Patient Preference and Adherence

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REVIEW

Exploring the Perceptions and Self-Perceptions of Therapeutic Adherence in Older Adults With Chronic Conditions: A Scoping Review

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Abstract: Few interventions and programmes have proved to be effective in increasing therapeutic adherence. Numerous efforts have been made to identify key factors that significantly influence adherence. In older adults, non-adherence can result from several problems, including insufficient income, lack of health insurance, multimorbidities, polypharmacy, functional disabilities, low medication literacy and demographic factors. However, psychological and psychosocial factors are often neglected in the study of patient-related factors. This scoping review aimed to study the perceptions and self-perceptions that influence all dimensions of therapeutic adherence in older adults with chronic conditions. This scoping review was conducted in accordance with the PCC strategy and following the PRISMA Extension for Scoping Reviews checklist. Three databases (PubMed, Web of Science, and Scopus) were searched from 2014 to the date of the research. In the initial search in the databases, 910 articles were retrieved. After applying the inclusion and exclusion criteria, 15 studies were selected for inclusion. In the selected studies, the factors most consistently associated with perceptions and self-perceptions influencing adherence were: perceived self-efficacy, perception of illness, beliefs about medications, self-perception of physical health status, self-perception of mental health status, perception of social support and perception of ageing. Furthermore, it was identified that there are few studies on patients' perceptions and self-perceptions related to treatment. The way adherence and related factors were assessed was mainly through the use of self-report scales. Concluding, this scoping review sheds light on the complex factors that influence therapeutic adherence in older adults, emphasizing the role of perceptions and self-perceptions. The psychological and subjective aspects that affect the perceptions and self-perceptions of the older adult population concerning the treatment of chronic diseases have not been deeply studied. Research involving interviews and focus groups with this population can lead to a better understanding of non-adherence and promote effective interventions to increase adherence.

Keywords: medication adherence, compliance, gerontology, self-concept, medical plans, patient´s perspectives

Introduction

The ageing of the world population, due to the increase in life expectancy and decrease in natality, has been accompanied by an increase in the burden of chronic conditions.[1] According to the World Health Organization (WHO), chronic diseases, also known as non-communicable diseases, develop over time and progress slowly, influenced by genetic, physiological, environmental, and lifestyle factors. The main types include cardiovascular diseases, cancer, diabetes and chronic respiratory diseases.[2] Chronic diseases are responsible for 74% of all deaths globally, being a major cause of morbidity and mortality worldwide.[3] Addressing chronic disease is a major challenge for healthcare systems, representing a financial and organisational burden.[4] Patients with chronic diseases face greater healthcare utilisation and costs, decreased self-reported health status, depression and reduced functional capacity.[5,6]

Therapeutic adherence refers to the extent to which an individual follows a healthcare professional's recommendations and avoids behaviours that are advised against during treatment.[7] The WHO defines it as

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the extent to which a person's behaviour—taking medication, following a diet, and/or executing lifestyle changes - corresponds with agreed recommendations from a healthcare provider.[8]

Factors Influencing Adherence in Older Adults

Despite extensive research on therapeutic adherence and the well-understood consequences of non-adherence, poor adherence remains high, particularly among older adults who often take multiple medications due to the high prevalence of chronic diseases.[7,9,10] Few interventions and programs have proven effective in improving adherence.[11] The complexity of factors influencing therapeutic adherence makes it particularly challenging to fully understand this issue, especially in older adults.[12]

In recent years, numerous efforts have been made to identify the key factors that significantly influence adherence. In older adults, non-adherence can stem from various issues, including insufficient income, not having health insurance, having several morbidities, using multiple medicines, having functional disabilities, demographic factors, living situation and low medication literacy. However, psychological and psychosocial factors are often overlooked in the study of patient-related factors.[7,10,13]

In fact, many studies on adherence focus on identifying variables external to patients, approaching adherence as a phenomenon to be instilled in patients, and disregarding their perspectives.[13] An important factor to be considered is that following treatment plans appropriately is not seen with the same importance by the patients themselves, as their lives do not revolve solely around the disease.[14] The conditions related to the disease, the social structure, the perceptions of the disease, and all related factors also involve individual subjectivity. The importance attributed to the treatment is also intertwined with the social organization of each individual. The way in which treatment is carried out affects the existing social relationships of each individual in different ways, reflecting on the perception of treatment.[12,14–16]

Subjective and Individual Aspects Related to Therapeutic Adherence

Previous studies highlight the importance of psychological and psychosocial factors in improving older adults' adherence to prescribed health regimens and general health management. The perception of the disease and organized beliefs about it can significantly affect adherence to treatment in older adults.[17,18] Positive perceptions of the disease and beliefs about the treatment are linked with greater adherence outcomes.[19–21]

Another important factor described is the self-concept, a person's overall view of themselves that helps explain and predict behaviours. Self-efficacy, which can be seen as a part of self-concept, refers to individuals' expectations and beliefs about what they can accomplish in specific situations.[22] It is considered one of the most influential cognitive factors and reflects a person's belief in their ability to successfully perform behaviours required to achieve certain outcomes.[22,23] There is a demonstrated relationship between treatment adherence and self-efficacy among older adults with arthritis, coronary heart disease, type II diabetes, and other chronic conditions.[24–27] Moreover, several other psychosocial factors beyond self-efficacy, such as loneliness and spiritual needs, appear to be related to medication-related beliefs and behaviours among older adults.[28]

