from community pharmacies. It is estimated that in the UK, consultations for minor ailments in EDs and GP cost around £1.1 billion, however equivalent health outcomes can be</p>	Page 4
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3 **Supplementary File 4: Standards for Reporting Qualitative Research (SRQR) Checklist**
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5 achieved with care provided from community pharmacies. Community pharmacies
6 have been identified as an 'under-utilised resource' with the potential to reduce the
7 burden on other primary care providers. Recently, there has been an increasing
8 recognition of the contribution that community pharmacy can have on improving
9 public health and a drive towards integrating pharmacy into the wider UK public
10 health workforce.

11
12 In 2013, the Scottish Government highlighted their commitment towards enhancing
13 the role of the pharmacy team through '*Prescription for Excellence*', its vision and
14 action plan for pharmaceutical care. More recently, their 2017 strategy '*Achieving
15 Excellence in Pharmaceutical Care*' reinforced this, encouraging people to use their
16 community pharmacy as a first port of call for healthcare advice. This strategy
17 highlights that it is only through making full use of the clinical capacity in community
18 pharmacies that real gains in clinical care can be achieved.

19
20 In the UK there are three broad categories of medicines: POM (prescription only
21 medicines), P (Pharmacy only), and GSL (general sales list). OTC consultations
22 involve P and GSL medicines. Medicine counter assistants (MCAs) are the members
23 of community pharmacy personnel most often involved in the sale of OTC
24 medicines. MCAs work under the supervision of a pharmacist and must complete
25 an accredited MCA course or relevant units of a dispensing assistant or pharmacy
26 technician course to undertake this role. Currently, there is no requirement for
27 further MCA training post-qualification. Concerns exist regarding the risks
28 associated with the public's enhanced access to these medicines, as well as with the
29 ability of community pharmacy staff to ensure the safe and effective supply of
30 reclassified medicines.

31
32 One means of ensuring optimal management of these consultations is through
33 effective information gathering. Whilst several frameworks exist to promote
34 information gathering, with WWHAM being the most commonly cited in the UK,
35 there is substantial evidence to suggest that the information gathered during OTC
36 consultations is sub-optimal.

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40 **Purpose or research question** – To identify the key determinants to information
41 gathering during consultations for pharmacy medicine requests in community
42 pharmacies in Scotland.

Page 5

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44 **Methods**

45 **Qualitative approach and research paradigm** – Semi-structured telephone
46 interviews underpinned by the Theoretical Domains Framework (TDF).

Page 5

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48 The TDF has been widely used to identify barriers and facilitators to evidence-based
49 practice, as well as to explain variation in practice and fits into an intervention
50 development methodology (Behaviour change wheel) that assists with developing
51 a theory-based intervention. One of the benefits of applying this theory is the ability
52 to assess implementation problems and support intervention design. In addition,
53 interviews guided by the TDF have been found to encourage participants to consider
54 a wider range of influences on behaviour than other interview approaches.
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3 **Supplementary File 4: Standards for Reporting Qualitative Research (SRQR) Checklist**
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5 6 7 8 9 10	Researcher characteristics and reflexivity – Interviews were conducted by two experienced qualitative researchers (EG, HC) and digitally recorded with participant consent. Participants were advised that the interviewers were not pharmacists. The recordings were professionally transcribed and anonymised.	Page 5
11 12 13 14 15	Context - Community pharmacists and medicine counter assistants (MCAs) working in community pharmacies across Scotland were eligible to participate. Rationale: This is the population of interest and hence findings will be more likely to be relevant and transferable.	Page 5
16 17 18 19 20 21 22 23	Sampling strategy – A maximum variation sample was generated reflecting pharmacy type, Health Board and deprivation. This is appropriate when the sample size is small and if carefully drawn, can be as representative as a random sample Data saturation was achieved from the 11 interviews. This was based on the criteria described in Francis e al. 2010. Eight interviews were conducted with a stopping criteria of 3 further interviews where no new themes emerged.	Page 5
24 25 26 27 28 29 30	Ethical issues pertaining to human subjects - Ethical approval was received from the College of Life Sciences and Medicine Ethics Review Board, University of Aberdeen (CERB/2014/4/1050). Research and Development management approval was conducted through the NHS Research Scotland Permission Co-ordinating Centre. Approval was granted by 11 of the 14 territorial Health Boards within the timeframe of the study.	Page 6
31 32 33 34 35 36	Data collection methods – Semi-structured telephone interviews were conducted using open ended questions and probing to explore information gathering during consultations in community pharmacies. The interview topic guide covered all TDF domains (Supplementary File 1) and was piloted with two community pharmacists before the study commenced. Pilot data were excluded from the analysis. The recordings were professionally transcribed and anonymised.	Page 5
37 38 39 40 41	Data collection instruments and technologies – The interview topic guide covered all TDF domains (Supplementary File 1) and was piloted with two community pharmacists before the study commenced. All interviews were audio recorded and professionally transcribed.	Page 5
42 43 44	Units of study - Thirty interviews were completed (19 pharmacists; 11 MCAs). Response rates of 70% (19/27) and 50% (11/22) were achieved for pharmacists and MCAs, respectively.	Page 6 Table 2, Page 15.
45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60	Data processing – The interview guide was piloted with two community pharmacists before the study commenced. Pilot data were excluded from the analysis. Transcripts were professionally transcribed. All transcripts were accuracy checked prior to analysis. Data were managed using NVivo 10 software. Prior to coding, standardisation meetings were held until full agreement was met and finalised coding definitions produced (Supplementary File 2). Duplicate, independent coding was undertaken. The Consolidated Criteria for Reporting Qualitative Research (COREQ) Supplementary File 3) were employed to guide reporting of the data.	Pages 5 and 6

Supplementary File 4: Standards for Reporting Qualitative Research (SRQR) Checklist

<p>Data analysis – Theory-based content analysis was performed with transcript utterances classified using the TDF. Once coding at a domain level was complete, each domain was coded into specific beliefs. Beliefs tables were constructed with domains, emergent beliefs and illustrative quotations. Following the approach described by Atkins et al. the most salient beliefs were identified based on frequency and content i.e. strongly held or divergent view-points. A comparative analysis was undertaken within and across pharmacists and MCAs to explore convergent and divergent beliefs, based on the number of utterances coded to each domain. Domains were ranked for both pharmacists and MCAs (Table 1). Specific beliefs within dominant domains were then explored. Where specific beliefs related to similar aspects of practice, these were grouped, and overarching themes were identified.</p> <p>As part of the analysis process, a mapping diagram was developed (Figure 1), to illustrate how the specific beliefs mapped to the salient domains</p> <p>Analysis was undertaken by HC; Duplicate, independent coding was undertaken by HC, EG and RN.</p> <p>Rationale: This study was underpinned by the Theoretical Domain Framework (TDF). The TDF was developed as a theoretical framework for use in implementation research. It includes a number of behavioural theories and constructs and proposes that determinants of healthcare professionals’ behaviour can be clustered into 14 ‘domains’. The TDF has been widely used to identify barriers and facilitators to evidence-based practice, as well as to explain variation in practice and fits into an intervention development methodology (Behaviour change wheel) that assists with developing a theory-based intervention. One of the benefits of applying this theory is the ability to assess implementation problems and support intervention design. In addition, interviews guided by the TDF have been found to encourage participants to consider a wider range of influences on behaviour than other interview approaches.</p>	<p>Pages 5 and 6</p>
<p>Techniques to enhance trustworthiness – Interviews were conducted by two experienced qualitative researchers and digitally recorded; The recordings were professionally transcribed and anonymised; All transcripts were accuracy checked prior to analysis; Data were managed using NVivo 10 software; Prior to coding, standardisation meetings were held until full agreement was met and finalised coding definitions produced; Duplicate, independent coding was undertaken.</p>	<p>Pages 5 and 6.</p>

Results/findings

<p>Synthesis and interpretation – Eight salient domains were identified: environmental context and resources (privacy); beliefs about consequences (patient safety); skills (communication, decision-making); social influences (patient awareness of pharmacist role); knowledge (awareness and use of standard operating procedures); social professional role and identity (perception of own role); behavioural regulation (training) and intention (to gather information).</p> <p>Similar domains were salient for pharmacists and MCAs; however, different beliefs were associated with different roles. Overarching themes were identified: best practice; health literacy; decision-making; and, professionalism.</p>	<p>Pages 6-11</p>
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5 **Links to empirical data** – Quotes evident throughout manuscript.
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Pages 6-11;
Table 3

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9 **Discussion**

10 **Integration with prior work, implications, transferability, and contribution(s) to**
11 **the field** – To our knowledge this is the first application of the TDF to explore
12 information gathering within the community pharmacy team, which included
13 interviews with both pharmacists and MCAs, identifying convergent and divergent
14 beliefs.

