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Review Paper

# Toward patient-centered care and inclusive health-care governance: a review of patient empowerment in the UAE

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ABSTRACT

*Objectives:* The purpose of this article was twofold. We aimed to both clarify the multidimensional notion of patient empowerment (PE) and conduct a comprehensive survey of PE-related literature in the specific context of the United Arab Emirates (UAE).
*Study design:* The study objectives were achieved by means of a two-phased systematic review of the literature on PE and associated dimensions.
*Methods:* The first phase consisted in the database search for recent review articles on the construct of PE that were published in the past five years. The second phase focused on the identification of extant empirical research on PE and related concepts in UAE settings. In total, 13 review articles and 17 empirical studies were eligible and included in our analysis.
*Results:* The retained PE review articles pointed to two major themes and four topics on 'conceptual clarification' and 'contextual embeddedness', where PE was tackled in relation to national health-care system, health-care governance, information technology, and therapeutic continuum. Our analysis of UAE-based PE studies unveiled three themes on 'chronic disease care' (with three topics of 'general inquiries', 'diabetes management', and 'diabetic complications'), 'self-medication with drugs', and 'non-therapeutic interventions'. By juxtaposing the identified PE themes and topics, we derived three promising opportunities for researchers, practitioners, and policymakers to consolidate, expand, and initiate relevant PE interventions in the UAE.
*Conclusion:* This review article found that PE represents an emergent and underexplored notion in the UAE health-care system. As UAE ambitions to become a sought-after medical hub in the global arena, the design and implementation of adequate PE strategies and reforms play a critical role in the development of a world-class patient-centered health care in the country.


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## Introduction

Giving patients a greater voice and more power in their interaction with suppliers of health care is a national priority in many countries around the globe.[1–4] Patient empowerment (PE) emerged as a focal element in governmental efforts to achieve patient-centeredness for inducing enhanced self-care efficacy, increased medication adherence, optimized resource usage, and improved citizens' well-being.[5–7] This trend was accompanied by a growth in studies on PE along the therapeutic continuum,[8,9] resulting in many conceptualizations and measurements to operationalize this notion.[10,11] PE is defined as the perceived ability of the patient to self-manage own health by getting involved in decisions and assuming responsibility for choices affecting personal health.[12]

Recognizing the challenges of applying the multidimensional PE concept in empirical settings, scholars synthesized extant knowledge on PE and related dimensions to generate a unified measurement scale.[13] Although much research was conducted on PE in Western nations, little is known about PE initiatives in the emerging market context of the United Arab Emirates (UAE). The UAE government pursues continuous improvement across an integrated health-care system, including institutional and service quality, resource usage and cost control, and actual health outcomes for its population.[14–16] To achieve this strategic priority, while adapting to the needs of a changing demographic profile and accounting for the surge of several chronic diseases, the UAE embarked on a program of medical reforms and renovations.[15] Determined to secure a leading position in international rankings, the country aspires to develop a world-class health-care system and transform itself into a sought-after medical hub in the global arena.[17–20]

The notable progress that has been achieved in the UAE health-care sector has been well documented in academic/practitioner publications.[21–23] Yet, the extent to which members of the public have been empowered to take control of their health and participate in the design, delivery, and governance of health care remains unclear. No systematic effort has been deployed to analyze the UAE-based evidence on PE, and we bridge this gap via a two-phased literature review. This article offers a critical assessment of the current state of empirical PE research and related constructs in the cultural/regulatory framework of the UAE.

## Methods

All the review procedures were conducted in accordance with Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines[13,15,24] (Fig. 1). The purpose of the first phase was to clarify the notion of PE and related dimensions. A thorough database search was made to detect refereed articles published in the past five years that reviewed PE research. We focused deliberately on recent review articles as they offer a holistic analysis of the diversified PE-related literature cumulated over the years. Our search was made using ProQuest Health and Medical Complete, PubMed Central, and PsycInfo databases. To generate review-only PE articles, we used the keyword technique searching for 'PE' and 'review' words simultaneously in ' title/abstract. After screening the generated records, we removed duplicates and excluded non-reviews and non-PE papers. Five articles were identified by holding discussions with colleagues, but only two were retained as the other three were conceptual papers.

The assessment of articles' full texts for securing compliance with eligibility criteria was performed by two peers in parallel to increase confidence and eliminate bias. The eligibility considerations were as follows: articles had to review PE and related literature; be published in peer-reviewed English-language journals; and appear in press from 2013 onwards. Empirical and conceptual articles, technical papers/doctoral theses, books/reports, policy briefings, and non-refereed contributions were excluded. The individual results of each peer were compared, and one discrepancy emerged regarding a review on patient involvement.[4] This discrepancy was addressed in a meeting, where the decision to drop this paper was made because of its lack of conceptual PE focus.