Although there is evidence about the importance of subjective factors in adherence to treatment, especially in the older adult population, in preliminary literature searches it was identified that only the health belief model emphasizes behavioural change and postulates that patients' beliefs and expectations about outcomes are key determinants of health behaviours, including medication adherence behaviour.[29] This model considers several dimensions: perceived susceptibility to a health condition, perceived severity of the condition, perceived benefits of health behaviours, and perceived barriers to taking action.[30]

Barriers and Facilitators to Therapeutic Adherence

In studies on treatment adherence in the older population, the main factors influencing adherence are described as barriers or facilitators. Barriers negatively affect the process, while facilitators promote increased adherence. In studies that identify the main barriers to increasing therapeutic adherence, there is a consensus that factors such as: multiple comorbidities, polypharmacy, functional deficiencies, physical limitations, sociodemographic and economic aspects,

lack of social support, and cognitive factors.[7,9,10,12,13] On the other hand, studies indicate as main facilitators, positive illness perception, psychoeducational support, strong beliefs in medicine, higher health literacy, good social support, higher self-efficacy, and good comprehension of the disease.[17–22,24,26,27]

Although several factors that influence therapeutic adherence have already been studied comprehensively, personal perceptions and beliefs are factors that are less addressed in studies on therapeutic adherence, especially in the older population. Furthermore, most review articles on adherence highlight the importance of subjective aspects, but are not dedicated to describing or analysing them in a detailed way, making the information very generic.[7,9,10,12,13,17–22,24,26,27,31,32] Aiming to map and identify information in the literature that fills this gap, this scoping review aimed to study the perceptions and self-perceptions that influence all dimensions of therapeutic adherence in chronic conditions among the older adults. Addressing this gap in evidence could improve future adherence programs and interventions, ultimately improving adherence in this population.

Material and Methods

Research Design

This study adopts a scoping review framework. This scoping review aims to map the available evidence on perceptions and self-perceptions of therapeutic adherence in older people with chronic conditions. The methodology follows the PRISMA Extension for Scoping Reviews (PRISMA-ScR) checklist.[33,34]

The first stage comprised the definition and alignment of the objective and research question, which was formulated through the PCC (Population, Concept, Context) strategy.[33,34] The guiding question of the review was: "What are the perceptions and self-perceptions related to therapeutic adherence in older adults people with chronic conditions?".

The second stage was the elaboration of the research objectives, in line with the research question.

The third stage was the description of the search for evidence in the literature, and the construction of the search string.

The fourth stage, was the definition of the inclusion and exclusion criteria. Articles were excluded if they[1] were not written in English, Spanish, or Portuguese;[2] did not involve older adults aged 60 or 65 years and older;[3] were unrelated to individuals with chronic diseases;[4] failed to investigate self-concept, perceptions, or beliefs regarding prescribed therapeutic adherence;[5] focused on therapeutic adherence in clinical hospital settings; or[6] examined adherence among individuals in geriatric institutions.

Conversely, articles were included if they (I) investigated self-concept, perceptions, or beliefs about therapeutic adherence among older adults as reported by the older adults themselves, health professionals, relatives, or caregivers; (II) assessed prescribed therapeutic adherence among adults; (III) focused on the treatment of chronic illnesses; and (IV) encompassed all study designs, excluding grey literature.

The fifth phase was data collection and screening. On 24th April 2024, two reviewers, L.A. and T.F., independently searched and extracted data from PubMed, Web of Science and Scopus, using the search string constructed related to "chronic disease", "older adults", "self-concept and perceptions", "adherence" and "treatment". Restrictions were applied to only include published studies in English, Portuguese and Spanish. Date restrictions were made to include articles published from 2014 up to the date of the search.

In the sixth stage, the search results were imported into Rayyan[35] where duplicates were removed and the total remaining set of search results was analysed and screened for relevance. The same reviewers independently screened the articles in two subsequent phases: (I) title and abstract, and (II) full text. A third reviewer (E.C.) was responsible for resolving any discrepancies in the selection process. Inclusion and exclusion criteria were strictly adhered to throughout the selection process.

Ethics

Since the data utilized for this scoping review were already published and publicly available, ethical approval was not sought before collecting the data. Three independent individuals were involved in the various stages of the review, and there are no conflicts of interest to disclose.

Results

The search strategy applied retrieved 910 articles after eliminating duplicates. Following the application of inclusion and exclusion criteria during the screening process, 14 articles were selected. Additionally, one article meeting the criteria was included through a manual search, bringing the total to 15 articles (Figure 1).