Page 12

15
16 Multiple influences and complexities affect the effective management of OTC
17 consultations. While similar factors impact upon both pharmacists and MCAs at a
18 patient, professional and environmental level, subtle differences exist in how these
19 influence their management of OTC consultations.
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21
22 At the patient level, patients' own knowledge of their medical history was cited, and
23 it is also believed that patients are unaware of the healthcare advice and support
24 that pharmacies can offer. The Scottish Government's most recent strategy (6)
25 continues to focus upon the need for patients to use pharmacies, including services
26 such as Minor Ailments Service as a "first port of call" for these conditions, perhaps
27 indicating a need for greater awareness at a public health level. Previous work in
28 this area has identified incentives which could be utilised to encourage this, such as
29 avoiding long waiting times for GP appointments and long waits whilst in the
30 surgery, however lay beliefs around the perceived inadequacy of self-medication
31 products and perceptions about the legitimacy of pharmacists' role as advice givers,
32 may counteract this initiative. It is likely that patient's decision-making around
33 whether to use a pharmacy as a first port of call may be influenced upon their own
34 previous experience or their ability to afford the cost of OTC medicines.
35

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37 At the professional level, MCAs perceived that patients do not value their input as
38 healthcare advisors and may prefer speaking to a pharmacist. As well as raising
39 public awareness about the skills and expertise available within community
40 pharmacy teams, potential interventions to address this may also target MCA
41 perceptions about their own professional role. Currently, there is no requirement
42 for MCA post-qualification training. Specific MCA-targeted interventions might also
43 be needed. Linked to this is the challenge of the least trained member of staff
44 dealing with the majority of patients (albeit under the supervision of the
45 pharmacist). This again points towards the need for additional and ongoing
46 continual education for MCAs to support them in their role.
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50 At an organisational level, access to patient records was identified as a barrier for
51 MCAs and staff time and privacy were identified by pharmacists as being key
52 determinants in effective information gathering during OTC consultations. The
53 different organisational aspects identified by the different professional roles within
54 the team highlights the importance of tailoring any interventions to meet the needs
55 of the different roles, function and responsibilities that exists within community
56 pharmacy.
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<p>5 This study highlights the importance of tailoring interventions to reflect different 6 roles, functions and responsibilities of community pharmacy personnel. Since this 7 study was undertaken, the Chief Pharmaceutical Officer for Scotland funded a series 8 of educational resources and events for MCAs, informed by these results. 9</p>	
<p>10 11 Limitations – 12 • We achieved a wide representation of participants from across Scotland, 13 however remote and rural areas were under-represented. 14 • This study was conducted across Scotland; therefore, the results may not be 15 generalisable to community pharmacy personnel in other countries. These 16 findings, however, are not intended to be generalisable, but to provide an 17 insight into the behaviour of interest to inform future research, practice and 18 policy. 19 • Telephone interviews, like face-to-face interviews, allow a two-way interaction 20 between the researcher and the participant, with the added advantage of being 21 more cost effective and easier to schedule. It could be argued that cues picked 22 up through body language may be missed over the telephone, however given 23 the topic being discussed we would argue this did not have a detrimental impact 24 upon data collection. 25 26</p>	<p>Pages 2, 11 and 12.</p>

27
28 **Other**

<p>29 Conflicts of interest – None.</p>	<p>Page 3</p>
<p>30 31 Funding - This study was conducted as part of the TRiADS programme of research 32 (www.triads.org.uk) and was funded by NHS Education for Scotland. M Watson 33 was funded as part of a Health Foundation Improvement Science Fellowship. 34</p>	<p>Page 3</p>

35
36 *The authors created the SRQR by searching the literature to identify guidelines, reporting
37 standards, and critical appraisal criteria for qualitative research; reviewing the reference
38 lists of retrieved sources; and contacting experts to gain feedback. The SRQR aims to
39 improve the transparency of all aspects of qualitative research by providing clear standards
40 for reporting qualitative research.

41
42 **The rationale should briefly discuss the justification for choosing that theory, approach,
43 method, or technique rather than other options available, the assumptions and limitations
44 implicit in those choices, and how those choices influence study conclusions and
45 transferability. As appropriate, the rationale for several items might be discussed together.
46
47

48
49 **Reference:**

50 O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. **Standards for reporting qualitative**
51 **research: a synthesis of recommendations.** *Academic Medicine*, Vol. 89, No. 9 / Sept 2014
52 DOI: 10.1097/ACM.0000000000000388
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BMJ Open

A qualitative study exploring the key determinants of information gathering to inform the management of over-the-counter (OTC) consultations in community pharmacies

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Secondary Subject Heading:	Health services research, Public health, Qualitative research, Research methods
Keywords:	Health & safety < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, PRIMARY CARE, QUALITATIVE RESEARCH, Pharmacy, Patient Safety

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Manuscripts

A qualitative study exploring the key determinants of information gathering to inform the management of over-the-counter (OTC) consultations in community pharmacies

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Word Count: 4,432.

ABSTRACT (263/300)**Objectives:**

Gathering relevant patient information during over-the-counter (OTC) consultations increases the likelihood of safe, effective and person-centred outcomes. The aim of this study was to explore the key determinants to information gathering during consultations for non-prescription medicine requests in community pharmacies in Scotland.

Design:

Semi-structured interviews using the Theoretical Domains Framework (TDF), with community pharmacy teams across Scotland. Interviews explored participants' knowledge of current guidance, skills required to elicit information and barriers and facilitators associated with this behaviour. Theory-based content analysis was undertaken using the TDF as an initial coding framework to identify key determinants and map them to salient domains. Salience was determined by prominence or variation in views. Comparative analysis was undertaken by professional role.

Results

Thirty interviews were conducted with pharmacists (n=19) and Medicine Counter Assistants (MCAs) (n=11). Eight salient domains were identified: environmental context and resources (privacy); beliefs about consequences (patient safety); skills (communication, decision-making); social influences (patient awareness of pharmacist role); knowledge (awareness and use of standard operating procedures); social professional role and identity (perception of own role); behavioural regulation (training) and intention (to gather information). Similar domains were salient for pharmacists and MCAs; however, different beliefs were associated with different roles. Overarching themes were identified: best practice; health literacy; decision-making; and, professionalism.

Conclusions

Multiple influences and complexities affect the effective management of OTC consultations. While similar factors impact upon both pharmacists and MCAs at a patient, professional and environmental level, subtle differences exist in how these influence their management of OTC consultations. This study highlights the importance of tailoring interventions to reflect different roles, functions and responsibilities of community pharmacy personnel.

Strengths and Limitations of this study

- This is the first theoretically-underpinned exploration of the determinants of information gathering during OTC consultations in community pharmacies in Scotland.
- This is also the first study to explore these determinants by professional role.
- We achieved a wide representation of participants from across Scotland, however remote and rural areas were under-represented.
- This study was conducted across Scotland; therefore, the results may not be generalisable to community pharmacy personnel in other countries. These findings, however, are not intended to be generalisable, but to provide an insight into the behaviour of interest to inform future research, practice and policy.

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Competing Interests Statement

None

Data availability statement

Non-identifiable participant interview transcripts and audio files available from h.c.cassie@dundee.ac.uk

Authors' Contributions

HC: Manuscript production and revisions, contributed to the scientific development, conduct, data collection, analysis and interpretation of the study.

EG: Contributed towards scientific development, data collection, data coding, analysis and interpretation

AP: Contributed to the scientific development, conduct and interpretation of the study.

LY: Contributed to the scientific development, conduct and interpretation of the study.

ED: Contributed towards data analysis and interpretation.

RN: Contributed towards data coding, analysis and interpretation.

MW: Led the scientific development, conduct and interpretation of the study.

INTRODUCTION

1 Around 18 million general practice (GP) consultations and 650,000 emergency department (ED)
2 consultations are for conditions which could be treated using over-the-counter (OTC) medicines
3 supplied from community pharmacies (1). It is estimated that in the UK, consultations for minor
4 ailments in EDs and GP cost around £1.1 billion, however equivalent health outcomes can be achieved
5 with care provided from community pharmacies (2). Community pharmacies have been identified as an
6 'under-utilised resource' with the potential to reduce the burden on other primary care providers (3).
7 Recently, there has been an increasing recognition of the contribution that community pharmacy can
8 have on improving public health and a drive towards integrating pharmacy into the wider UK public
9 health workforce (4).
10
11
12

13 In 2013, the Scottish Government highlighted their commitment towards enhancing the role of the
14 pharmacy team through '*Prescription for Excellence*', its vision and action plan for pharmaceutical care
15 (5). More recently, their 2017 strategy '*Achieving Excellence in Pharmaceutical Care*' (6) reinforced this,
16 encouraging people to use their community pharmacy as a first port of call for healthcare advice. This
17 strategy highlights that it is only through making full use of the clinical capacity in community
18 pharmacies that real gains in clinical care can be achieved.
19
20

21 In the UK there are three broad categories of medicines: POM (prescription only medicines), P
22 (Pharmacy only), and GSL (general sales list) (7). OTC consultations involve P and GSL medicines.
23 Medicine counter assistants (MCAs) are the members of community pharmacy personnel most often
24 involved in the sale of OTC medicines (8, 9). MCAs work under the supervision of a pharmacist and
25 must complete an accredited MCA course or relevant units of a dispensing assistant or pharmacy
26 technician course to undertake this role (10). Currently, there is no requirement for further MCA
27 training post-qualification (11). Concerns exist regarding the risks associated with the public's enhanced
28 access to these medicines, as well as with the ability of community pharmacy staff to ensure the safe
29 and effective supply of reclassified medicines (12-15).
30
31
32
33

34 One means of ensuring optimal management of these consultations is through effective information
35 gathering (16-18). Whilst several frameworks exist to promote information gathering, with WWHAM
36 (19) being the most commonly cited in the UK, there is substantial evidence to suggest that the
37 information gathered during OTC consultations is sub-optimal (20, 21).
38
39

40 The TRiADS programme, funded by NHS Education for Scotland (NES) uses a framework for the
41 translation of guidance and translation into practice (22). The scope of the TRiADS programme was
42 extended in 2013 to include community pharmacy. The TRiADS in Pharmacy (TRiADS-P) programme
43 comprised four stages: (1) A service-driven prioritisation exercise to identify priorities for community
44 pharmacy practice improvement in Scotland. Through a systematic, service-driven prioritisation
45 exercise, effective management of OTC consultations was selected as the target for improvement (23);
46 (2) Semi-structured interviews to explore the key determinants to information gathering during OTC
47 consultations; (3) A national theory-based survey to identify key determinants of the target behaviour;
48 (4) Intervention development comprising identification of options for practice improvement
49 interventions.
50
51
52

53 Stage 1 of the programme identified that the optimal management of OTC consultations is dependent
54 upon effective information gathering (13, 16, 17) and as such, this formed the target behaviour of stage
55 2, explored by this current study, the purpose of which was to identify the key determinants to
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information gathering during consultations for P medicine requests in community pharmacies in Scotland.