A final check for sample comprehensiveness was performed using the ancestry approach of articles' identification.[25,26] It allows examining the reference lists of the most recent articles to determine whether new entries could be generated that were missed through database searching. We screened the references of the six retained articles published in 2016–2017 in search for non-identified reviews. Because this procedure did not yield additional eligible articles, our final sample of 13 PE-related reviews remained unchanged.

These review articles were examined to derive an accurate definition and understanding of PE and associated dimensions. Islamic scholars highlighted ethical concerns regarding the relevance/timeliness of the principle of individual autonomy and right to self-determination in local settings on the basis of historic, religious, and sociocultural considerations of the Muslim population.[22,27] These concerns could have delayed the widespread acceptance of PE in the UAE, affecting the amount of scholarly production on this topic. Because by focusing on PE exclusively, without considering closely related terms, we could have missed relevant literature, we kept our search as open/comprehensive as possible.

Our analysis revealed that patient autonomy/self-determination, patient choice/voice, patient engagement/participation, patient involvement/activism, patients' rights, self-care/self-management, coping with disease, patient knowledge/information empowerment, and shared decision-making are used interchangeably to infer PE. These terms, separated by the Boolean operator 'or', were entered as keywords when performing the database search. We used the operator 'and' to limit the search to only UAE-based PE studies. To capture locally oriented articles, we alternated between the country name and its three-letter acronym and used the names of Abu Dhabi, Dubai, and Sharjah emirates. Because PE topicality is a recent occurrence in the Arab region, we focused on articles published over the past decade to generate an updated account of PE in the UAE.

To complete the second phase of our survey, we followed the aforementioned procedures. To decide about the retention