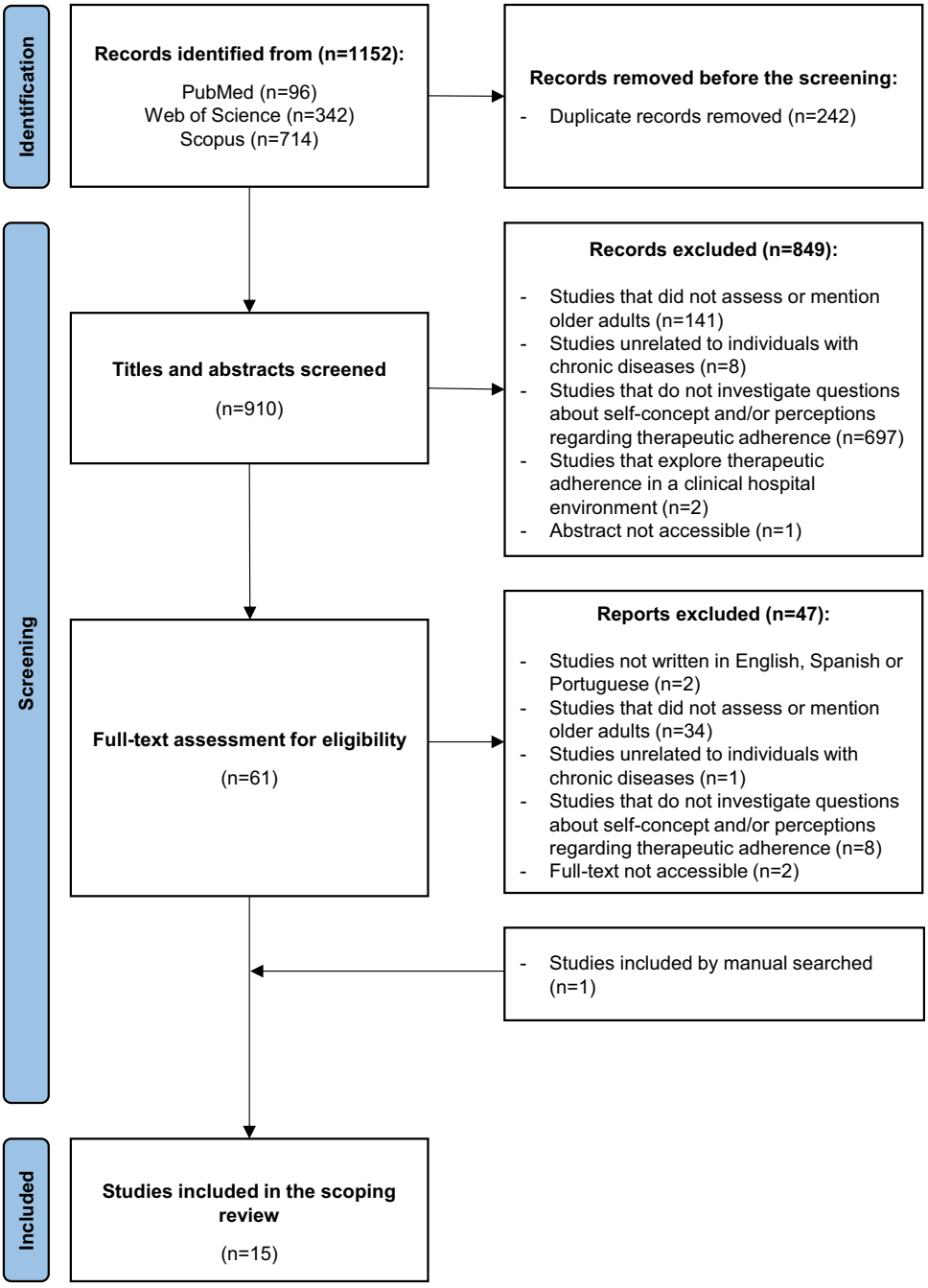

Figure 1 Articles' screening process based on the PRISMA flow diagram.
Notes: PRISMA figure adapted from Liberati A, Altman D, Tetzlaff J, et al. The PRISMA statement for reporting systematic reviews and meta-analyses of studies evaluating health disciplines: explanation and elaboration. Journal of Clinical Epidemiology. 2009;62(10). Creative Commons.[36]

Characteristics of the Included Studies

In the time frame defined in this review, which was from 2014 to April 2024, only 15 studies on the topic that make up the scope of this review were published. The year with the highest number of publications was 2020; in this year, three articles were published. In the years 2014, 2015, 2018 and 2023, two articles were published in each year. Additionally, in the years 2016 and 2017, no study on the topic was published, and in other years, one article was published per year. The subjective and individual aspects related to adherence to treatments have been little addressed, reflecting the scarcity of literature produced. The majority of the included studies were original research articles (n=14) and one was a non-systematic review. Regarding design, most of included research (n=13) were cross-sectional studies. The countries studied included Korea (n=3), Iran (n=3), China (n=2), USA (n=2), Jordan (n=1), Kuwait (n=1), Singapore (n=1) and Poland (n=1).

Of the included studies, seven addressed hypertension, seven addressed diabetes, six focused on osteoarticular disorders, four on respiratory diseases, three on stroke, three on cardiovascular diseases, two on hyperlipidemia, two on gastrointestinal diseases, and one each on muscular disorders, vision disorders, urinary tract diseases, permanent balance disorders, tuberculosis, and sexually transmitted infections. Four studies did not specify any disease or chronic condition. Furthermore, of the selected studies, only one mentioned the ABC taxonomy (Ascertaining Barriers to Compliance) for medication adherence, referring to persistence, one of the factors involved in the medication adherence process.[37]

All included studies addressed only the aspect of medication adherence within therapeutic adherence.[21,24,38–50] Considering the entire population included in the studies in this review, we have 44,820 participants aged 60 or over, with adherence rates estimated between 40% and 60%. It is important to highlight that this estimate is due to the great variability of results in different studies, some with high adherence rates, others with low adherence; in some studies it ranged from a very high 90.8% to a low 40%. One study showed that non-adherence to treatment was 60% among the 4818 study participants; in this case non-adherence was related to cost.[46] Of the 15 studies, only the non-systematic review addressed intentional and unintentional medication non-adherence.[38]