METHODS

Study design and setting

This study comprised a series of semi-structured telephone interviews underpinned by the Theoretical Domain Framework (TDF) (24). The TDF was developed as a theoretical framework for use in implementation research. It includes a number of behavioural theories and constructs and proposes that determinants of healthcare professionals' behaviour can be clustered into 14 'domains'. The TDF has been widely used to identify barriers and facilitators to evidence-based practice, as well as to explain variation in practice and fits into an intervention development methodology (Behaviour change wheel) that assists with developing a theory-based intervention (24-26). One of the benefits of applying this theory is the ability to assess implementation problems and support intervention design (27). In addition, interviews guided by the TDF have been found to encourage participants to consider a wider range of influences on behaviour than other interview approaches (28).

Participants

Community pharmacists and medicine counter assistants (MCAs) working in community pharmacies across Scotland were eligible to participate. Invitations were emailed to all community pharmacists registered on the NES Portal (approximately 4000). This is a national online course booking and management system, which includes information relating to all Continuing Professional Development (CPD) events offered by NES. Pharmacists must be registered on the NES Portal to participate in and received CPD accreditation for these events. Potential pharmacist participants were asked to identify MCAs within their pharmacy who were also willing to participate and to complete a brief electronic questionnaire to gather information regarding their pharmacy characteristics. A maximum variation sample was generated reflecting pharmacy type, Health Board and deprivation. This is appropriate when the sample size is small and if carefully drawn, can be as representative as a random sample (29).

Data collection

Semi-structured telephone interviews were conducted using open ended questions and probing to explore information gathering during consultations in community pharmacies. The interview topic guide covered all TDF domains (25) (Supplementary File 1) and was piloted with two community pharmacists before the study commenced. Pilot data were excluded from the analysis.

Interviews were conducted by two experienced qualitative researchers (EG, HC) and digitally recorded with participant consent. Participants were advised that the interviewers were not pharmacists. The recordings were professionally transcribed and anonymised.

Data collection ceased when data saturation was achieved (i.e. no new information or insights were gained).

Data handling and analysis

All transcripts were accuracy checked prior to analysis. Data were managed using NVivo 10 software. Prior to coding, standardisation meetings were held until full agreement was met and finalised coding definitions produced (Supplementary File 2). Duplicate, independent coding was undertaken (HC, EG, RN). Theory-based content analysis was performed (30) with transcript utterances classified using the TDF. Once coding at a domain level was complete, each domain was coded into specific beliefs. Beliefs

1 tables were constructed with domains, emergent beliefs and illustrative quotations. Following the
2 approach described by Atkins et al (27, 31), the most salient beliefs were identified based on frequency
3 and content i.e. strongly held or divergent view-points. A comparative analysis was undertaken (HC)
4 within and across pharmacists and MCAs to explore convergent and divergent beliefs, based on the
5 number of utterances coded to each domain. Domains were ranked for both pharmacists and MCAs
6 (Table 1). Specific beliefs within dominant domains were then explored. Where specific beliefs related
7 to similar aspects of practice, these were grouped, and overarching themes were identified.
8

9 As part of the analysis process, a mapping diagram was developed (Figure 1), to illustrate how the
10 specific beliefs mapped to the salient domains. The Consolidated Criteria for Reporting Qualitative
11 Research (COREQ) (Supplementary File 3) were employed to guide reporting of the data (32).
12
13

14 **Consent and ethical review**

15 Ethical approval was received from the College of Life Sciences and Medicine Ethics Review Board,
16 University of Aberdeen (CERB/2014/4/1050). Research and Development management approval was
17 conducted through the NHS Research Scotland Permission Co-ordinating Centre. Approval was granted
18 by 11 of the 14 territorial Health Boards within the timeframe of the study.
19
20

21 **Patient Involvement**

22 Patients were not involved in this study
23
24
25

26 **RESULTS**

27 **Sample characteristics**

28 Forty-nine individuals indicated an interest in participation. Thirty interviews were completed (19
29 pharmacists; 11 MCAs), lasting between 15 and 60 minutes. Interviews were conducted between
30 October 2014 and January 2015. Response rates of 70% (19/27) and 50% (11/22) were achieved for
31 pharmacists and MCAs, respectively. The demographic characteristics of interviewees are presented in
32 Table 2.
33
34
35
36

37 **Mapping to the TDF**

38 All 14 domains were identified during analysis, some featuring more prominently than others. Specific
39 beliefs and illustrative quotations are presented in Table 3. Quotes are labelled using 'PH' to indicate a
40 pharmacist and 'MCA', an MCA. Eight domains were identified as most salient to the target behaviour
41 and are described below, followed by a comparison between pharmacist and MCA interviewees.
42
43
44

45 **Knowledge**

46 *(Knowledge of what information to gather)*
47
48

49 The use of Standard Operating Procedures (SOPs) was identified as a facilitator to information
50 gathering. This included knowledge of the WWHAM mnemonic to determine the Who, What, How long,
51 Action to date and any other existing Medication being taken. Most interviewees referred to this
52 method of questioning and spoke positively about having a standardised procedure to follow. Lack of
53 patient knowledge of their own medical history and current medication was deemed problematic.
54
55
56
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58
59

1 “We also have our standard operating procedures, there are the two WWHAM questions, which is an
2 acronym, where they have to go through a set of five questions; basically, to find out what the patient
3 needs.” PH007

4 “You have to probe patients...I think sometimes patients don’t realise that because they take medicines
5 from the doctor, that if you take a set of medicines over the counter there can be interactions” PH002
6
7

8 **Environmental context and resources**

9 (Factors relating to the pharmacy setting or environment that influence the gathering of information)
10

11 Lack of privacy was considered a barrier to gathering information. Having access to a private area (e.g.
12 consultation room) was perceived to facilitate information gathering, creating a greater sense of a
13 healthcare environment rather than commercial premises. However, interviewees reported that some
14 pharmacy users are reluctant to use them as it could be perceived (by other pharmacy users) that they
15 have something to hide, and perhaps make them feel uncomfortable or embarrassed. Staff resources
16 may also act as a barrier to using this confidential space, if team members leave the counter to speak
17 privately to patients.
18
19

20
21 “I think there’s got to be greater utilisation of these private spaces because I certainly wouldn’t want to
22 openly discuss some, you know, medical issues, when I’ve got a queue of people waiting behind to
23 me...The problem then is you have to be able to free your pharmacist, free up your counter staff, to be
24 able to use these spaces, to get the best out of every consultation that they give.” MCA001
25
26

27
28 “Some people don’t want to go into the consultation room...I mean a lot of people at our pharmacy use
29 the consultation room for the consumption of methadone and it’s just associated with that. So, there’s
30 a lot of preconceptions involved as well” PH019
31

32 **Beliefs about consequences**

33 (Perceptions about the advantages/disadvantages of gathering information)
34
35

36 Patient safety resonated strongly, with interviewees indicating that the health and wellbeing of patients
37 was their primary concern. The consequences of adverse effects motivated interviewees to elicit
38 information. Patient safety was also highlighted in relation to identifying substance abusers.
39
40

41 “We need to do it [gather information] to ensure the safety of the patient; we’re not there just as a
42 salesman, we’re there to help people get better, offer them advice and make sure that anything that we
43 sell is going to make them better; not making them worse or interact with anything.” PH0015
44
45

46 **Skills**

47 (The skills required to gather information)
48
49

50 Effective communication skills were also deemed salient to gathering information and it was highlighted
51 that these are required to be tailored to each patient.
52

53 “You need to be able to ask the right questions and tailor them to the person that you’re asking, to be
54 able to listen to what you’re told. And you need to be able to process the information fairly quickly so
55 that you can make the right decision.” PH001
56
57
58
59

Social professional role and identify

(Perception of own role/responsibilities in relation to gathering information and comparison with other roles)

Pharmacists discussed their role and responsibility within the pharmacy team and described monitoring information gathering by MCAs and intervening when necessary. Pharmacists providing reassurance and taking overall responsibility, appeared to facilitate information gathering by MCAs.