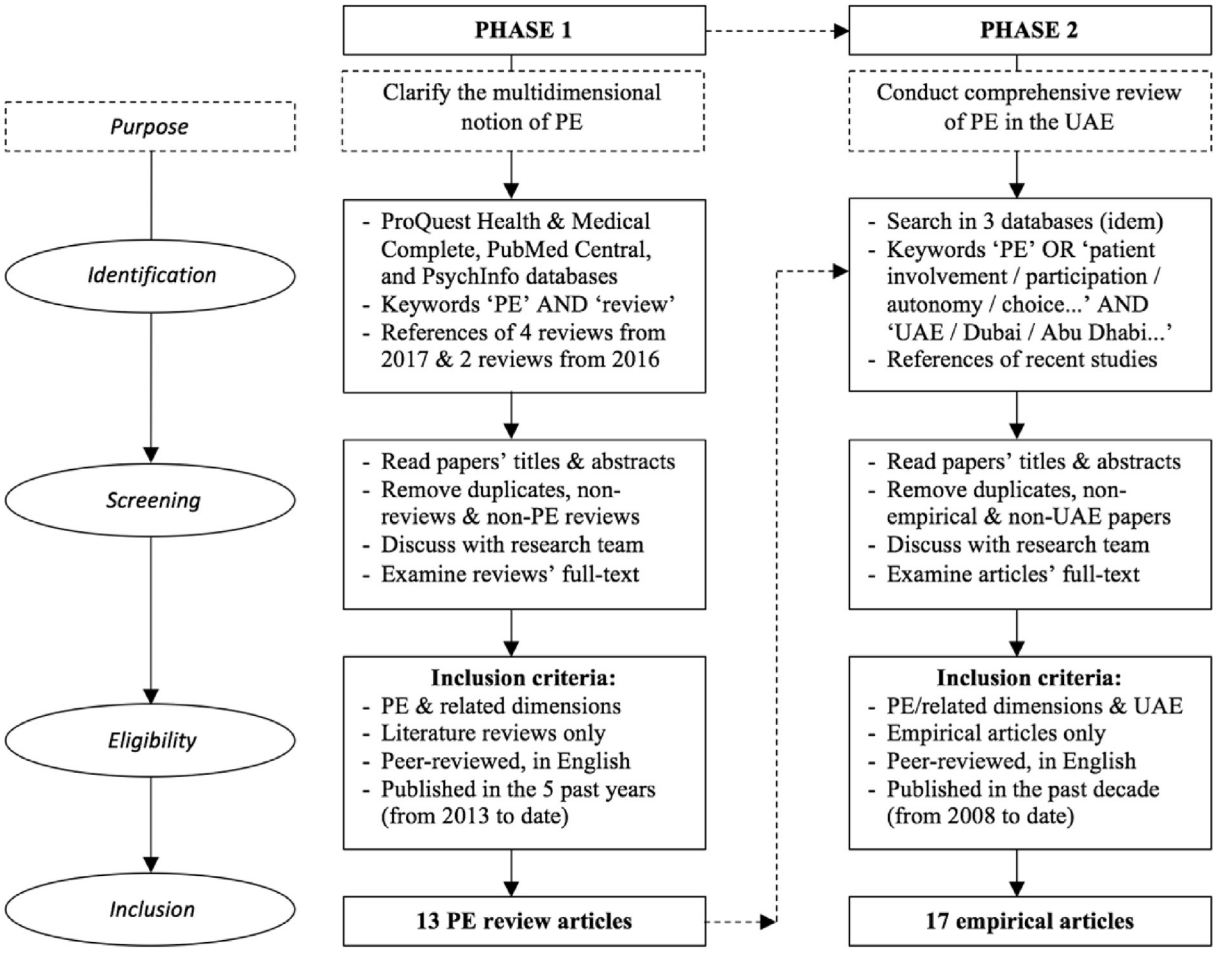


**Fig. 1 – Methods of the two-phased systematic review of the literature on PE in the UAE. PE, patient empowerment; UAE, the United Arab Emirates.**

of papers, we defined a slightly different set of eligibility criteria. The following conditions for inclusion should have been met: empirical articles on PE and associated constructs in the UAE, published in refereed English-language journals from 2008 onwards. Non-academic literature, conceptual papers, and empirical studies that offered an aggregated analysis of PE-related issues in several Arab states were excluded. This was the case of a breast cancer control strategies' study in four geographical regions, where PE emerged as a constitutive dimension of 'promoting advocacy' theme.[28] This article was excluded because its findings were presented indiscriminately for a group of 12 Arab nations, without separating the effects for each included country.

The full texts of 75 generated articles were thoroughly examined to verify their eligibility. Because most of them did not pertain to any dimension of PE, only 16 papers were retained. By screening the references of a recently published survey on diabetes self-management in the Gulf,[24] we identified one pertinent entry. Each researcher from our team analyzed the contents of the retrieved studies and confirmed their inclusion in the review. The second phase of the process yielded a sample of 17 empirical articles on UAE-based PE issues.

## Results

### *PE-related review articles*

Two themes emerged from the content analysis of 13 PE reviews: 'conceptual clarification' and 'contextual embeddedness' (Table 1). Four first-theme articles are dedicated exclusively to elucidating the notion of PE and associated dimensions. Each survey advances a different conceptual model to map PE-related constructs, highlighting the difficulty of making sense of this complex literature. Some authors focus on PE indicators and behaviors,[29] whereas others uncover the antecedents, attributes, and consequences of PE.[30] The concept is interpreted through the lens of an enabling process that leads to various outcomes[10] or presented as a combination of ability, motivation, and power.[11]

Among the most cited PE elements are patient's medical knowledge, coping skills, health literacy/education, information-seeking behavior, gaining control, sense of meaning, shared decision-making, self-care/self-management, and self-efficacy. PE is mapped in relationship with patient activation, enablement, engagement, involvement,

**Table 1 – Recent literature review articles related to the concept of PE.**

| Reference | Context | Emphasis | PE elements and associated dimensions | Findings and contribution |
|---|---|---|---|---|
| **Theme 1: conceptual clarification (4 articles)** | | | | |
| Bravo et al.[29] | Acontextual(concept focused) | Conceptual model of PE (at patient, professional, and system level) | Indicators (self-efficacy, knowledge, skills, personal control, health literacy, sense of meaning, feeling respected); behaviors (self-management, shared decision making, take part in groups, use Internet to search/share info) | PE is a state ranging from low to high level; responsibilities of patients, providers and health-care system to use PE interventions to enhance clinical outcomes |
| Cerezo et al.[10] | Acontextual(concept focused) | Analysis of dimensions and measures of PE concept | PE as enabling process (knowledge acquisition, coping skills); PE as outcome (participation in decision making, gaining control); other PE dimensions (self-care, capacity building, trust, motivation, sense of meaning, positive attitude) | challenge of incorporating PE in health-care practice through motivational strategies to induce behavioral change |
| Fumagalli et al.[11] | Acontextual(concept focused) | Conceptual map for PE and 5 related concepts | PE as a process, emergent state, and behavior (participation and involvement); PE as a combination of ability (enablement), motivation (engagement), and power (activation) | PE mapped in close relationship with patient activation, enablement, engagement, involvement, and participation |
| Castro et al.[30] | Acontextual(concept focused) | Conceptual analysis of PE, patient participation, and patient-centeredness | Antecedents (patient education, knowledge, control, participation); attributes (enablement, activation); consequences (self-efficacy, control, self-management); is a much broader concept than patient participation and patient-centeredness | process model in health care to improve quality of care/ life: strategy of patient participation facilitates patient-centeredness, which leads to PE |
| **Theme 2: contextual embeddedness (9 articles):** | | | | |
| Topic 2.1: PE and national health-care system | | | | |
| Boudioni et al.[31] | National health-care system | Role of citizenship, culture, voluntary community organization in PE in Greece and England | Patient/social/community participation; public involvement; patient informed choice and voice; patients' rights; expert patients; patient ability to control own care | PE shaped by stronger (weaker) citizenship and longer (shorter) tradition of voluntary action in England (Greece) |
| Boudioni et al.[32] | Health-care policies | Comparison of national policies, systems, structures of PE in Greece and England | legislation-driven; patients' rights (access to health care, quality of care, approval of treatment, respect, consent, confidentiality, information, informed choice, involvement in own health care, right of redress); patient-focused services | policies emphasize: patient-centered services, public involvement and PE, in England; patient rights, responsibilities, and quality of services, in Greece |
| Topic 2.2: PE and health-care governance | | | | |
| Bodolica and Spraggon[33] | Health-care governance | Divide between macrogovernance and microgovernance | PE (patient choice, autonomy, medical literacy) as a component of micro-level governance (in the patient –physician relationship) | advocate the integration of macro and micro governance devices in health-care settings |
| Tofan et al.[34] | Relational governance | PE as governance mechanism in physician– –patient relationship | PE as distrust-based governance tool (patient autonomy, assertive control, info empowerment, choice, involvement, decision-making authority, eHealth, system distrust, use of Internet for info) | conceptual framework integrating both trust- (doctor-focused) and distrust-based (patient-led) governance |
| Topic 2.3: PE and information technology | | | | |
| Risling et al.[35] | Electronic health | Analysis of PE construct; relationship between PE and eHealth portal usage | involvement in decisions; ability to find mistakes; preparedness; personal control; understanding of provider instructions; patient engagement (self-control, self-management, self-efficacy) and activation (skill, knowledge, confidence for self-care); use of eHealth tech | huge variety in conceptual operationalization of PE; need to attain definitional consensus and standardized measure of PE to assess its association with the uptake of eHealth solutions |