Demographic issues such as age, sex, education, marital status, and family arrangement were addressed in all original studies.[21,24,39–50] The demographic information obtained from the included studies indicates that the majority of the studied population was made up of women, white, who had completed high school or higher education. The general average age, including all studies, was approximately 70 years. However, in some studies, the age ranged from 60 years to more than 100 years. Higher levels of education, family and social support as well as better financial conditions were often associated with better adherence scores. In studies that made gender comparisons in treatment adherence scores, females had lower levels of adherence than males in eight studies[39,42,44–48,50] no difference was observed in one study,[41] and males had more adherence rates only in one study.[49]

Subjective and Psychological Aspects Influencing Therapeutic Adherence

With this scoping review, we sought to identify, in the selected articles, the subjective and psychological aspects that could be related to the perceptions and self-perceptions of patients and others involved in the process of managing diseases and their respective treatments. The parameters addressed in the studies were: perceived self-efficacy, illness perception, beliefs about medication, self-perceived physical health status, self-perceived mental health status, perceived social support, and ageing perception, depressive symptoms and anxiety.[21,24,39–50]

Self-Efficacy

Three studies sought to find relationships between adherence to treatment and self-efficacy.[24,39,42] One study explored whether self-efficacy played a mediation role in the relationship between community effectiveness in non-communicable disease management and medication adherence (COEN). Self-efficacy was positively correlated with medication adherence, (for COEN, = 0.09, $p < 0.05$; for self-efficacy, $r = 0.12$, $p < 0.01$).[39] Another study investigated gender-based cognitive determinants of medication adherence in a sample of older adults suffering from at least one chronic condition.[42] Here, self-efficacy was positively correlated with medication adherence ($r=0.369$, $P<0.01$). Furthermore,

perceived self-efficacy for medication adherence were two strong identified predictors of medication adherence among older men, and beliefs about prescribed medications and illness perception were factors significantly associated with medication adherence scores in women.[42] Another article investigated the relationship between adherence to treatment and self-efficacy among older people with arthritis, and the strongest direct correlation for self-efficacy was observed in the subscale of functioning and adherence to treatment (r=0.693), while the weakest direct correlation was observed in the subscale of pain and indecisiveness for applying treatment (r=0.228).[24] The results of the Pearson correlation coefficient showed a direct correlation between self-efficacy scores and treatment adherence scores and their subscales.[24]

Illness Perception

There were two studies that included illness perception, and it was positively correlated with beliefs about medications (r=0.274, P <0.01) and significantly associated with medication adherence scores in the women included.[42] One study showed a positive and significant correlation (r=0.332, P<0.001) between medication adherence and illness perceptions, suggesting that higher scores on the BIPQ-r scale (meaning a more threatening view of illness) would translate into higher levels of medication adherence.[43]

Beliefs

This aspect was addressed in three studies.[21,42,43] A positive correlation was found between beliefs about prescribed medications and medication adherence reason (r=0.370, P <0.01).[42] Another study indicated that individuals with strong concerns about their medications tend to have lower medication adherence (r=−0.227, P=0.014), and individuals with strong beliefs that their medications are necessary for them tend to have higher medication adherence (r=0.245, P=0.008).[43] In the same study, it was observed that individuals with strong beliefs that their physicians over-prescribe their medications, and fear of medication overuse, tend to have lower medication adherence (r=−0.0342, P<0.001).[43] In a study regarding attitudinal analysis using the Belief about Medicines Questionnaire, 37.0% of patients were accepting of medication (a high necessity with low concerns), 49.7% were ambivalent (a high necessity with high concerns), 1.9% were sceptical (a low necessity with high concerns), and 11.4% were indifferent (a low necessity and low concerns).[21] In multivariable analysis, the same study showed that adherence was related to patients' beliefs about medication; compared with patients who were accepting of medication, those in the other three attitudinal groups had significantly lower adherence (indifferent, p=0.003; sceptical, p=0.001; ambivalent, p,0.001).[21]

Self-Perceived Physical Health Status and Mental Health Status

These parameters were addressed in one study. Higher levels of adherence were observed in those who reported having excellent or good physical and mental health than those who reported that their physical and mental health was poor or very poor.[48] Also, self-perceived physical health status and mental health status were associated with greater adherence in those who perceived themselves as good or excellent, than in those who perceived themselves as bad or very bad, physically or mentally.[48]

Depression and Anxiety

In this scoping review, three studies assessed depressive symptoms as a factor influencing medication adherence.[39–41] Of these articles, one addressed depressive symptoms as mediators for treatment adherence. A statistically significant association was found between depressive symptoms and medication adherence in men, but in women, depressive symptoms were negatively correlated with community effectiveness management and medication adherence ($r = -0.11$, $p < 0.01$), self-efficacy ($r = -0.35$, $p < 0.001$) and medication adherence ($r = -0.19$, $p < 0.001$).[39] In another article, there were significant differences in research variables by independent medication adherence and depression ($t=-9.08$, $p < 0.001$).[40] Better cognitive function was found to be associated with lower levels of depression, while worse perceived subjective health states were associated with greater levels of depression.[40] The objective of the other study was to determine the degree of adherence to pharmacological treatment in pre-older adults and older adults, and to analyse the correlation between symptoms of depression.[41] Multiple regression analysis showed that the severity of depression is an independent factor affecting the degree of adherence.[41] The greater the severity of depression, the lower the adherence to

the therapeutic plan.[41] Only one study investigated the potential relationships with depressive symptoms and anxiety in adherence to treatment, which found that higher depressives score were linked with severe anxiety ($r=0.453$; $p<0.05$).[41] In this study, important relationships were found between anxiety and depression and levels of adherence; higher levels of adherence were identified in participants with lower levels of depressive symptoms and anxiety. Higher levels of anxiety and depression were reported by female participants aged between 70 and 90 years. Consequently, low adherence results were reported by these participants.