The role of MCAs, how they perceive themselves and how patients view them was also identified from the data. MCAs suggested that in some cases patients prefer to speak to a pharmacist and this was a theme also highlighted in the pharmacist interviews.

“Some people don’t want to speak to a counter assistant; they want to speak to a pharmacist.” MCA006

“...I don’t mean they don’t believe it, but they ask to speak to the pharmacist. The pharmacist goes out and gives them exactly the same information. And they go, oh yeah, that’s fine then...there’s more of a trust with the pharmacist...” PH005

Social influences

(How interviewees perceive others see their role and how this impacts upon the ability to gather information)

A perceived lack of awareness from patients about what services a pharmacy team can offer and the training and expertise they hold, as well as their understanding of the rationale for the pharmacy team gathering this information, was identified as a barrier. This was considered to stem from the information or lack of it, that patients are provided with regarding the function/role of pharmacies.

“I think they look on us as more of like shop keepers and they want to know why we want to know, they don’t realise that we really need to know the information.” MCA005

“I think it’s perhaps the perception of the patient or customer, about why we’re asking questions. I’ve always felt that the public aren’t given enough information, about what we actually do and why we’re asking questions. You know, I’ve always sort of suggested that we need to raise the profile of pharmacists.” PH010

Behavioural regulation

(Procedures/methods of gathering information)

Having SOPs in place gave the pharmacy team the reassurance of having a clear protocol to follow. Interviewees suggested that having access to ongoing and hands on training could further facilitate information gathering during consultations.

‘Well, we also have our standard operating procedures, which are called SOPs, and they give the general guidelines on what you should do.’ PH007

Intentions

(A conscious decision to gather information)

1 An intention to elicit information and to provide the best service possible was evident from
2 interviewees, who suggested that their means of providing best practice and the best possible service
3 for patients was by gathering information. This intention to gather information and belief that by doing
4 so they were benefiting the patient was recognised as facilitating the information gathering process
5 during these consultations.
6

7 *"You've always got to seek information...You can't just assume."* MCA009
8

9 *"I would definitely still, you know, dig for that information, to make sure what they're getting from us
10 was what they needed, and was safe and suitable."* MCA003
11
12

13 **Pharmacists versus MCAs**

14 Table 1 illustrates mapping to the TDF by professional role. The results demonstrate clear similarities in
15 beliefs by role as well as distinct differences.
16

17 *'Beliefs about Consequences'* was a dominant theme across both groups as was *'Knowledge'*,
18 *'Environmental context and resources'* and *'Skills'*. Both groups also agreed that the impact of patient
19 education and patients' perspectives of the pharmacy profession (*'Social influences'*) affected how they
20 manage these consultations. When mapped to the TDF, although similar domains appeared to influence
21 both professional roles, the specific beliefs relating to these domains tended to differ. These differences
22 were identified most prominently within the domains, *'Environmental context and resources'*, *'Beliefs
23 about consequences'* and *'Memory, attention and decision-making'* as detailed below.
24
25
26

27 ***Environmental context and resources***

28 Both pharmacists and MCAs highlighted privacy as a barrier to eliciting information and they also both
29 reported the benefits of being able to access patient records or information regarding current
30 medication and the challenges they face when this is unavailable. Access to patients' medical history
31 however, appeared to be more of a concern to MCAs.
32
33
34

35 *"Without access to a full patient record, we can't double check."* MCA001
36

37 Pharmacists highlighted the benefits of having access to other forms of support such as other
38 pharmacist colleagues or other healthcare professionals and also highlighted staff time as a barrier to
39 eliciting information, reinforcing their sense of responsibility over the team and how consultations are
40 managed. These beliefs did not feature strongly in the MCA interviews.
41
42

43 *"I have doctors, receptionists, nurses on tap. And if I'm suspicious that there is something more serious,
44 than the patient thinks there is, then I can go away and get some advice rather rapidly."* PH007
45
46

47 *"When its busy, staff feel pressured and, if they don't feel they've got enough support, they let their
48 standards slip."* PH009
49
50

51 ***Beliefs about consequences***

52 Pharmacists were more concerned than MCAs about the impact that eliciting information could have
53 on commercial aspects of the business. They suggested that gathering information effectively may
54 result in patients experiencing a better service and promote greater loyalty/future use of the pharmacy.
55 Pharmacists also highlighted a concern of litigation and the potential impact this may have on their
56 careers.
57
58

1 *"The worst scenario is that you get involved in legal situations or serious illness or death. It's negligent...*
2 *I think members of staff have to be aware that it's an important role that they're playing."* PH012

3
4 *"I just want to do the best for the patient, so I want to do the best job that I can."* PH011

5
6
7 For MCAs, the consequences of not gathering information focussed on patient safety primarily and
8 avoidance of harm.

9
10 *"If you give somebody the wrong medication, it can have various side effects"* MCA002

11 12 13 **Memory, attention and decision-making**

14 Although this was not one of the most salient domains overall, in relation to the prompts that facilitate
15 gathering information from specific groups of patients, pharmacists and MCAs highlighted different
16 factors that aided this process. Pharmacists discussed the benefits of administrative prompts such as
17 laminated cards illustrating the WWHAM questions and other administrative procedures. MCAs
18 suggested that patient prompts were a facilitator for them, suggesting that if the patient was a minor,
19 pregnant, or very elderly this would trigger them to ask specific questions.

20
21
22
23 *"We keep a print out at the till of the general questions that they should be asking."* PH011

24
25 *"Any of the vulnerable patient groups, so children, people over, you know, over sort of 60, 65, anyone*
26 *with any long- term chronic illness, so any of the kind of red flag indicators that, all of a sudden, you*
27 *maybe delve into another set of questions."* MCA001

28
29
30 A mapping diagram was developed (Figure 1), to illustrate the eight most salient domains and the
31 salient beliefs associated with these. Four overarching themes were identified to encapsulate these
32 beliefs: best practice; health literacy; decision-making; and, professionalism.

33 34 35 **Best practice**

36 When considering the management of consultations, pharmacy team members reported wanting to
37 offer best practice, to do what was best for the patient and highlighted the potential consequences if
38 they did not achieve these goals. The consequences to the patient, in terms of safety, to the pharmacy
39 as a business, to their own careers as well as to their own emotional wellbeing, were concerns of the
40 whole pharmacy team. Whilst the consequences of not providing best practice in some cases differed
41 by professional role the overarching theme to provide the best possible care was evident across roles.

42
43
44
45 *"I'm providing the best possible care; that's what I'd want or hope that all my staff felt as well"* PH009

46
47 *"It does make you feel good as well, though, knowing that you've given somebody the solid information*
48 *and you've helped them"* MCA008

49 50 51 **Health literacy**

52 Patients appear to have a major influence on consultation management. Knowledge and understanding
53 of their health and medication, their receptivity to providing information, as well as their understanding
54 of services offered by pharmacy personnel, were perceived to act as barriers or facilitators to the
55 information gathering process and consultation management. This was highlighted by both pharmacists
56 and MCAs.

1 *"People have to take responsibility for their own health and their own medicine" PH005*

3 **Decision-making**

4 Decision-making appeared to be a substantial component of pharmacy personnel's daily roles. This
5 included whether to gather any information, the process used to gather information and whether to
6 tailor their behaviour to each patient's circumstances and behaviour. Decision-making also included
7 whether to refer to the pharmacist (referral by MCA staff) or to another healthcare professional
8 (referral by pharmacists). Considerable reference was made to criteria used when making these
9 decisions, however it was apparent that this was not a standardised process, with differences between
10 pharmacists and MCAs, as well as within and between pharmacies.

14 *"Sometimes you catch someone off guard when you start asking them questions and you might actually
15 be dealing with them for quite a long time, longer than you would actually need to be with them ... So
16 that's why sometimes I will admit that I do cut down the questions." MCA008*

19 **Professionalism**

20 The concept of professionalism was particularly evident and differed between roles. MCAs perceived
21 that they lacked credibility with patients as healthcare advisors and that patients preferred to consult
22 a pharmacist. This was reinforced by the participant comment used earlier in this paper: "...there's more
23 of a trust with the pharmacist". A greater sense of responsibility emerged from the pharmacists in
24 relation to their role within the team and in respect to overseeing the management of consultations.

28 *"I think people are, on the whole, sometimes more confident to discuss with the pharmacist" PH001*

31 **DISCUSSION**

32 This study represents the second stage of the TRiADS-P programme, a theoretically-underpinned
33 exploration of the beliefs and key determinants of information gathering during OTC consultations in
34 community pharmacies. Eight salient domains were identified: knowledge (awareness and use of
35 standard operating procedures); environmental context and resources (privacy); beliefs about
36 consequences (patient safety); skills (communication and decision-making); social professional role and
37 identity (perception of own role); social influences (patient awareness of pharmacist role); behavioural
38 regulation (training); and intention (to gather information). Similar domains were salient for
39 pharmacists and MCAs; however, the specific beliefs within these domains differed by professional role.
40 Four overarching themes were identified as part of this process: best practice; health literacy; decision-
41 making; and professionalism.

