Adherence experts’ perspectives and experiences of educating healthcare professionals on medication adherence: A qualitative study

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Abstract

Aim: Medication non-adherence is a global health problem affecting patients with numerous medical conditions. Training healthcare professionals (HCPs) on managing the challenging issue of medication non-adherence requires an evidence-based approach. Therefore, we aimed to describe the perspectives and experiences of adherence experts on educating HCPs about medication adherence in order to guide the content and delivery of medication adherence education to HCPs.

Methods: Semi-structured interviews were conducted online, face-to-face, and via phone. Interviews were video or audio recorded and professionally transcribed. Data was coded line by line into the preliminary coding framework and analysed using inductive thematic analysis.

Results: Fifteen adherence experts were interviewed between May 2022 and March 2023. Five major themes with subthemes were identified: enhancing awareness among HCPs, seeing life through the patient’s lens, communicating to build empathy and rapport, having a structured approach to address individual patient behaviours, and delivering enriching and targeted training.

Conclusion: Adherence experts emphasised the impact HCPs can play by regularly addressing the pervasive issue of adherence in their clinical setting. HCPs can elicit behaviour change by understanding the patient’s perspective, the complexity of adherence, and communicating effectively. Structured approaches include using tools, frameworks, and communication methods. Continuous training that is clinically relevant and builds on existing professional expertise is required to overcome HCPs’ own barriers to behaviour change. The findings of this study guide the content and delivery of medication adherence education and training to HCPs.

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Keywords: Medication adherence, education, training, healthcare professionals

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What is already known about the subject
- Medication non-adherence is recognised as a complex behavioural phenomenon
- Healthcare professionals need training in order to manage the issue of medication non-adherence
- Training of healthcare professionals requires an evidence-based approach

What this study adds
- Healthcare professionals could improve medication non-adherence by understanding patients’ perspectives, communicating effectively, and using structured approaches
- Healthcare professionals need continuous and targeted training to build on existing professional expertise and overcome their own barriers to behaviour change
- Educational content could be built upon these recommendations and evaluated for its effectiveness

INTRODUCTION

Medication non-adherence is recognised as a complex behavioural phenomenon leading to avoidable morbidity, mortality, and increased healthcare costs [1-3]. Various stakeholders have assessed and delivered targeted interventions tailored to patients’ needs, but widespread improvement is yet to be achieved [4, 5].

Medication adherence (MA) is the extent to which the patient takes the medication as per healthcare professionals’ (HCPs) recommendations [1]. It has three interrelated phases: initiation (when a patient takes the first dose), implementation (the extent to which the medication is taken as recommended by their HCP), and persistence (the time from initiation to discontinuation) [6].

The World Health Organisation had long ago highlighted that HCPs need to be trained in adherence as they could profoundly impact patients’ health outcomes by assessing adherence and delivering interventions [1]. International stakeholders, including researchers, clinicians, and public health delegates, have highlighted the main objectives within the education domain for HCPs that need addressing in pre- and post-graduate settings [7]. The goals encompass raising awareness, teaching behaviour change strategies, interprofessional
communication and collaboration, and developing competencies in the real-world translation of MA interventions [7].

Additionally, educators have highlighted the deficiency of specific MA education [8, 9]. For example, pharmacy educators have advocated for a greater focus on MA content in the curriculum; most commonly, adherence is taught as part of a subject or therapeutic area rather than a standalone subject [9]. A survey of pharmacy faculty members and students indicated that background information on MA was part of the curriculum, but advanced topics, such as the delivery of interventions, were not adequately covered [10]. Moreover, the gap in MA competencies for psychiatry residents includes defining adherence, its relationship to medication efficacy, assessment, and interventions to improve adherence [11].

This highlights gaps in MA education and the need to address the recommended objectives within the education domain for HCPs, which requires an evidence-based approach. Thus, we aimed to explore the perspectives and experiences of adherence experts on educating HCPs about MA in order to inform educators across different healthcare professions regarding the content and delivery of MA education to HCPs.