(*continued on next page*)

**Table 1 – (continued)**

| Reference | Context | Emphasis | PE elements and associated dimensions | Findings and contribution |
|---|---|---|---|---|
| Groen et al.[36] | Information technology (IT) | Conceptual components of PE; contribution of IT to empowerment of cancer survivors | being autonomous and respected; having knowledge; having psychosocial and behavioral skills; perceiving support from community, family and friends; perceiving oneself to be useful | IT (educational, electronic, patient-to-patient, portal services and multicomponent) contributes to PE by enhancing autonomy, knowledge and skills |
| Calvillo et al.[37] | Information technology | Analysis of how various IT tools contribute to PE | patient education; health literacy; remote access to health services; access control; self-care; patient as info source; decision making; privacy and confidentiality | IT contributes to PE (more proactive behavior) and allows citizens to act as info providers |
| Topic 2.4: PE and therapeutic continuum | | | | |
| te Boveldt et al.[38] | Cancer pain management | Conceptual model and analysis of PE in controlling pain | self-efficacy; increasing abilities; locus of control; active coping; participation in decision making; resources (induced by caregiver, skills) | focus on pain treatment given by clinician, involvement of patient and interaction of both |
| Nafradi et al.[39] | Medication adherence | Effect of 2 PE dimensions on adherence | PE components: internal health locus of control (belief of being in control of own health) and self-efficacy (disease management, general) | PE promotes adherence; need for joint empowerment (patients who share control with doctors) |

PE, patient empowerment.

participation,[11] and patient-centeredness, indicating that PE is a broad concept that embraces multiple components.[30] To improve clinical outcomes and quality of life, PE interventions should be integrated into medical practice through jointly deployed efforts of patients, physicians, and health-care organizations to induce a long-lasting behavioral change.[10,29]

Nine 'contextual embeddedness' articles conceptualize PE in relation to 'health-care system', 'health-care governance', 'information technology' (IT), and 'therapeutic continuum'. Citizenship, culture, and tradition of voluntary action play a critical role in shaping PE at the national level,[31] giving rise to health-care reforms and PE policies and systems.[32] PE is viewed as a distrust-based (patient-driven) governance attribute in the physician–patient relationship[34] and a microlevel governance component.[33] Acknowledging the macro–micro divide in health-care governance, scholars promote the integration of macrolevel (policy-making) and microlevel (doctor–patient interaction) governance initiatives in medical settings. IT-based studies conclude that patients' utilization of eHealth tools contributes to their empowerment[35] through enhanced autonomy, knowledge, proactive behavior, and self-management,[36] allowing people to act as seekers and suppliers of medical information.[37] To achieve better outcomes in cancer pain management[38] and medication adherence,[39] 'therapeutic continuum' researchers advocate the principle of shared control and joint empowerment of patients and physicians.