46 These findings suggest that in practice, pharmacy team members already know the information to be
47 gathered during OTC consultations. However, the information that patients or consumers are willing
48 to, or can share, is possibly a greater challenge. Whilst, lack of privacy is commonly cited as a problem
49 in community pharmacies, having effective communication skills is also important and is likely to impact
50 on information gathering during OTC consultations. In addition, raising public awareness of the role and
51 function of different pharmacy team members, particularly MCAs, might also encourage more
52 proactive information provision during these consultations.

56 To our knowledge this is the first application of the TDF to explore information gathering within the
57 community pharmacy team, which included interviews with both pharmacists and MCAs, identifying

1 convergent and divergent beliefs. We achieved representation from most Scottish Health Boards. In
2 some of the more remote areas (e.g. the islands of Orkney and Shetland), participants' views may have
3 differed due to the very different contexts within which they are working, particularly in terms of travel
4 to access services, training, peer support and advice. Our sample was broadly representative of the
5 population except for NHS Greater Glasgow and Clyde which was under-represented and NHS
6 Grampian which was over-represented. This may have been due to the lead university being based in
7 the latter and the strong links developed with the profession through previous studies. Our original aim
8 was to conduct interviews with 20 pharmacists and 20 MCAs. Although fewer MCAs participated,
9 categorical and theoretical saturation was achieved (i.e. no new information or insights were gained).
10 This study was conducted across Scotland only, therefore the results may not be generalisable to the
11 wider population. However, as is the nature of qualitative research, these findings are not intended to
12 be generalisable, but to provide an insight into the behaviour of interest to inform future research,
13 practice and policy. Telephone interviews, like face-to-face interviews, allow a two-way interaction
14 between the researcher and the participant, with the added advantage of being more cost effective
15 and easier to schedule. It could be argued that cues picked up through body language may be missed
16 over the telephone, however given the topic being discussed we would argue this did not have a
17 detrimental impact upon data collection.
18
19
20

21 We know from existing literature that effective consultations between pharmacy personnel and
22 patients is fundamental to ensuring appropriate recommendations and desired patient and practitioner
23 outcomes(12-15, 33, 34). Our approach is supported by the findings of Ffion Jones and colleagues'
24 recent study which identified time, space and a lack of qualified staff as barriers to promoting
25 antimicrobial stewardship (35). They recommended that resources be developed to facilitate pharmacy
26 teams providing effective self-care and compliance advice and that future research uses behavioural
27 theory in the development of interventions.
28
29
30

31 This current study identified perceived barriers at the patient, professional and organisational level
32 which influence effective information gathering. At the patient level, patients' own knowledge of their
33 medical history was cited, and it is also believed that patients are unaware of the healthcare advice and
34 support that pharmacies can offer. The Scottish Government's most recent strategy (6) continues to
35 focus upon the need for patients to use pharmacies, including services such as Minor Ailments Service
36 as a "first port of call" for these conditions, perhaps indicating a need for greater awareness at a public
37 health level. Previous work in this area has identified incentives which could be utilised to encourage
38 this, such as avoiding long waiting times for GP appointments and long waits whilst in the surgery,
39 however lay beliefs around the perceived inadequacy of self-medication products and perceptions
40 about the legitimacy of pharmacists' role as advice givers, may counteract this initiative (36). It is likely
41 that patient's decision-making around whether to use a pharmacy as a first port of call may be
42 influenced upon their own previous experience or their ability to afford the cost of OTC medicines (37).
43
44
45
46

47 Linked to this, at the professional level, MCAs perceived that patients do not value their input as
48 healthcare advisors and may prefer speaking to a pharmacist. As well as raising public awareness about
49 the skills and expertise available within community pharmacy teams, potential interventions to address
50 this may also target MCA perceptions about their own professional role. Currently, there is no
51 requirement for MCA post-qualification training. Specific MCA-targeted interventions might also be
52 needed (38). Linked to this is the challenge of the least trained member of staff dealing with the
53 majority of patients (albeit under the supervision of the pharmacist). This again points towards the need
54 for additional and ongoing continual education for MCAs to support them in their role. Since this study
55 was undertaken, the Chief Pharmaceutical Officer for Scotland funded a series of educational resources
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59

and events for MCAs, informed by these results (39). Finally, at an organisational level, access to patient records was identified as a barrier for MCAs and staff time and privacy were identified by pharmacists as being key determinants in effective information gathering during OTC consultations. The different organisational aspects identified by the different professional roles within the team highlights the importance of tailoring any interventions to meet the needs of the different roles, function and responsibilities that exists within community pharmacy.

These results illustrate the multiple influences, complexities and challenges affecting the effective management of OTC consultations and supports the need for further tailored interventions. The third stage of the TRiADS-P programme will use these findings to inform the development of additional interventions for both pharmacists and MCAs, to optimise this behaviour and will use a systematic, theory-based approach which engages both stakeholders and health professionals.

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Table 1: Mapping to the Theoretical Domains Framework by Professional Role

DOMAIN	PHARMACISTS N (Rank)	MCAS N (Rank)
<i>Knowledge</i>	46 (=1)	25 (1)
<i>Environmental context & resources</i>	46 (=1)	22 (2)
<i>Beliefs about consequences</i>	32 (3)	19 (=3)
<i>Skills</i>	30 (=4)	19 (=3)
<i>Social professional role & identity</i>	30 (=4)	12 (=6)
<i>Social Influences</i>	28 (6)	15 (5)
<i>Behavioural Regulation</i>	27 (7)	8 (10)
<i>Intentions</i>	20 (8)	12 (=6)
<i>Reinforcement</i>	17 (9)	10 (=8)
<i>Memory, attention & decision-making</i>	14 (10)	10 (=8)
<i>Optimism</i>	9 (11)	3 (13)
<i>Emotion</i>	8 (12)	6 (12)
<i>Beliefs about capabilities</i>	7 (13)	8 (10)
<i>Goals</i>	1 (14)	1 (14)

Domains presented in order of rank by pharmacist.

N: Refers to the number of utterances coded to each domain.

Rank was derived using weighted scores. Weighted scores were derived from the number of utterances divided by the number of participants, to ensure that findings across roles were comparable.

Table 2: Interviewee Demographics*(Figures rounded to nearest whole number)*

Health Board	Number of Interviewees % (N)	(Pharmacist, MCA)	Total number of pharmacies in Scotland % (N)
<i>Ayrshire and Arran</i>	13 (4)	(2,2)	8 (97)
<i>Borders</i>	3 (1)	(1,0)	2 (27)
<i>Dumfries and Galloway</i>	10 (3)	(2,1)	3 (35)
<i>Fife</i>	0 (0)	-	7 (85)
<i>Forth Valley</i>	10 (3)	(2,1)	6 (72)
<i>Greater Glasgow and Clyde</i>	13 (4)	(2,2)	25 (315)
<i>Grampian</i>	27 (8)	(5,3)	11 (131)
<i>Highland</i>	7 (2)	(1,1)	6 (78)
<i>Lanarkshire</i>	10 (3)	(2,1)	10 (121)
<i>Lothian</i>	7 (2)	(2,0)	15 (182)
<i>Orkney</i>	0 (0)*	-	<1 (4)
<i>Shetland</i>	0 (0)*	-	<1 (45)
<i>Tayside</i>	0 (0)	-	7 (92)
<i>Western Isles</i>	0 (0)*	-	<1 (3)
Scottish Index of Multiple Deprivation (SIMD)**			
<i>SIMD 1 (most deprived)</i>	17 (5)		
<i>SIMD 2</i>	37 (11)		
<i>SIMD 3</i>	20 (6)		
<i>SIMD 4</i>	13 (4)		
<i>SIMD 5 (least deprived)</i>	13 (4)		
Pharmacy Setting			
<i>Independent (single outlet)</i>	27 (8)		
<i>Small Chain (2-5 outlets)</i>	17 (5)		
<i>Large Chain define (6+ outlets)</i>	50 (15)		
<i>Supermarket</i>	7 (2)		

Pharmacist N=19 (63%)**MCA N=11 (37%)**

*No R&D approval granted.

**The Scottish Index of Multiple Deprivation (SIMD) is the Scottish Government's official tool for identifying places in Scotland suffering from deprivation, based on postcode. The information displayed here has been taken from the SIMD 2012 Scotland level population-weighted quintile²⁵.

Table 3: Theoretical beliefs, specific beliefs and illustrative quotes

Domains presented in order of dominance.