METHODS

2.1 Participant selection

International adherence experts were recruited, where an expert is defined as having experience in MA research as well as in education and training of HCPs about medication adherence. Initial participants were recommended by people within the research team, and snowballing was used to recruit more participants, whereby participants recommended other experts in the field. Potential participants were sent an email invitation. All participants provided informed consent. Ethical approval was obtained from the South Western Sydney Local Health District Human Research Ethics Committee (2022/ETH00376).

2.2 Data collection

Semi-structured individual interviews were conducted online (Microsoft Teams), face-to-face, and via phone from May 2022 to March 2023 until data saturation was reached. The interview guide (Supplementary Table 1) was developed by members of the research team with expertise in medication adherence, which was pilot-tested and refined iteratively during data collection. Interviews were conducted in English, audio or video recorded and transcribed verbatim. Most interviews were conducted by a pharmacist (FR) and one was by a rheumatologist (AK). The Consolidated Criteria for Reporting Qualitative Studies (COREQ) was used to report this study [12] (Supplementary Table 2).

Data analysis

Thematic analysis was used to understand and report the perspectives and experiences of the participants [13]. It is a type of qualitative analysis that captures patterns of shared meaning. The inductive approach is utilised when the process begins without prior theory or models [13]. All transcripts were uploaded into NVivo Software, version 1.7.1. One author (FR) read the transcripts to develop the preliminary coding framework inductively. The preliminary coding framework was presented, discussed, and refined with authors RM, SC, and AK, who listened to all interview recordings. FR and SC independently coded one transcript, and any discrepancies were discussed and resolved with all authors before further coding. FR coded all interviews line by line into the preliminary coding framework and revised the codes as coding progressed to ensure that the depth and breadth of data were captured in themes and subthemes. Findings were sent to participants. A thematic schema was developed to demonstrate the relationships between the themes and subthemes.

RESULTS
Participant characteristics

In total, 15 international adherence experts from Canada (n=1), Europe (n=7), the United Kingdom (n=2), and the United States (n=5) participated in the study (Table 1). We identified five themes: Enhancing awareness among HCPs, seeing life through the patient’s lens, communicating to build empathy and rapport, having a structured approach to address individual patient behaviours, and delivering enriching and targeted training to HCPs. The subthemes under each theme are described in the following section. Representative quotes for each theme and subtheme are shown in Table 2. A thematic schema showing relationships between themes and subthemes is in Figure 1.

Table 1. Participants characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>No. (%) N=15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>4 (27)</td>
</tr>
<tr>
<td>Female</td>
<td>11(73)</td>
</tr>
<tr>
<td>Professional background</td>
<td></td>
</tr>
<tr>
<td>Nurse</td>
<td>4 (27)</td>
</tr>
<tr>
<td>Psychologist</td>
<td>4 (27)</td>
</tr>
<tr>
<td>Pharmacist</td>
<td>3 (20)</td>
</tr>
<tr>
<td>Physician</td>
<td>1 (7)</td>
</tr>
<tr>
<td>Pharmacoepidemiologist</td>
<td>1 (7)</td>
</tr>
<tr>
<td>Sociologist</td>
<td>1 (7)</td>
</tr>
<tr>
<td>Adherence researcher</td>
<td>1 (7)</td>
</tr>
<tr>
<td>Years of experience</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>2 (13)</td>
</tr>
<tr>
<td>11-20</td>
<td>7 (47)</td>
</tr>
<tr>
<td>21-30</td>
<td>3 (20)</td>
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<tr>
<td>&gt;30</td>
<td>3 (20)</td>
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<tr>
<td>Location</td>
<td></td>
</tr>
<tr>
<td>Canada</td>
<td>1(7)</td>
</tr>
<tr>
<td>Europe</td>
<td>7(47)</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>2(13)</td>
</tr>
<tr>
<td>United States</td>
<td>5(33)</td>
</tr>
</tbody>
</table>
3.2. Themes and subthemes

3.2.1. Enhancing awareness among healthcare professionals

3.2.1.1. Recognising the magnitude of the problem

Adherence experts expressed that many HCPs often underestimate the seriousness and size of the adherence problem. In particular, they shared their experiences with medical doctors who tend to recognise that poor adherence exists but some felt that their own patients were adherent. Some experts postulated this could be due to a self-serving bias where doctors think they are managing their patients’ conditions well. Alternatively, they explained that patients might not disclose medication-related problems with HCPs because they want to be perceived as being compliant. It was noted that some pharmacists and doctors are more innately aware and interested in detecting and educating patients about medication adherence.