PE is a complex multidimensional construct, which incorporates many tightly intertwined elements (autonomy, self-efficacy, health literacy, information search/use, personal control, coping with illness), is relevant at multiple levels (micro, meso, macro), is analyzed from the standpoint of several stakeholders (patient, clinician, health-care system), is interpreted in many ways (process, state, behavior, feeling, intervention, outcome), emerges at different stages (antecedents, attributes, consequences), is seen as a intrapersonal disposition (patient power/control) or relational concept (power in clinician–patient relationship), is linked to many disciplines (IT, governance, public policy/administration), oscillates along a continuum (low to high), and is influenced by various moderators (culture, citizenship, legislation, socio-economic conditions, professional goals, health status, education).

### *PE-related issues in the UAE*

Our analysis suggests that most of the 17 UAE-based PE inquiries represent the outcome of repeated efforts of the same researcher teams from local medical colleges/institutions (Table 2). The majority uses cross-sectional surveys and statistical analyses, with only three articles making use of qualitative methodologies to analyze specific case/interview data.[40–42] While adult patients represent the common study subjects, one paper uses clinical professionals[43] and four use college students,[41,44] of which two focus on expatriate adolescents.[45,46] Only one investigation has explicitly mentioned PE (as a perception of being knowledgeable[47]), with most articles referring to various PE dimensions. The two closely related PE constructs that were tackled in UAE studies are patient involvement[48] and local community engagement.[41] Eleven papers concentrate on patient capacity for self-care/

**Table 2 – Reviewed empirical studies related to PE in the UAE health-care settings.**

| Reference | Method | Subjects | Field | PE/related constructs use | Main findings and implications |
|---|---|---|---|---|---|
| **Theme 1: chronic disease care (11 studies):** | | | | | |
| Topic 1.1: general inquiries | | | | | |
| Hashim et al.[43] | Cross-sectional survey, regression | 38 nurses and physicians attending a workshop | Chronic disease care | n/a/patient self-management support services' usage by clinicians | clinicians' non-use of proactive patient self-management tools; outreach programs and patient education needed to improve self-care and make chronic disease care systematic (not episodic) |
| Sayiner et al.[49] | Cross-sectional survey, comparison | 27 subjects (out of 1392 across 11 MENA states) | Chronic obstructive pulmonary disease | n/a/knowledge/being informed about disease, info seeking behavior from various sources | feeling of being informed about respiratory condition is suboptimal (higher in the UAE than MENA); info obtained from doctors, TV and Internet; need for more patient education |
| Topic 1.2: diabetes management | | | | | |
| Baynouna et al.[47] | Surveys, regressions | 442 patients, 7 centers in Al Ain | Hypertension, diabetes mellitus | PE as perception of being knowledgeable; ability for self-management | behavior assessment needed to design effective interventions to increase PE and adherence to healthy lifestyle behavior (via self-management) |
| Hashim et al.[50] | Cross-sectional survey, regression | 165 patients, 2 clinics in Al Ain | Type 2 diabetes mellitus | n/a/disease-related knowledge of patients, self-management | patients' knowledge about diabetes remained low over the 2001–2014 period; education efforts need to focus on behavioral strategies to enable and encourage patients to adopt self-care |
| Abduelkarem and Sackville[51] | Before-after study, 24 months | 59 patients, 3 pharmacies in Sharjah | Type 2 diabetes mellitus | n/a/self-care and self-management (achieved via information reminders sent through pharmacists) | poor disease knowledge, diet and exercise; info programs improve self-management; continuous long-term info/education initiatives needed to induce behavioral change to adopt self-care |
| Sulaiman et al.[40] | Qualitative, interviews | 41 patients, Sharjah | Diabetes | n/a/patients' disease-related knowledge | knowledge varied; disease attributed to lifestyle, contextual and cultural factors; need for culturally-sensitive strategies to educate about illness |
| Al-Maskari et al.[73] | Cross-sectional survey | 575 patients, 2 hospitals in Al Ain | Diabetes mellitus | n/a/patient self-management of their chronic disease | low patient awareness; poor knowledge/skills to self-manage the condition; awareness programs critical to improve coping, adherence and self-care |
| Topic 1.3: diabetic complications | | | | | |
| Al-Kaabi et al.[58] | Cross-sectional study | 409 patients, clinics in Al Ain | Diabetes and dietary practice | n/a/self-monitoring or self-management of disease | poor self-monitoring and dietary practice; patient-tailored dietary counseling needed to empower patients to self-manage their chronic disease |
| Al-Kaabi et al.[52] | Cross-sectional survey | 390 patients, 6 clinics in Al Ain | Diabetes and physical activity | n/a/self-monitoring or self-management of disease | low level of self-monitoring and physical activity; patient-tailored counseling needed to empower patients to self-manage their chronic disease |
| Al-Kaabi et al.[53] | Experimental design, survey | 221 illiterate patients in Al Ain | Diabetic foot problems | n/a/illiteracy of patients as predictor of poor foot-related self-care | illiteracy induces poor knowledge of diabetes and its foot complications; education programs for illiterate patients needed to enhance self-care |
| Sulaiman et al.[59] | Cross-sectional survey | 347 patients, clinics in Sharjah | Diabetes, depression, anxiety | n/a/patient self-care (as correlate of depression) | depressed diabetic patients have poor self-care and adherence; need for self-management initiatives to improve coping with chronic illness |
| **Theme 2: self-medication with drugs (3 studies)** | | | | | |
| Shehnaz et al.[45] | Cross sectional survey | 324 expatriate students, 4 schools | Self-medication with drugs | n/a/self-care attitude or autonomous health behavior | high prevalence of self-medication as evidence of taking responsibility for own health but also risk of misuse; education programs needed for making the transition to self-care successful |