Other Reported Factors

In the studies included in this review, many other factors were mentioned that directly and indirectly related to perceptions and self-perceptions about therapeutic adherence. For instance, in a study that analysed the predictive role of perceived social support and the perception of ageing in adherence to treatment, individuals with higher levels of adherence were identified and had higher scores related to the perception of ageing and perceived social support.[44] People living alone with chronic diseases, factors related to the patient, related to the condition of the disease, factors related to the healthcare team, and also to costs, were variables addressed in studies that aimed to identify conditions that are related to adherence to treatments for chronic diseases.[21,40,45–49] Neighbourhood characteristics and social support were addressed in two studies.[39,41] Medication affordability and satisfaction with healthcare services were addressed in one study.[46] Sight and hearing, cognitive function, independent medication adherence and activities of daily living were assessed in one study.[40]

Adherence Screening Instruments Used

In the included studies, we identified that treatment adherence was mainly addressed by patients' self-report, using scales and questionnaires to identify adherence rates, as well as predictors and mediators of adherence. All 14 original studies used specific instruments to assess adherence. The instruments used were: Morisky Medication Adherence Scale (MMAS), in two studies,[43,47] the Medication Adherence Reporting Scale (MARS-5) in two studies,[48,50] and the Adherence to Refills and Medication Scale (ARMS) in two studies.[21,49] There were two studies that used a questionnaire developed by the researchers themselves.[45,46] There was one study that used the independent assessment of medication adherence, in the instrument section measuring instrumental activities of daily living (IADL).[40] The questionnaire related to potential predictors of medication non-adherence based on the World Health Organization five-domain framework was used in one study.[48] The Morisky Green-Levine Scale (MGLS) was also used in one study.[39] The Treatment Adherence Questionnaire (TAQ),[44] the Medication Adherence Self-Efficacy Scale (MASES-R), and the Medication Adherence Motive Scale (MAR Scale) were used in one study,[42] the Chronic Disease Adherence Scale (ACDS)[41] and Modanloo Treatment Adherence Questionnaire (MATQ).[24] The theoretical framework used in the review that was included in this study was the Common-Sense Model of Self-Regulation (CSM).[38]

Discussion

In this review, the selected studies had a population of people aged 60 or over, as, in developing countries, this is the age considered as the beginning of the older adult phase, while in developed countries this phase begins at 65 years of age. This is because in developed countries life expectancy is higher and people live longer and better than in developing countries.[51] This is the first review to analyse perceptions and self-perceptions related to therapeutic adherence in older people with chronic conditions. In our review, we summarized 14 original articles and from one review, we extracted data that we later identified as perceptions and self-perceptions related to adherence to treatments for chronic conditions in the older population (Table 1). We grouped information on perceived social support, perception of ageing, perception of illness, perceived self-efficacy, self-perceived physical health status, self-perceived mental health status, and beliefs about medications. We also emphasize understanding the relationships between demographic characteristics and physical and emotional health status with therapeutic adherence.

It was evident from this scoping review that there are few published in the analysed databases addressing self-concept, self-perceptions, perceptions and/or beliefs associated with therapeutic adherence among older people, with the most relevant articles published mainly in the last five years.

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Table 1 Data Extracted From the Articles Analysed in This Review

Authors (Years)	Country	Main goal	Study design	Chronic diseases	Variables	Participants	Findings	Instruments
Zhu, G. et al 2023[39]	China	To explore whether self-efficacy and depressive symptoms play serial-mediation roles in the relationship between COEN and medication adherence among type 2 diabetes and/or hypertension patients in China and 2) assess whether the serial mediating role of self-efficacy and depressive symptoms between COEN and medication adherence differed by age and sex.	Observational longitudinal	Hypertension and type 2 diabetes	The mediating influence of self-efficacy; depressive symptoms; neighbourhood characteristics; medication adherence	662 adults and older adults with type 2 diabetes and/or hypertension	COEN and self-efficacy were positively correlated with medication adherence at T2 (for COEN, $r = 0.09$, $p < 0.05$; for self-efficacy, $r = 0.12$, $p < 0.01$). Depressive symptoms were negatively correlated with COEN ($r = -0.11$, $p < 0.01$), self-efficacy ($r = -0.35$, $p < 0.001$), and medication adherence at T2 ($r = -0.19$, $p< 0.001$).	Morisky Green-Levine Scale (MGLS)
Vahedparast, H. et al 2020[44]	Iran	Identify whether perceived social support and PA are possible predict adherence to treatment among the oldest people with chronic diseases	Descriptive cross-sectional study	Cardiovascular disease; pulmonary disease; diabetes mellitus; arthritis; muscular disease; digestive disease; blood pressure and hyperlipidemia	Perceived social support; Aging Perception (AP) Treatment Adherence; Chronic diseases	243 older adults	54 subjects (22.2%) weak and medium levels in treatment Adherence and 189 subjects (77.8%) were at good and very good levels in this regard. Predictor variables namely support by family, support by friends and positive control totally predicted 13 to 20% of variance of treatment adherence. The perception of ageing was positively related to greater adherence.	Treatment Adherence Questionnaire (TAQ)