THEORETICAL DOMAIN	SPECIFIC BELIEF	N	ILLUSTRATIVE QUOTATIONS
Environmental Context and Resources	Privacy	28	'Occasionally there's a lot of other customers around the till and having to try and sort of discreetly move the customer to a quieter place if it's something a bit more sensitive or you feel it's inappropriate to be discussing something within earshot of other people.' PH004
	Staff time/ resources	13	'When it's busy staff feel pressured and, you know, if they don't feel they've got enough support, they let their standards slip, which is disappointing, but, if we're all being completely honest, it happens when you're under pressure.' PH009
	Access to patient records/ information	12	'That's how sometimes that you should always recommend customers to stick to the one pharmacy because if they're changing medication all the time, we have obviously got it on computer, that we know every medication that they're on' MCA011
	Access to other support/ facilities	9	'I have doctors, receptionists, nurses on tap. If I'm suspicious that there is something more serious, than the patient thinks, then I can go away and get some advice rather rapidly, which is a great help' PH007
	Practice context	6	'It's a small community pharmacy, so we tend to know most of the patients' PH006. 'I think there's got to be greater utilisation, of these private spaces, because I certainly wouldn't want to openly discuss some, you know, medical issues, when I've got a queue of people waiting behind to me, and to my left and right-hand side.' MCA001
Belief about Consequences	Patient safety	27	'If they're taking something else that might not be necessary or something that's not been reviewed for a while, or is potentially harmful, you know...You can sometimes gather bits of information that you can intervene for the patient's best interest.' PH004
	Professional impact	11	'The worst scenario is that you get involved in legal situations or serious illness or death. It's negligent that point of view. So, I think members of staff have to be aware that it's an important role that they're playing'. PH012
	Commercial impact	6	'if you do your consultations right, you make the right request, the customer leaves, they feel better, they're going to come back so your business would grow....' PH009
	Impact on ability to do job	5	'The more that we get out of them, then the more that we can offer them.' MCA001

Skills	Communication skills	26	<i>'Try our best to use kind of open questions where possible. We find just having good communication skills are obviously pretty essential' PH002. 'Skills; good listening skills, good communication skills...underpinning knowledge.'</i> PH006
	Tailoring	16	<i>'You've got to look at their body language, you've got to adapt your body language, to suit them. So, it's not just standing there, smiling, and asking a few questions because that's not going to work.'</i> PH007
	Information gathering	7	<i>'I would say it's more experience that I'd picked up, you know, from years of listening to what the pharmacist would say to them and, you know, it's basically just trying to get the information, out of every patient that you need. And that gives you the best ground to, you know, help them...'</i> MCA003
Social Influences	Patient knowledge & perspectives	25	<i>'Some people are quite, what's the word? They're not really very clued up, on what medicines either they're already taking or what medicines they can get from the pharmacy' MCA003. I think it's perhaps the perception of the patient or customer, about why we're asking questions. I've always felt that the public aren't given enough information, about what we actually do and why we're asking questions. You know, we need to raise the profile of pharmacists' PH010</i>
	Colleague/peer influence	10	<i>'if I'd picked up something new that, all three of us have been doing for many years and I thought actually this is maybe something that's a wee bit better, let's try this, I would pass that information onto the rest of the staff, including my colleagues.'</i> PH017
	Advertising	8	<i>'They've seen it on TV, or someone else has suggested it to them, so you do sometimes ask yourself the question of, "Why are they asking for this?" You know, they're maybe self-diagnosing.'</i> PH006
Knowledge	Knowledge of SOPs (inc. WWHAM)	24	<i>'WWHAM questions; the who, the what, the why, the how.'</i> MCA002
	Knowledge of training courses	14	<i>'Once you complete your training, especially from a healthcare assistant point of view, I don't think... Once you finish that structured kind of training, there's not a lot that you're proactively pushed to do. It's really off your own back, to maintain your own knowledge... there's a lot of information out there, but it's knowing where to go looking for it or actually having the inclination, to go and do it' MCA001</i>
	Patient knowledge	12	<i>'A lot of patients don't understand that difference between the medicines...so you obviously have to just take the time to make sure that they're aware of what they're actually buying.'</i> PH001
	Knowledge of guidance	11	<i>'There are the guidelines from the Royal Pharmaceutical... If we have any problems, we can get in touch with one of the support people, like the National Pharmaceutical Association or a company called Numark...'</i> PH007

	Product knowledge	7	
Social Professional Role and Identity	Role of MCAs	16	<i>'If the public were more aware that the staff working within the pharmacy, not just the pharmacist, are trained in their jobs rather than they've just come off the street and they put price tickets on things' MCA005</i>
	Professional role	9	<i>'The way a patient might approach an assistant compared to how they might consult with a pharmacist might be different. Possibly.' PH004. 'Some people don't want to speak to a counter assistant; they want to speak to a pharmacist.' MCA006</i>
	Job satisfaction	7	<i>'Sometimes you feel like you're doing your job and you've helped someone, that's really nice' PH018</i>
	Responsibility	7	<i>'The pharmacist should be aware of every P medicine that's sold in the pharmacy, so they should really be listening out for things going out' PH017</i>
	Referring to other healthcare	3	<i>'If it's a recurring problem then the pharmacist might refer them to the doctor's and say, "You've been given this several times. I can only give you certain things over the counter and obviously there is a lot that a qualified doctor can prescribe".' MCA010</i>
Behavioural Regulation	Continual training	16	<i>'I think there's always scope for making sure that people's training is up to date and, you know, making sure that any new staff that come are fully trained and review what you have and then how you sell it and that sort of thing.' PH001</i>
	SOPs (inc. WWHAM)	11	<i>'Well, we also have our standard operating procedures, which are called SOPs, and they give the general guidelines on what you should do.' PH007</i>
	Referring to guidance/wider reading	8	<i>'We're, obviously, using journals and things like that, to keep abreast of updates that we share with the staff.' PH015</i>
Intentions	To gather information	15	<i>'You need to start at the beginning and work your way through the process, regardless what the request is' PH001 'You've always got to seek information. You can't just assume. When somebody comes in and asks for co-codamol, we don't just sell them it. That is not what we do. It's again back to the WWHAM questions. Always the WWHAM questions; that's where you start from and always continue' MCA009</i>
	To provide best practice	12	<i>'My intention is always to get the message across so, as long as I feel that they've understood me, then I'm happy. You know, we're all humans, so maybe if someone is being slightly awkward or a wee bit rude, then you are maybe not as nice to that person or maybe not spend as much time with them. As long as you get your base message across, then I feel I've done my job.' PH0018</i>

	To refer to other healthcare professionals	3	
	To refer to a pharmacist	2	
Memory, Attention and Decision-making Processes	Administrative prompts & processes	13	<i>'I've basically stuck my WWHAM questions at the side of the tills because, if you do forget, the little prompt is there.'</i> PH009. <i>'I've got it up on a board on the wall, the four questions to ask'</i> MCA004
	Patient prompts	9	<i>'Any of the vulnerable patient groups, so children, people over 60, 65, anyone with any long term chronic illness, so any of the kind of red flag indicators that, all of a sudden, you maybe delve into another set of questions'</i> MCA001. <i>'If it's for a child, or if someone was on any other medication, it would be referred to the pharmacist'</i> PH008
	Automatic processes	2	<i>'You know, we're all so aware that it's almost second nature'</i> PH018
Reinforcement	Job satisfaction	10	<i>'The incentive we have is to help the person who's standing in front of me. I'm quite happy to do that, it being part of my job anyway. But yes, I do like to feel that I helped that person in some way.'</i> MCA005
	Impact on sales	9	<i>'If you give them advice on how to handle something, it does work and it makes them feel better, then the chances are they're going to come back to us.'</i> MCA008
	Patient safety	4	<i>'The incentive is to keep the patient safe.'</i> PH006
	Feedback	4	<i>'Just simple phrasing I've learnt previously that that kind of thing sticks with people, rather than always maybe giving financial rewards or physical rewards. A simple, "Well done," sometimes works better.'</i> MCA002
Belief about Capabilities	Confidence due to knowledge and experience	8	<i>'I'm very confident that I've got the knowledge and the appropriate skills to make sure that things are being recommended or provided safely and appropriately.'</i> PH004

	Confidence due to ability to refer	4	<i>I would say I'm fairly confident, but then if I feel I've not asked the right questions, I would obviously refer to my pharmacist, just to make sure I wasn't giving them something that wouldn't be right for them.'</i> MCA004
	Patient impact upon confidence	3	<i>'If you do get some of these customers that come in, particular for new staff, it can be a real blow to their confidence and then the worry is that they're not going to ask the questions to another customer and they might actually miss something that is really important.'</i> PH012
Optimism	Pessimism	7	<i>'There are some patients that you just can't win with in a way.'</i> PH012
	Positivity	5	<i>'I'm providing the best possible care; that's what I'd want or hope that all my staff felt as well.'</i> PH009
Emotion	Frustration	4	<i>'Sometimes it's frustrating, because you know they're not listening or they don't believe your advice, and go anyway, and so that's quite frustrating.'</i> PH018
	Worry	4	<i>'Can be slightly worried for the likes of a customer if they're continuously buying something, like, I don't know, if we're talking say co-codamol.'</i> MCA009
	Uncomfortable/ Nervous	4	<i>'You see the same people buying the same things day in day out, and it can be quite hard when you want to refuse a request. It can be very difficult; it makes a lot of staff, particularly the younger staff, feel quite uncomfortable.'</i> PH009
	Empathy	1	<i>'You certainly kind of empathise with their feelings.'</i> MCA003
	Under pressure	1	<i>'People come in, and they've made their made up that they want codeine linctus, for a cough, we know that therapeutically it might not be the best thing for them... feel stuck a bit between a rock and a hard place, but you make the supply, and the patient takes that medication and feels they've got the benefit, from it.'</i> MCA001
Goals	Decision to cut out questions/ shorten the process	2	<i>'I always cover the areas that are vital but sometimes if it's busy and things like that, it can take up a good part of your time having to deal with it when there's an easier and proper way to go about it.'</i> MCA008