(*continued on next page*)

**Table 2 – (continued)**

| Reference | Method | Subjects | Field | PE/related constructs use | Main findings and implications |
|---|---|---|---|---|---|
| Shehnaz et al.[46] | Cross-sectional survey | 324 expatriate adolescent students | Self-medication with drugs | n/a/drug knowledge; info seeking behavior from various sources | low drug knowledge scores, high inclination for self-medication; parents, pharmacists and media as sources of info; need of education campaigns |
| Hasan et al.[42] | Qualitative, content analysis | 30 subjects, purposive sample | Self-medication with drugs | n/a/self-medication as an aspect of self-care and sources of drugs' info | self-medication is common; pharmacists and family as main source of info; pharmacist plays a key role in patient education about self-care |
| Theme 3: non-therapeutic interventions (3 studies) | | | | | |
| Laurance et al.[41] | Case study, project | 21 college students, community | Genetic disease screening | n/a/patient and local community engagement (to educate and spread awareness) | project benefits: law for premarital screening (due to high consanguinity); higher awareness and life expectancy, lower incidence of disease and cost, better health; need to address cultural sensitivities and build partnerships across levels |
| McLean et al.[48] | Interviews, clinical scenarios, regressions | 218 female Emiratis (Muslims) in Al Ain clinics | Obstetrics, stomach, face, child scenarios | n/a/patient involvement (consent) in students' medical education (for examination by a student) | Refusal of cross-gender examination (obstetrics and stomach); need to account for religious and cultural issues; remind patients of their religious duty to contribute towards doctors' training |
| Al-Yateem and Rossiter[44] | Cross-sectional survey | 300 adolescents, 4 schools in Sharjah | Nutrition and dietary habits | n/a/knowledge of healthy nutrition and diet | Adolescents' lack of knowledge of healthy eating and nutrition; to reduce risk of obesity, need to design multifaceted education programs to increase knowledge of healthy nutrition |

PE, patient empowerment; UAE, the United Arab Emirates; n/a, not applicable; MENA, Middle East and North Africa.

self-management/self-monitoring, with patient's disease-related knowledge and information-seeking behavior being examined on six and three occasions, respectively.

We identified three themes on PE-related issues in the UAE: 'chronic disease care', 'self-medication with drugs', and 'non-therapeutic interventions'. The contents of 11 first-theme articles point to three topics: 'general inquiries', 'diabetes management', and 'diabetic complications'. Because public awareness about chronic conditions is suboptimal, the adoption of patient education programs and system interventions is recommended to depart from episodic to more systematic chronic disease care.[43,49] The five 'diabetes management' studies suggest that educational initiatives in the UAE should be deployed continuously to induce sustainable behavioral change for patient espousal of self-care attitudes.[50,51] Because diabetic complications are associated with poor dietary practice, foot problems, low physical activity, depression, and anxiety, diabetes counseling should be tailored to patients' needs to improve their coping with chronic illness.[52,53]

The second theme includes three studies on self-medication, treated as an aspect of patient self-care. Self-medication, which refers to situations when people administer drugs to treat self-recognized symptoms/sicknesses without professional consultation, represents a means for empowering patients to take control of their health.[54] Yet, the high inclination for self-medication by UAE adults and adolescents[42] is accompanied by low levels of public knowledge and understanding of medicines and antibiotics.[46] The practice of self-medication raises ethical concerns and risks of drugs' misuse, indicating that the population might not be well equipped to take higher responsibility for personal health. To make the transition to self-care a successful undertaking in the UAE, patient education programs are needed with the active participation of clinicians, pharmacists, parents, media, and other stakeholders.[42,45]

The three 'non-therapeutic interventions' articles address well-being issues that consider UAE's cultural/religious specificities and cut across many stakeholder groups (adolescents, female Muslims, young Emirati couples). Given the prevalence of obesity in the UAE, researchers promote multifaceted educational interventions to enhance adolescents' knowledge of healthy nutrition and encourage adopting beneficial dietary habits.[44] Because consanguineous marriages are practiced by Muslim couples, local community engagement is critical for overcoming culturally induced resistance and spreading awareness about genetic disease screening to drive the implementation of a premarital screening law.[41] In a study of patient involvement in students' medical education, Emirati women with gynecological problems refused to submit to cross-gender examinations.[48] While addressing cultural sensitivities is important, female patients need to be reminded of their social/religious duty to contribute towards doctors' training in the country.