3.2.1.2. Regularly addressing adherence in a holistic consultation

Experts stated that addressing MA is not a priority for many HCPs due to competing priorities and short consultation times. Typically, HCPs and patients have transactional conversations about medication; however, these conversations are seldom aimed at detecting or addressing MA issues. Some experts stated that avoidance of challenging conversations may be due to cognitive biases or assumptions from the provider’s perspective. A few experts suggested that HCPs could start addressing MA in patients with high disease activity to discover if it is due to poor adherence before intensifying therapy. Thus, several experts expressed that HCPs must be supported with time-efficient and simple strategies to capture non-adherence in daily practice. For example, HCPs could be provided with a set of targeted questions for various chronic conditions, including adherence questions.

3.2.1.3. Clarifying and strengthening interdisciplinary roles

Experts expressed that various categories of HCPs could provide MA support but noted that many HCPs
need clarification about their roles and responsibilities. Some doctors are interested and actively seek to
discuss adherence with patients. However, many doctors believe their primary responsibility is to conduct
clinical assessments, prescribe appropriate treatment, and expect that a pharmacist or nurse could pro-
vide additional support. One expert mentioned that pharmacists feel their primary responsibility is the
safe dispensing of medicines. They recognise poor adherence from dispensing histories but tend not to
feel responsible for discussing it with patients or prescribers. Some experts suggested all HCPs should be
responsible for managing medication adherence, while one expert expressed that any HCP whom patients
trust the most could take on this role. To improve role clarity and interprofessional collaboration among
HCPs, some experts suggested that undergraduate education and professional development programs ensure
different professionals learn with, from and about each other. Educating HCPs about other disciplines and
how they could collaborate would provide HCPs with a robust and holistic education as an interdisciplinary
model.

3.2.2. Seeing life through the patient’s lens

3.2.2.1. Aligning with patient values and beliefs respectfully

Experts emphasised that HCPs must be trained to view life from the patient’s perspective. HCPs have
excellent pharmacological knowledge, and many treatment options are available. However, experts noted
that the optimal outcome will not be achieved if these do not align with patients’ values and goals. Experts
suggested that HCPs should have a holistic and personal approach and understand the dynamics of patients’
lives beyond the construct of their conditions. Ultimately, the patient is living with the disease and could
have several competing priorities. Thus, HCPs need to know what patients consider important in order
to help them achieve their goals but with full respect for the autonomy of their decisions. Additionally,
understanding the needs of patients from underrepresented populations and different cultural backgrounds
is crucial as they may have prior negative experiences with the healthcare system or providers. HCPs need
to overcome those barriers and rebuild trust. Experts acknowledged that this could be challenging for HCPs
because they generally have a greater interest in and prioritise other aspects of pharmacotherapy, including
clinical assessment, medication selection, doses, and drug interactions. Despite the challenges, the experts
highlighted their own responsibility in effectively training HCPs to reflect and think about the perspective
of patients to influence behaviour change in patients.

3.2.2.2. Delineating between intentional and unintentional behaviours

Experts suggested that HCPs need to be better trained in communication to enable an exploration of patients’
motivation and their willingness to take medications. Specifically, HCPs need to look for the reasons or
reservations why their patients are not taking medications and understand whether it is an unintentional or
intentional act. Furthermore, HCPs need to be educated that they should be seeking reasons for intentional
non-adherence, which often extends beyond the medicine itself and includes patients’ perception of the
illness and their relationship with the illness. It would be helpful for HCPs to understand that patients
may lack psychological flexibility, meaning they can have immutable views about the illness. HCPs need to
understand that taking medication may trigger something unpleasant from the past for some patients. In
summary, experts noted that taking medication can challenge patients in numerous ways and that medication
non-adherence is more complex than previously imagined. The experts reflected that training programs may
need to consider this level of complexity.