Rajpura, J. et al 2014[43]	USA	To assess the collective influence of illness perceptions, medication beliefs, and illness burden on medication adherence of a sample of elderly people suffering from hypertension.	Observational cross-sectional study	Hypertension	Illness perception; Illness burden; Beliefs about medications; Medication adherence and Hypertension.	117 participants	Perceptions about illness, perceived illness burden, and beliefs about medication are crucial factors in predicting medication adherence, as indicated by an R-squared value of 0.328. Bivariate correlations reveal that a threatening view of illness is positively associated with self-reported adherence to hypertensive medications ($r=0.332$, $P<0.001$). This adherence is further linked to lower perceived illness burden ($r=0.423$ and $r=-0.444$, $P<0.001$). Notably, perceived benefits of medication have a greater impact on adherence and perceived illness burden than perceived risks associated with medication use.	Morisky Medication Adherence Scale (MMAS)

(*Continued*)

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Table 1 (Continued).

Authors (Years)	Country	Main goal	Study design	Chronic diseases	Variables	Participants	Findings	Instruments
Park, H. Y. et al 2018[21]	Korea	Medication adherence and its related factors among elderly people living alone with chronic diseases using a conceptual framework with the Belief about Medicines Questionnaire and the Adherence to Refills and Medication Scale Korean version	Descriptive cross-sectional study	Hypertension, Diabetes mellitus, Arthritis and Osteoporosis	Medication adherence; Related factors among elderly people living alone with chronic diseases; Belief about Medicines and Patients' attitudes toward medication	3326 patients	Acceptance of the medication: 37.0% of patients showed high need and low concern. Ambivalence: 49.7% of patients showed high needs, but also high concerns. Scepticism: 1.9% of patients demonstrated low need and high concern. Indifference: 11.4% of patients showed low need and low concern. p values indicate statistical significance for indifference (p=0.003), scepticism (p=0.001) and ambivalence (p<0.001). Factors associated with low adherence: High cost of medicines: (β=0.109; 95% CI 0.03, 0.19) Side effects of medications: (β=0.431; 95% CI 0.11, 0.75) Dissatisfaction with medication: (β=0.626; 95% CI −0.77, −0.48) Perception of health status as poor: (β=−0.151; 95% CI −0.27, −0.03). Receipt of medical assistance: (β=0.655; 95% CI 0.42, 0.89)	Adherence to Refills and Medication Scale (ARMS)

Mukhtar, O. et al 2014[38]	UK	To address this issue of intentional non-adherence with reference to older people (over 65 years old).	Nonsystematic review	The study does not address specific diseases	Intentional Non-Adherence, Unintentional Non-Adherence and Older people	Review	Scarcity of studies related to intentional nonadherence, mainly studies focused on self-regulation and factors that directly affect nonadherence behaviour. The absence of studies with subject-focused methodologies and evidence-based interventions for use by health care professionals. It suggests more emphasis on studies focused on the patient's perspective.	The CommonSense Model of Self-Regulation (CSM)

(*Continued*)

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Table 1 (Continued).

Authors (Years)	Country	Main goal	Study design	Chronic diseases	Variables	Participants	Findings	Instruments
Mahmoodi, H. et al 2019[42]	Iran	To investigate gender-based cognitive determinants of medication adherence in a sample of older adults who suffer from at least a chronic condition.	Descriptive cross-sectional study	The study does not address specific diseases	Medication adherence; Knowledge and beliefs about prescribed medications; Perceived self-efficacy in medication adherence; Illness perceptions	455 individuals at least 60 years of age	Low medication adherence was reported by 54.5% of the study participants. Perceived self-efficacy for medication adherence (OR = 1.04; 95% CI: 1.00, 1.08) and medication adherence reason (OR = 0.96; 95% CI: 0.92, 0.99) were two identified strong predictors of medication adherence among the studied older men. Illness perception (OR = 1.02; 95% CI: 1.00, 1.02) and beliefs toward prescribed medication (OR = 0.95; 95% CI: 0.93, 0.98) were both recognized as the significant predictors of medication adherence in the older women subgroup.	Medication Adherence Self-Efficacy Scale (MASES-R); Medication Adherence Reason Scale (MAR-Scale)

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Leung, D. Y. et al 2015[45]	China/Hong Kong	To describe the prevalence of medication adherence, and to examine its risk factors among Chinese community-dwelling older adults with chronic diseases.	Observational cross-sectional study	Hypertension, stroke and diabetes	Medication adherence, Patient-related, Condition-related, Treatment-related, Healthcare system-related, Socioeconomic variables	3167 respondents	90.8% reported having good medication adherence in the past 7 days. More dependence on activities of daily living ($P < 0.001$), stroke ($P = 0.003$) or diabetes ($P = 0.036$), had medication review by physicians ($P < 0.001$) and received more informal care support ($P = 0.005$) were positively associated with medication adherence, whereas more cognitive impaired ($P = 0.008$), more negative mood ($P = 0.071$) and perceived poor health ($P < 0.001$) were negatively associated with medication adherence.	Questionnaire developed by researchers.

(*Continued*)

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Table 1 (Continued).