## Discussion

By juxtaposing themes and topics from PE reviews and UAE-based studies, we delineate three opportunities for future inquiry and policy intervention on PE in the UAE (Fig. 2).

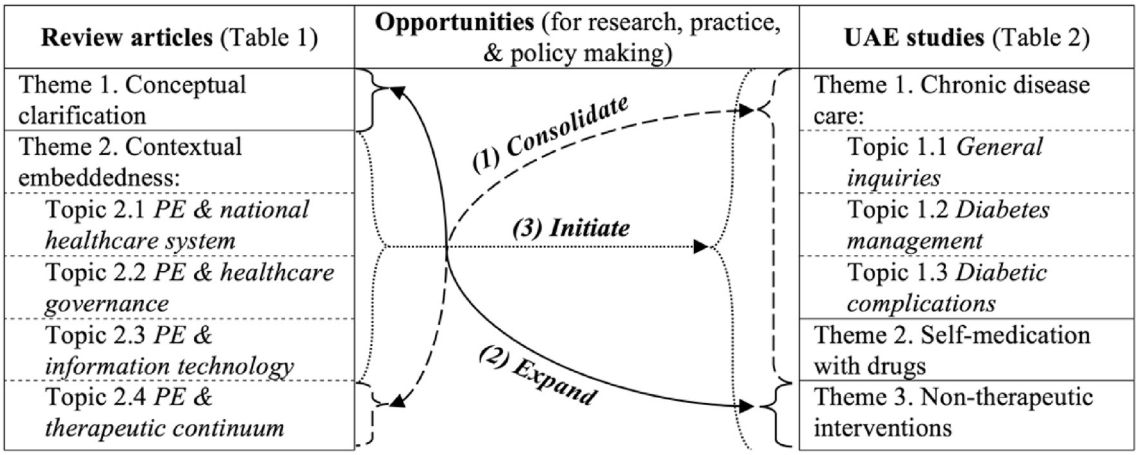


**Fig. 2 – Opportunities derived from juxtaposing themes/topics from Tables 1 and 2. PE, patient empowerment; UAE, the United Arab Emirates.**

### *Opportunity (1)—consolidate*

Most UAE studies connect PE with therapeutic continuum aspects of chronic disease care and self-medication. This provides opportunities for consolidation by conducting confirmatory research on larger samples across different Emirates to build a foundation for making generalizations. Unsurprisingly, most sampled studies relate to diabetes and its complications, because 20% of the total UAE population is battling this chronic condition.[55] PE plays a critical role in the successful management of chronic illness, where the onus is on the patient to embrace the logic of active coping with disease through disciplined self-monitoring.[49,56,57] Yet, the diabetes-related knowledge, information-seeking behavior, and self-management attitudes of UAE patients remain weak.[40,52,58,59] The UAE Government ambitions to reduce the percentage of diabetes by 2021, but the attainment of this goal depends on the effectiveness of PE programs to encourage optimal levels of patient self-care.[60]

In an analysis of health status in the UAE, cardiovascular diseases, injury, cancers, and respiratory disorders were identified as public health priorities to be addressed at the national level.[61] Further assessments are needed on the contribution of PE strategies to the enhancement of health outcomes of patients with these chronic conditions through higher self-efficacy, pain management,[38] and medication adherence.[39] Extant studies on self-medication in the UAE focus on its risks and negative health implications due to the gap between patients' state of 'feeling' and 'being' informed about drugs and medical principles.[45,46] Authors noted that the prevalence of antibiotics' self-medication in Abu Dhabi may reflect both the lack of punitive legislation for pharmacies dispensing drugs without prescription and the demographic aspect of the Emirate where its expatriate majority relies on home country sources of medicines.[54] Regulatory interventions and educational programs aimed at reducing the incidence of drugs' misuse will help refocusing researchers' attention on the study of beneficial aspects of self-medication as a manifestation of autonomous health behavior.