3.2.2.3. Being vigilant of changing circumstances

Experts emphasised that HCPs need to understand that patients’ motivation and capacity to adhere to their
medications is built over time and that many factors can conspire to reduce adherence. For example, the
patient may initially need to be motivated to take their medicines. However, when they start taking their
medicines, they may experience side effects or have other changes in their life. Experts noted the importance
of continuity of care and monitoring for changing circumstances. Thus, when educating HCPs, the experts
noted that training should consider the temporality of patient experience and expertise.
3.2.3. Communicating to build empathy and rapport

3.2.3.1. Becoming a trustworthy source of information

Experts emphasised the importance of HCPs being skilled at informing and educating patients. This is done by providing comprehensive, tailored, and timely information regarding their treatment regimens as well as keeping information congruent between various HCPs to build and maintain trust. Some HCPs may believe that the information they provide is of great value to the patient. However, patients may be highly influenced by and have greater trust in information from other sources such as media, family or friends. Therefore, HCPs must be educated to communicate medication benefits and side effects, including how to manage those side effects. Specifically, HCPs must put the risk of side effects in the right perspective for the patient, meaning the probability of experiencing side effects. Commonly, patients read the consumer medicine information leaflet and may not take their medication due to rare but alarming side effects. Experts suggested that HCPs are trained in the teach-back method to evaluate patient understanding or running group information sessions to allow patients to learn from each other.

3.2.3.2. Asking non-judgmental but factual questions

Experts emphasised that when educating HCPs about adherence, it is crucial to focus on communication aspects. Questions must be phrased to encourage open communication, and responses need careful consideration. Patients are not always open in reflecting on how they take their medicines due to fear of being judged. Hence, HCPs should show genuine interest in their health and create an environment in which patients can disclose reasons for their behaviour without feeling criticised. Here, HCPs must ensure that patients feel confident about sharing their struggles and recognise that taking medicines as prescribed can be very difficult for some patients. To discover precisely how patients take their medicines and the problems they have taking them, questioning will, at some stage, need to elicit factual responses. Some care is required in questioning to allow patients to speak freely and be open about potential problems related to non-adherence. One expert noted that communicating that non-adherence is a common issue may reduce the feeling of being judged.

3.2.3.3 Listening attentively

Experts emphasised that HCPs must be educated to listen carefully to patients. HCPs need to convey that they are being heard and understood. Listening encourages patients to engage in deeper conversations about the specifics of the problem. They recommended teaching HCPs to maintain appropriate eye contact and to listen with full attention. This will allow the identification of implicit cues of non-adherence since patients are not always explicit in sharing their problems. For example, a patient’s response, “I have so many different medications”, may indicate issues that need further investigation and require a follow-up response to elicit specifics.

3.2.4. Having a structured approach to address individual patient behaviours

3.2.4.1. Using tools to initiate and frame adherence conversations

Experts recommended providing and teaching HCPs how to use tools to initiate and frame adherence conversations. Providing HCPs with targeted questions helps them begin and structure conversations with patients to achieve clear outcomes. They highlighted that HCPs need to be taught that such tools must not be simply used as checklists but rather to allow patients to speak in detail. Alternatively, one expert suggested that HCPs provide patients with a questionnaire or a visual analogue scale asking about medication-related problems before MA consultation. This would prompt the patient to think and reflect on their treatment. Additionally, some patients may feel comfortable expressing their concerns on paper, and HCPs can be taught to explore those areas further during the consultation. These structured tools and questionnaires are particularly useful after patients gain some medication experience.

3.2.4.2. Theoretical frameworks to categorise and understand non-adherence
Experts suggested teaching HCPs about theoretical frameworks. It could help HCPs to understand and categorise reasons for patients’ non-adherence. Experts acknowledged that a plethora of frameworks exist. They emphasised that frameworks need to be simple and easily understandable by HCPs without any background in psychology. For this reason, two frameworks were proposed by some experts: the Capability, Opportunity, and Motivation model for behaviour change (COM-B), which categorises non-adherence factors into three broad areas. Experts noted that all three categories are linked. Alternatively, the Information, Motivation, and Strategy (IMS) framework, which similarly divides non-adherence factors into three categories, could be used. The MA context and outcomes (MACO) framework was also mentioned to be beneficial in understanding at which point across the continuum patients experience problems (clinic, pharmacy, or home). Additionally, one expert mentioned that new research areas include acceptance and commitment therapy that seeks to understand patients’ relationship with the illness, their beliefs regarding it, and how that could impact medication taking.