PH: Pharmacist

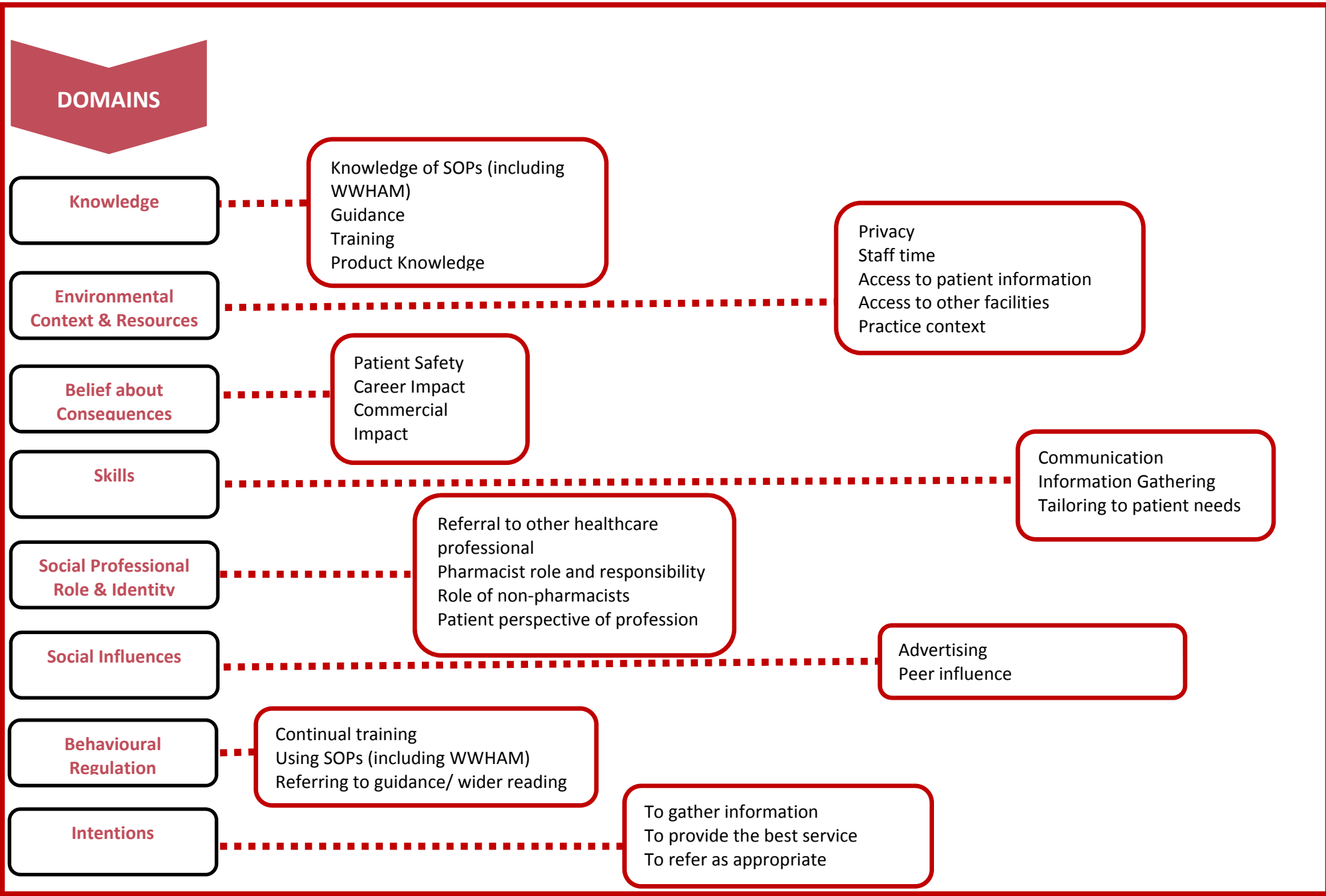
MCA: Medicine Counter Assistant

N: Refers to the number of interviewees who referred to each specific belief

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Domains presented in order of rank by pharmacists
 SOP: Standard Operating Procedure For peer review only - <http://bmjopen.bmj.com/site/about/guidelines.xhtml>
 WWHAM: Who, What, How long, Action to date, other existing Medication being taken.

Supplementary File 1: Interview Topic Guide

Behaviour of interest: Gathering information during consultations for Pharmacy medicine requests.

Research question: What are the key determinants to eliciting information during consultations for Pharmacy medicines?

Domain	Interview Questions
Knowledge	What guidelines are you aware of for managing consultations for Pharmacy medicine requests? If guidelines are named: What do those guidelines recommend? – for symptom-based consultations; for product requests How do you use the guidelines?
Skills	What skills are required to elicit information during Pharmacy medicine request? How do you go about obtaining information from a customer who asks about symptoms they are experiencing? How do you go about obtaining information from a customer who asks for a specific Pharmacy medicine by product name?
Social/professional role and identity	How do you think that customers coming in for Pharmacy medicines see you? Is there anything about your training/experience that influences the way you manage Pharmacy medicine requests? Do you see your role differently when a customer asks for a specific Pharmacy medicine rather than describing a set of symptoms to you?
Beliefs about capabilities	What problems/difficulties do you encounter eliciting information during Pharmacy medicine consultations? What would help you overcome these difficulties? How confident are you asking customers for information during Pharmacy medicine requests?
Beliefs about consequences	What are the benefits of gathering information during Pharmacy medicine requests? What are the potential problems of not gathering exchanging information during Pharmacy medicine requests? (harms avoided, benefits to customer, pharmacy, NHS, financial, long/short term)
Motivation and goals	How important do you feel seeking information is in the work of the pharmacy during Pharmacy medicine consultations? How important do you feel seeking information to the customer during Pharmacy medicine requests?
Intentions	How do you intend to seek information from customers during Pharmacy medicine requests? Do your intentions differ when a customer approaches with a specific Pharmacy medicine request rather than a description of their symptoms? If so, how?
Reinforcement	Are there any incentives to elicit information from customers during Pharmacy medicine requests? If so, what are those incentives? Do they work? If not, what would be a suitable incentive?

Optimism	Do you believe that eliciting information during Pharmacy medicine requests can be improved? Are you confident that you give your patient the best service possible/Are you happy/content with the service you deliver?
Memory, attention and decision processes	What prompts you to think about guidelines/recommendations when eliciting information during Pharmacy medicine requests? In what situations might it be difficult to elicit information from a customer during Pharmacy medicine requests? For MCAs: What prompts you to involve the pharmacist when eliciting information during a Pharmacy medicine request? For MCAs: What makes it easy for you to involve the pharmacist when eliciting information during a Pharmacy medicine request?
Environmental context and resources	What factors within the pharmacy influence how you seek information from a customer who requests a Pharmacy medicine? What aspects of the pharmacy environment (lack of privacy, locations of products...) that help or hinder gathering information during Pharmacy medicine requests?
Social influences	Would you say that the way you elicit information during Pharmacy medicine requests is influenced by your colleagues? For MCAs: specify other counter staff/pharmacist How does that influence the way that you gather information during Pharmacy medicine requests? Do customers have views on the management of Pharmacy medicine requests? Do these differ according to whether they presented with symptoms or asked for a specific medicine? How do these views affect you?
Emotion	What feelings surround/are linked with eliciting information during Pharmacy medicine requests for you? Do these feelings lead to worry or work stress?
Behavioural regulation	If you were thinking about changing the way you elicit information during Pharmacy medicine requests how could you do this? What could you do to increase information seeking with customers asking for specific Pharmacy medicines? Are there procedures or ways of working that might encourage you to seek information from customers requesting Pharmacy medicines?

Participants will also be given the opportunity to add any further thoughts on barriers or enablers for eliciting information during Pharmacy medicine requests if they wish to do so.

Summary post-interview – general points about place and time, environments, atmosphere, interviewee's tone of voice etc

Supplementary File 2: Interview Coding Guide

Pharmacy Interview Study: Guide for interview coding and analysis

Behaviour of interest: Gathering information during consultations for Pharmacy medicine requests.

Research question: What are the key determinants to gathering information during consultations for Pharmacy medicines?

Coding guidelines

Coding employs directed content analysis (Hsieh & Shannon, 2005) and the 14 domains of the TDF (Cane, O'Connor & Michie, 2012).

1. Objectives of coding are to identify:
 - a) What we conclude about each TDF domain (is it a barrier or enabler to managing SELF-CARE consultations for Pharmacy medicine request?)
 - b) What we conclude about each participant's experiences of pharmacy medicine requests.
2. Where multiple domains are raised by interviewees within one utterance, judge which domain the main message of the utterance lies and code accordingly however it may be necessary to break up paragraphs into smaller chunks.
3. Where uncertain of which domain is appropriate, go with first hunch and asterisk quote in table to show uncertainty and highlight for team discussion.
4. Coding to more than one domain is possible
5. If insufficient information to justify a code but information deemed useful code to "other" category.
6. If after discussion, uncertainties remain then utterance to be 'double badged' within more than one domain.
7. Coding is to discuss the pharmacy staff own behaviour not that of the patients
8. If topics come up more than once in transcript then code again.