### *Opportunity (2)—expand*

The sporadic and inconsistent use of PE suggests that the topic requires deeper exploration in the UAE. The propensity of decision-makers, clinical professionals, and patient advocates to discuss PE is the lowest in Arab countries, compared with the Canada–Australia cluster and even Latin American and Asian nations.[28] Given the embryonic stage of development and scarcity of relevant UAE-based studies, many opportunities for expanding inquiry exist by combining insights from 'conceptual clarification' and 'non-therapeutic interventions' themes. To design viable interventions,[41,48] we recommend delving deeper into PE and its contextual application by considering social, cultural, and religious characteristics of the UAE.[62]

The difficulty of achieving definitional consensus on PE[10,30] is acknowledged because of the variability of national settings where the concept is used, inferring asymmetric levels of literacy and access to information, concerns about digital divide and availability of Internet, and confidentiality issues.[35] We call for contextualizing conceptual clarity efforts through a measurement scale that would allow operationalizing PE within the locally relevant value sets of the UAE. A hindrance for PE interventions may be the low literacy rates among older Emiratis and unskilled expatriate workers who lack formal education.[15] Developing a reliable health-literacy screening instrument that would be culturally specific to target idiosyncrasies of the UAE socio-economic fabric represents a step forward.[63] There is more scope for expanding research/practice on the effectiveness of PE methods directed to the youth to inculcate a mentality of healthy nutrition,[44] as obesity reduction among children represents another target of the 2021 UAE National Agenda.[60]

Although PE is gaining traction in global markets, some cultures might not be ready to embrace the trend toward increased autonomy and self-determination. In Muslim countries, patients may prefer to rely on professionals' expert opinions or concede their individual decision-making power to their (male) family members.[27] From the perspective of

Islam, although people enjoy the freedom of self-governance, the principles of beneficence and non-maleficence are given priority in medical decision-making, especially when patients are uninformed and possess limited understanding of their disease.[64] To decide about a treatment while accounting for patients' lack of competence, Islamic teachings reserve a central place to physicians, due to their professional and religious duty to do good and ward off harm.[65] Faith-based, community-empowered, and family-centered participatory approaches may be appealing to the Muslim UAE majority, where Islamic principles and religious obligations form part of daily life. The role that community leaders, places of worship, and the family can play in spreading awareness about healthy lifestyles and empowering the UAE population to self-manage their health is worthy of further exploration.[22]

### *Opportunity (3)—initiate*

Our analysis unveils a major decoupling between PE topics in review articles and those examined in the UAE context. The dearth of UAE-embedded inquiries on PE in relation to 'national health-care system', 'health-care governance', and 'IT' provides opportunities for initiating research, reforms, and practice in these areas. Because PE is viewed as a fundamental pillar in the development of a sustainable health-care ecosystem,[5] decision-makers ought to craft initiatives that would boost patient participation across levels of an integrated health-care system. The future makeup of medical practice and the implementation of a patient-centered approach to care depend on PE strategies that are formulated today.[30–32] UAE legislators and practitioners should revisit institutional/clinical arrangements in health service provision to offer more room for residents to get involved in the design and delivery of care and play a heightened role in health-care governance.[33]

A greater sense of health ownership could be developed through educational policies and supporting infrastructures that would empower patients in medical encounters. People should engage in health-related initiatives in their community and voice their opinions regarding national priorities for policymaking. Scholars could assess the effectiveness of patient-directed interventions in transforming people into value creators and active participants in health-care markets.[3] Federal public health frameworks should be revised periodically to secure compliance with international best practices and alignment with dominant health concerns. The diversity of the UAE population (age/gender distribution, educational/economic backgrounds, social/cultural characteristics) poses challenges for the design of adequate public health reforms.[61] PE education and intervention methods should be culturally sensitive, embedded in the nation's social fabric,[66] and tailored to the needs of a specific group.[41]

Digital era technologies represent valuable platforms for drawing on citizens' insights to transform public institutions and policymaking.[35] Although health websites allow empowering Saudi Arabia patients,[67,68] studies on how the adoption of electronic health systems drive PE in the UAE are lacking. Only one inquiry examined clinicians' viewpoints about e-health development challenges in the UAE compared with other Arab states, but no associations were made with PE-related consequences.[69] In technology-savvy nations, a tighter integration of IT into the medical sector may offer benefits in terms of health outcomes and general well-being.[22] In the 2016 Global IT Report, UAE is ranked 26th worldwide and 1st in the Middle East on the Networked Readiness Index, unveiling a high level of government usage and social impact of IT.[70] Considering the ever-expanding role of digital technologies and electronic portals in the UAE medical landscape, more research is needed on how e-health contributes to PE.

UAE residents are becoming increasingly active on social media, rely on cellphone apps to make decisions, participate in online forums and support groups, and use media channels to access health-related data.[22] Although social media usage for health information is an indicator of PE, this technology is associated with data inaccuracies, limited usability, misinformation, and privacy/security issues.[68] If information-seeking behavior is deployed as a tool for 'empowering' rather than 'misleading' patients,[71] health-care organizations have to ensure the readability of data available online to improve people's health literacy. Clinicians should fulfill their moral obligation of facilitating PE by directing patients to health websites that are reliable and trustworthy.[72] Studies on the role of social, educational and economic factors in the information-seeking behavior of empowered patients could be insightful for disseminating digitally the medical information that people can comprehend and act upon to solve their health-related concerns.

## Author statements

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