3.2.4.3. Setting goals using motivational interviewing

Experts highlighted that HCPs need to be skilled at exploring patients’ goals to ensure a common goal between the patient and the HCP about improving MA and health outcomes. A structured approach to this includes motivational interviewing (MI). MI techniques focus on exploring and discussing patients’ barriers to treatment to get to a mutual understanding of the patient’s situation. MI aims to facilitate patients in setting goals for themselves and avoids offering solutions. Some experts mentioned that if HCPs suggest strategies, they could state that other patients had found these strategies beneficial but allow the patient to decide if these strategies would suit them given their circumstances. They mentioned that HCPs may have to set small goals to build patients’ self-efficacy, especially with complex regimens. Some experts suggested that HCPs could use gain-framed arguments by discussing or focusing on the positive aspects of achieving or maintaining MA while highlighting patients’ prior achievements or milestones. Experts highlighted that HCPs must make decisions with the patient, not for the patient.

3.2.5. Delivering enriching and targeted training to HCPs

3.2.5.1. Clinically relevant learning

Experts suggested multiple educational formats designed to be engaging and clinically relevant to address the skills required in addressing patient non-adherence. Facilitated case-based learning: Some experts had taught through case-based studies, mainly in tertiary education settings. This involved identifying MA issues, discussing how to interact with the patient and describing how a multidisciplinary team could provide support. Watching video demonstrations or a live consult: Some experts utilised the recording of trained HCPs delivering a MA consult or, when practical, allowing HCPs to attend and watch a live consult. This was followed by a debrief and discussion regarding the consult. Role-playing: In the tertiary setting, some experts instructed students to mimic patients by taking placebo doses over a period of time and subsequently play the patient role with a colleague after gaining experience taking medicines and following specific instructions. Some experts also asked students to reflect on their experiences to prompt them to consider the challenges patients might face. Consult with a patient: Some experts recommended including patients in the training for HCPs under supervision. Experts who brought patients to pharmacist training said pharmacists valued the experience.

3.2.5.2. Extending existing skillsets

Experts stated that training could extend the existing skillsets and professional expertise of HCPs. They suggested nurses’ points of view regarding disease management, communication strategies, and handling sensitive information could enrich pharmacists’ training as nurses have in-depth interactions with patients on a daily basis. The pharmacist’s point of view could enhance nurses’ training content regarding pharmacological agents.

3.2.5.3. Promoting behaviour change, skills, and confidence over time
Experts expressed that changing the behaviours of HCPs is challenging, considering they have their own barriers to behaviour change. Continuous training and support are required to build their skills and confidence and overcome barriers. After their initial training, HCPs should be encouraged to implement these new skills in their practice and must be followed up to address any challenges. HCPs could record their patient consultations, and experts can assess their communication skills, reflective listening, and MI techniques. Alternatively, HCPs could conduct a self-assessment by reflecting and critically analysing their own interactions. For long-term monitoring and continuity, some experts suggested that HCPs record a consult at regular intervals for assessment. Some indicated that MI could be utilised when debriefing and providing feedback to HCPs. One expert stated framing adherence consultations as a new skill set that, when implemented in practice, could make a real difference in patients’ lives. In summary, experts expressed that behaviour change takes time and learning to manage the complex issue of medication non-adherence is lifelong learning. Thus, it is crucial to keep HCPs motivated to continue developing this skill.