Authors (Years)	Country	Main goal	Study design	Chronic diseases	Variables	Participants	Findings	Instruments
Lee, S. et al 2018[46]	USA	To examine the causal paths among financial resource availability, patient attitudes and beliefs, and CRN.	Descriptive cross-sectional study	Hypertension or diabetes or both	Sociodemographic information; Cost-related medication nonadherence (CRN); Medication unaffordability, Satisfaction with health care services	4818 adults aged 65 or older	Of 4818 participants, 269 (5.9%) (weighted percentage, 5.7%) reported CRN in the previous 12 months. Compared with those who did not report CRN, those who reported CRN were younger (71 y vs 73 y), were more likely to be female (61.3% vs 54.0%) and have had a diagnosis of both hypertension and diabetes (36.5% vs 26.7%), and were less likely to be white (78.6% vs 83.7%), non-Hispanic (89.4% vs 92.0%), and married or living with a partner (47.8% vs 56.7%). Responses to the question on satisfaction with health care services were highly skewed, such that 72.7% reported being very satisfied with health care services.	Questionnaire developed by researchers for CRN.

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Lee, Y. M. et al 2017[47]	Korea	To investigate the effect of health literacy on medication adherence to provide information for improving health outcomes in older people with chronic disease.	Descriptive cross-sectional study	Pancreatitis, cholangitis, liver cirrhosis, gastric cancer, and diabetes mellitus (DM);	Medication knowledge, Sociodemographic, health- and medication-related characteristics of participants, Health literacy, Self-reported medication adherence	291 older adults	Of the 291 older participants, 30.6% (n = 89) obtained a score of 8 and were considered to be high in adherence. Health literacy was positively correlated with medication adherence (r = 0.25, P < 0.001) and medication knowledge (r = 0.24, P < 0.001). However, medication knowledge was not correlated with medication adherence (r = 0.10, P = 0.072). Health literacy was the strongest predictor of medication adherence (B = 0.190, P = 0.001).	The Medication Adherence Scale, developed by Morisky.

(*Continued*)

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Table 1 (Continued).

Authors (Years)	Country	Main goal	Study design	Chronic diseases	Variables	Participants	Findings	Instruments
Jeon, H. O. 2020[40]	Korea	To identify the differences in sight, hearing, cognitive function, depression, and activities of daily living and the relationships between the research variables according to the independent medication adherence of Korean older adults with chronic illness.	Descriptive cross-sectional study	Hypertension, diabetes, hyperlipidem ia, osteoarthritis and rheumatoid arthritis, backache, and sciatica	Sociodemographics; health; medication-related; Sight and hearing; Cognitive function; Depression; Independent medication adherence and Activities of daily living.	10,299 older adults aged 65 years or older	Regarding taking the medication exactly as prescribed, 96.4% of participants responded that they could take the needed dose of medicine on time alone without help and were considered "completely independent", while 2.9% were considered to require "partial help" and 0.7% "need help completely." The mean depression score measured with SGDS was 4.39, and the proportion of older adults who were categorized in the depression group with 8 points or higher was 22.7%	To evaluate independent medication adherence, in the section of the tool for measuring instrumental activities of daily living (IADL)

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Głowacka, M. et al 2024[41]	Poland	To determine the degree of adherence to pharmacological treatment in people in pre-older adults and older adults age groups and to analyse the correlation between selected sociodemographic parameters, severity of anxiety as a trait, symptoms of depression, a sense of family support and satisfaction with life.	Cross-sectional correlational study	Hypertension, diseases of the osteoarticular, vision disorders, urinary system diseases, lung diseases, strokes, permanent balance disorders, tuberculosis, AIDS and venereal diseases.	Sociodemographics, depression, adherence, Social support and Anxiety	2.040 participants aged≥55years	With no symptoms of depression—1414 people (69.3%), while with severe symptoms of depression —80 people (3.9%). With low severity of anxiety—927 people (45.4%), high result— 268 people (13.1%). Due to the level of significance ($p<0.05$). Higher severity of anxiety as a trait was obtained by women. The largest group consisted of respondents with medium adherence results—1149 people (56.3%); the smallest group with low results consisted of 298 people (14.6%). Due to the level of significance ($p > 0.05$).	Adherence in Chronic Diseases Scale (ACDS)

(*Continued*)

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Table 1 (Continued).

Authors (Years)	Country	Main goal	Study design	Chronic diseases	Variables	Participants	Findings	Instruments
Chew, S. M. et al 2021[48]	Singapore	To determine the prevalence and predictors of medication nonadherence among older community-dwelling people with at least one chronic disease in Singapore.	Descriptive cross-sectional study	Diabetes; Chronic heart failure; Stroke; Hypertension	Patient-related factors; Sociodemographics; Condition-related factors; Therapy-related factors; Self-perceived physical health status, Self-perceived mental health status	400 participants	400 participants, Sixty percent (n = 240) of our participants were non-adherent to their medication regime. Older people who smoked (OR 2.89, 95% CI 1.14–7.33), perceived their medication regime as being complicated (OR 2.54, 95% CI 1.26–5.13), felt dissatisfied with their regime (OR 2.50, 95% CI 1.17–5.31), did not know the purpose of all their medications (OR 2.56, 95% CI 1.42–4.63) and experienced side effects (OR 3.32, 95% CI 1.14–9.67) were found to be predictive of medication non-adherence.	Medication Adherence Report Scale (MARS-5); questionnaire related to the potential predictors of medication nonadherence based on the WHO five domain framework