1 2 3 4 5 6 1. Knowledge	<ul style="list-style-type: none"> • Knowledge of named guidelines for eliciting information (Buttercups, WWHAM questions) • Procedural knowledge of use of guidelines to elicit information (how the guidelines are used)
7 8 9 2. Skills	<ul style="list-style-type: none"> • Ability to elicit information (e.g. communication skills) • Competence in obtaining information (e.g. building rapport)
10 11 12 13 14 15 16 17 3. Behavioural Regulation	<ul style="list-style-type: none"> • Ways of doing things that relate to pursuing and achieving desired goals, standards or targets (CPD courses, training) • Methods used when asking questions • Translating intentions into actions (e.g. at the individual level action planning; at the organisational level – guidelines)
18 19 20 21 4. Social/Professional role and identity	<ul style="list-style-type: none"> • Expression of own professional identity / job/ role professional boundaries • Comparisons about their role with that of other professions (GPs and other members of pharmacy team)
22 23 24 5. Social influences	<ul style="list-style-type: none"> • External pressure from other people e.g. views of other professions or members of the team • Influence of customers' views on their ability to elicit information
25 26 27 28 29 30 6. Beliefs about capabilities	<ul style="list-style-type: none"> • Perceptions of own competence in eliciting information during pharmacy medicine requests. • Perceptions about control of own behaviour e.g. whether seeking information is within their control • Self –efficacy - confidence and lack of confidence in employing skills necessary to elicit information and resist temptation, cope with stress and mobilize own resources to meet demand of the situation.
31 32 33 34 35 7. Beliefs about consequences	<ul style="list-style-type: none"> • Perceptions about outcomes and advantages and disadvantages of eliciting information (e.g. avoiding harm to patient, benefits to customer, harm or benefit to pharmacy business, NHS, financial long and short-term harms and benefits)
36 37 38 39 40 8. Goals	<ul style="list-style-type: none"> • Prioritising eliciting information – competing tasks • Importance of eliciting information • Commitment to eliciting information during pharmacy medicine requests

9. Intentions	<ul style="list-style-type: none"> • A conscious decision to perform a behaviour (when someone states “I always” or “I usually”) • Stability of intentions (always intend to elicit information during pharmacy medicine requests)
10. Reinforcement	<ul style="list-style-type: none"> • Any financial / non-financial incentives influence behaviour when eliciting information during pharmacy medicine request • Any positive or negative consequences that influence behaviour when eliciting information • Legal aspects
11. Optimism	<ul style="list-style-type: none"> • The confidence expressed that the best possible service is given to patients • Pessimism also coded within this domain i.e. eliciting information poorly achieved during busy periods
12. Memory attention and decision processes	<ul style="list-style-type: none"> • Attention control and decision-making. • Is eliciting information a problem because people forget to do this? • Any prompts that help memory • May be characteristics of the patient that influences decisions on how to elicit information i.e. red flag indicators (vulnerable groups) • Relating to the decisions they make and steps they consciously make when approaching a patient
13. Environmental context and resources	<ul style="list-style-type: none"> • Factors relating to the pharmacy setting • Environmental factors that influence the elicitation of information • Workload and time pressures
14. Emotion	<ul style="list-style-type: none"> • Feelings or affect about eliciting information (stress, anxiety)

Supplementary File 3: Consolidated Criteria for Reporting Qualitative Research (COREQ): 32 Item Checklist

Adapted from:

Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

	GUIDE QUESTION/DESCRIPTION	REPORTED ON PAGE #
DOMAIN 1: Research team and Reflexivity		
Personal characteristics		
1. Interviewer	Which authors conducted the interviews?	Page 4
2. Credentials	What were the researcher's credentials?	Page 4
3. Occupation	What was their occupation?	See submission form
4. Gender	Was the researcher male or female?	Female
5. Experience and Training	What training or experience did the researcher have?	Experienced qualitative researchers
Relationship with participants		
6. Relationship established	Was a relationship established prior to study commencement?	No
7. Participant knowledge of interviewer	What did the participants know about the researcher?	Brief introduction provided at start of interview (name/ role/ purpose of research)
8. Interviewer characteristics	What characteristics were reported about the interviewer?	As above.
DOMAIN 2: Study Design		
Theoretical framework		
9. Methodological orientation and theory	What methodological orientation was stated to underpin the study	Page 3
Participant selection		
10. Sampling	How were participants selected?	Page 3
11. Method of approach	How were participants approached?	Page 3
12. Sample size	How many participants were in the study?	Page 4
13. Non-participation	How many people refused to participate/ dropped out? Reasons?	Page 4 Some of those contacted did not return consent forms.
Setting		
14. Setting of data collection	Where was the data collected?	Telephone interviews
15. Presence of non-participants	Was anyone else present besides the participants and researchers?	No
16. Description of sample	What are the important characteristics of the sample?	Pages 4, 13 Table 2

Data collection		
17. Interview guide	Were questions, prompts, guides provided by the author? Was it pilot tested?	Page 3 Supplementary file 1 Yes, Page 4
18. Repeat interviews	Were repeat interviews carried out?	No
19. Audio/visual recording	Did the researcher use audio or visual recording equipment?	Page 4
20. Field notes	Were field notes made during and/or after the interviews?	No
21. Duration	What was the duration of the interviews?	Page 4
22. Data saturation	Was data saturation discussed?	Pages 4 and 10 Data saturation was discussed as part of the standardisation meetings.
23. Transcripts returned	Were transcripts returned to participants for comment and/or correction	No
DOMAIN 3: Analysis and Findings		
Data analysis		
24. Number of data coders	How many data coders coded the data?	Page 4
25. Description of the coding tree	Did authors provide a description of the coding tree?	Table 3 Nvivo database available on request
26. Derivation of themes	Were themes identified in advance or derived from the data?	Page 4. Themes derived from the data and mapped the TDF
27. Software	What software was used to manage the data?	Nvivo 10
28. Participant checking	Did participants provide feedback on the findings	No
Reporting		
29. Quotations presented	Were participant quotations presented to illustrate the themes/findings? Was each participant identified?	Pages 5-9; Table 3 Yes, each participant was given an ID number.
30. Data and findings consistent	Was there consistency between the data presented and the findings?	Yes
31. Clarity of major themes	Were major themes clearly presented in the findings?	Pages 5-9 Figure 1
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes	Table 3 Figure 1

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3 **Supplementary File 4: Standards for Reporting Qualitative Research (SRQR) Checklist**
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6 **Standards for Reporting Qualitative Research (SRQR)***

7 <http://www.equator-network.org/reporting-guidelines/srqr/>
8

Page/line no(s).

9 **Title and abstract**

11 12 13 14 15	Title - Concise description of the nature and topic of the study Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended	Page 1; Line 1
16 17 18 19	Abstract - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions	Page 2; Line 1

20
21 **Introduction**

22 23 24 25	Problem formulation - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement	Page 4; Line 1
26 27 28	Purpose or research question - Purpose of the study and specific objectives or questions	Page 5; Line 1

29
30 **Methods**

31 32 33 34 35 36	Qualitative approach and research paradigm - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale**	Page 5; Line 7
37 38 39 40 41 42 43	Researcher characteristics and reflexivity - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability	Page 5; Line 37
44 45	Context - Setting/site and salient contextual factors; rationale**	Page 5; Line 19
46 47 48	Sampling strategy - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale**	Page 5; Line 26
49 50 51 52	Ethical issues pertaining to human subjects - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues	Page 6; Line 15
53 54 55 56 57	Data collection methods - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale**	Page 5; Line 32

Supplementary File 4: Standards for Reporting Qualitative Research (SRQR) Checklist

Data collection instruments and technologies - Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study	Page 5; Line 33
Units of study - Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)	Page 6; Line 27 Page 15; Table 2
Data processing - Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/de-identification of excerpts	Page 5; Line 33 Page 5; Line 45
Data analysis - Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale**	Page 5; Line 48
Techniques to enhance trustworthiness - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale**	Page 5; Line 37

Results/findings

Synthesis and interpretation - Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory	Page 6; Line 36
Links to empirical data - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings	Page 6; Line 36 Page 16; Table 3

Discussion

Integration with prior work, implications, transferability, and contribution(s) to the field - Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field	Page 12; Line 1
Limitations - Trustworthiness and limitations of findings	Page 2; Line 35 Page 12; Line 3

Other

Conflicts of interest - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed	Page 3; Line 8
Funding - Sources of funding and other support; role of funders in data collection, interpretation, and reporting	Page 3; Line 1

*The authors created the SRQR by searching the literature to identify guidelines, reporting standards, and critical appraisal criteria for qualitative research; reviewing the reference lists of retrieved sources; and contacting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.

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3 **Supplementary File 4: Standards for Reporting Qualitative Research (SRQR) Checklist**
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8 ****The rationale should briefly discuss the justification for choosing that theory, approach,**
9 **method, or technique rather than other options available, the assumptions and limitations**
10 **implicit in those choices, and how those choices influence study conclusions and**
11 **transferability. As appropriate, the rationale for several items might be discussed together.**
12

13 **Reference:**

14 O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. **Standards for reporting qualitative**
15 **research: a synthesis of recommendations.** *Academic Medicine*, Vol. 89, No. 9 / Sept 2014
16 DOI: 10.1097/ACM.0000000000000388
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