Table 2. Themes and subthemes with illustrative quotes

<table>
<thead>
<tr>
<th>Theme</th>
<th>Quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognising the magnitude of the problem</td>
<td>“They often underestimate the problem [adherence]” Psychologist “I know that overall adherence rates to this kind of drug are kind of low, but I think my patients do much better.” Psychologist</td>
</tr>
<tr>
<td>Regularly addressing adherence in holistic consultations</td>
<td>“I think they often don’t ask about non-adherence” Psychologist “If there is conversation, it may not be directed in a way that is the actual problem for the patient” Psychologist</td>
</tr>
<tr>
<td>Clarifying and strengthening interdisciplinary roles</td>
<td>“Whose jurisdiction is it?” Sociologist “Somebody else can deal with that. I made the diagnosis, I gave the treatment” Psychologist “Is it having doubts about the need of the medication” Sociologist</td>
</tr>
<tr>
<td>Aligning with patient values and beliefs respectfully</td>
<td>“We have to understand the perspective and the lens in which they see the world to be able to influence that” Sociologist</td>
</tr>
<tr>
<td>Delineating between intentional and unintentional behaviours</td>
<td>“I think you then have to explore their motivation” Psychologist “One basic could be some sort of unintentional act” Sociologist</td>
</tr>
<tr>
<td>Being vigilant of changing circumstances</td>
<td>“You need to monitor people over time to see whether the factors that were driving non-adherence in the first place have changed in some way” Sociologist</td>
</tr>
<tr>
<td>Communicating to build empathy and rapport</td>
<td>“We don’t really teach them to see life through the lens of the patients that we treat” Nurse</td>
</tr>
<tr>
<td>Becoming a trustworthy source of information</td>
<td>“…the information that we’re [HCPs] giving to the patients is of greater value if we’ve pre-screened them” Pharmacist</td>
</tr>
<tr>
<td>Asking non-judgmental but factual questions</td>
<td>“So tell me about taking your medicines. Tell me about how that’s going for you” Nurse “Patients are not very clear, always. The most clear one is if a patient says, but I have so many different medications” Sociologist</td>
</tr>
<tr>
<td>Listening attentively</td>
<td>“I think oftentimes, if we really listen to patients, they tell us the answer” Psychologist “You always want to be on the patient’s side, looking at it from their point of view” Nurse</td>
</tr>
<tr>
<td>Using tools to initiate and frame adherence consultations</td>
<td>“A questionnaire set so that they can start the conversation” Sociologist</td>
</tr>
<tr>
<td>Setting goals using motivational interviewing</td>
<td>“The conversation can be using motivational interviewing approach so that you deliver enriching and targeted training to HCPs” Psychologist</td>
</tr>
<tr>
<td>Clinically relevant learning</td>
<td>“I think it’s very fair to have theory and then a practical module, that is really important” Pharmacist</td>
</tr>
<tr>
<td>Extending existing skillsets</td>
<td>“They [nurses] have great input on diseases and managing the diseases, so that’s a different point of view that can be added also to the pharmacists’ training” Pharmacist</td>
</tr>
<tr>
<td>Promoting behaviour change, skills, and confidence of HCPs overtime</td>
<td>“Changing the behaviour of the healthcare professional is the biggest challenge of all” Nurse</td>
</tr>
</tbody>
</table>

lifelong learning. Thus, it is crucial to keep HCPs motivated to continue developing this skill.
DISCUSSION

This study synthesised the perspectives and experiences of adherence experts on educating HCPs about medication adherence, providing insights regarding the content and delivery of MA education. Experts emphasised the importance of increasing awareness among HCPs regarding the problem of adherence. HCPs could be supported with time-efficient strategies and increased interdisciplinary collaboration to regularly address and manage MA in clinical practice. They highlighted that HCPs could elicit behaviour change in patients by understanding their perspectives, the complexity of adherence, and communicating effectively. Structured approaches to this include utilising existing tools, theoretical frameworks, and MI techniques.

The findings are similar to previous studies regarding the importance of understanding patients’ perspectives and circumstances. Some experts suggested that students could mimic patients by taking placebo doses over a period of time and write reflections on their experience to allow an opportunity to think through the patients’ lens, which is in line with previous studies [8, 15]. In addition to appreciating practical barriers to implementing medication taking in their daily schedule, students have also shown to develop empathy towards patients through reflection [8]. However, students’ concerns regarding medication side effects may not be as intense, knowing they are only consuming placebo doses [16]. The lack of empathy training is recognised in the HCP education [17]; hence, more empathy training is needed. Prior research has suggested incorporating experiential learning using simulation-based approaches to provide HCPs with a safe space to practice responding empathically and learn from their mistakes through role modelling the HCP and patient, case-based problem solving, and active participation [18, 19].

The COM-B and IMS frameworks suggested by experts have been designed to assist practitioners in addressing medication non-adherence [20, 21]. The commonality is that both frameworks aim to identify and individualise intervention through patient-centred care by addressing the cognitive, social, and environmental factors contributing to non-adherence as well as exploring their motivation for committing to medication-taking requirements. Exploring patients’ intrinsic motivation and guiding them towards goals requires effective and empathetic communication. Physicians trained in communication have shown to improve MA compared to untrained physicians [22]. MI has been utilised and shown promising improvement in MA across different chronic conditions [23]. It is a collaborative style of communication [24] that allows
structured information exchange between patients and HCPs [25] and could be incorporated into HCPs’ education [26]. An interprofessional MA program has utilised similar frameworks, such as the Information, Motivation, and Behavioural Skills Framework as well as MI, to optimise MA for various conditions [27].

This study adds that two layers of behaviour change are required to improve medication adherence. Firstly, educators need to support HCPs through continuous training, raising awareness, and promoting behaviour change in HCPs to address and manage medication non-adherence in clinical practice regularly. Secondly, HCPs must employ evidence-based strategies to elicit behaviour change in patients and overcome their barriers to behaviour change to optimise health outcomes.

An approach to educating HCPs about MA to consider the phases of learning and assessment across the educational trajectory using Miller’s Pyramid of Clinical Competence [14] (Figure 2). At the lowest level, HCPs need to know the diverse reasons and the complexities involved when patients deviate from the treatment plan in addition to evidence-based strategies including MI to explore patients’ intrinsic motivation for medication taking to facilitate them to set and achieve their goals. Moreover, they need to know about suitable theoretical frameworks to document and categorise factors leading to non-adherence. The next level in the pyramid involves understanding how to apply this knowledge. HCPs could be provided with case studies detailing patients’ difficulty adhering to medicines to allow HCPs to apply their knowledge from the previous phase to identify and recommend strategies, and demonstrate how an interdisciplinary team could support the patient. This is followed by showing how the knowledge and skills can be applied in a clinical setting through simulated role-play or interviewing patients under the supervision of trained HCPs to demonstrate this competency before undertaking tasks independently. At the highest level is doing the tasks in clinical practice to make improvements in patient health outcomes. This may be evaluated by assessing a recording of a consult with a patient conducted in a clinical environment at regular intervals. From a broader perspective, making MA as a quality indicator can demonstrate whether these skills are being implemented effectively at a healthcare system level [7].

These findings may be limited by the perspectives and experiences of the experts interviewed. Most of the experts were from Europe, UK, USA. Therefore, transferability to other countries with different education systems and healthcare settings may be limited. Future qualitative studies could incorporate the views of experts from other countries to complement the results presented. Educational content could be built upon these recommendations and evaluated for its effectiveness.

**CONCLUSION**

Adherence experts emphasised the impact HCPs can play by regularly addressing the pervasive issue of adherence in their clinical setting. HCPs can elicit behaviour change by understanding the patient’s perspective, the complexity of adherence, and communicating effectively. Structured approaches include utilising existing tools, frameworks, and communication methods. Continuous clinically relevant training that builds on existing professional expertise is required to overcome HCPs’ own barriers to behaviour change. Education programs could utilise Miller’s Pyramid of Clinical Competence to build structured MA education programs while incorporating interdisciplinary education and collaboration to address the challenging issue of medication non-adherence. The findings inform and guide educators across different healthcare professions regarding the content and delivery of MA education and training for HCPs.

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**Conflicts of interest**

The authors have no conflict of interest to declare.

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**Data availability statement**

The data that support the findings of this study are available from the corresponding author upon reasonable request. Some data may not be made available because of privacy restrictions.

**CRediT authorship contribution statement**

**Fatima Rezae**: Writing – Original draft, Writing – review and editing. Conceptualisation, Investigation, Data curation, Formal analysis, Visualisation. **Stephen Carter**: Writing – review and editing, Conceptualisation, Formal analysis, Methodology. **Rebekah Moles**: Writing – review and editing, Conceptualisation, Methodology. **Ayano Kelly**: Writing – review and editing, Conceptualisation, Methodology, Investigation, Supervision, Funding acquisition.

**References**