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Awad, A. et al 2020[49]	Kuwait	To identify the prevalence of medication-related burden among geriatrics and factors influencing this burden and, the prevalence of medication adherence and the correlation between the burden and adherence.	Descriptive cross-sectional study	Any chronic disease/ condition	Sociodemographics; Medication-Related Characteristics of the Respondents; Medication-Related Burden Using and Adherence to Medications Using	424 geriatric patients	Almost 55% (95% CI: 49.8–59.5) of respondents were nonadherent to their medications. The median (IQR) ARMS overall score was 20 (7.0) indicating low adherence to medications. There was a significant positive correlation between LMQ-3 and ARMS scores ($p<0.001$) showing that the higher the medication burden the lower the level of medication adherence.	Adherence to Refills and Medication Scale (ARMS)
AlTarawneh, F. et al 2023[50]	Jordan	To determine whether certain demographic traits, different disease factors, and superstitions have any impact on treatment adherence.	Descriptive cross-sectional study	Cardiovascular disease (CVD); respiratory disease; diabetes mellitus and others NCDs.	Sociodemographics and disease characteristics	314 individuals	Nearly half of the participants had a high adherence level 49.9%. The majority of the nonadherent participants were females 77%. Nonadherence was higher among those over the age of 60. Treatment adherence is positively influenced by educational level β (0.244) value, but superstitious thinking is negatively influenced by β (−0.302) value.	Medication Adherence Report Scale-5 items (MARS-5)

(*Continued*)

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Table 1 (Continued).

Authors (Years)	Country	Main goal	Study design	Chronic diseases	Variables	Participants	Findings	Instruments
Afshar, A. et al 2022[24]	Iran	To determine relationship of adherence to treatment and self-efficacy among the older adults with arthritis.	Descriptive–correlation al study	Arthritis	Sociodemographics; treatment adherence; self-efficacy	200 patients over the age of 60 years	The mean age of patients was 67.97±5.32 years. The mean scores of self-efficacy and adherence to treatment among the elderly with arthritis were 119.8±35.3 and 123.88 ±23.04, respectively. Statistically significant correlation between adherence to treatment and self-efficacy (r=0.648). The strongest positive correlation (r=0.693) was observed in the subscale of adherence to the treatment, and the weakest positive correlation (r=0.228) was observed in the subscale of indecisiveness for applying treatment with pain.	Modanloo adherence to treatment questionnaire (MATQ)

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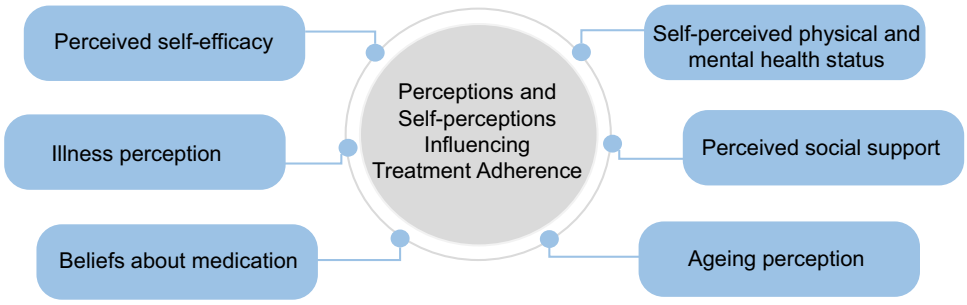

Figure 2 Perceptions and self-perceptions influencing treatment adherence.

It is noted in the overall results of this scoping review that adherence to treatments is between 40% and 60% in the studies analysed. There also appears to be high variability in results regarding adherence in some studies, with adherence rates below 40% and others with more than 90%. The large variation in results regarding adherence identified in the studies that made up this scoping review is probably related to the diversity of the populations studied, with different chronic conditions and different factors that influence adherence being addressed. Regarding the perceptions, self-perceptions, and beliefs influencing adherence, that were the subject of this Scoping review, it was possible to identify that the studies do not extensively explore these concepts. The studies had focus on aspects such as, perceived self-efficacy, illness perception, beliefs about medication, self-perceived physical and mental health status, perceived social support, and ageing perception (Figure 2). In the studies analysed, perceptions and self-perceptions related to treatment directly influenced adherence levels. The correlations found are that the better the perceptions, self-perceptions and beliefs that individuals have about themselves and about treatments, the better adherence scores to the respective treatments. Similar results were found in relation to symptoms of depression and anxiety, health literacy, education level, income, and social support. The same factors have also been described as predictors of adherence and non-adherence for the older population with chronic diseases.[31,52,53]

The studies analysed only addressed medication adherence, emphasising medication-taking behaviour; changes in habits, routines, and diets were not explored. Adherence to therapeutic regimens is more comprehensive than just taking pills daily.[54] There appears to be a consensus in studies on the importance of intrinsic and extrinsic factors, and individual factors, for adherence to treatments in older adults with chronic diseases. Knowing these factors well is an important part of assessing adherence.[52,55–57]

All original studies used self-report-based screening instruments. This form of assessment is more widely adopted and one reason is that it costs less than other assessments such as pill counts or urine or blood tests.[51,58] However, the large-scale use of self-report assessment methods has resulted in the emergence of numerous instruments for this purpose and has contributed to the destandardisation of the use of screening instruments.[56,59] Furthermore, most included studies do not adopt a standardisation in the used terminology, although there is a recommendation to use the ABC taxonomy created by the European initiative.[37] From this perspective, medication adherence is the process by which patients take medications as prescribed, a multifaceted process that develops through phases.[37] Only one study mentioned and applied the ABC taxonomy, indicating that outside the European continent it is not widely used, since the majority of studies that make up this review are from non-European countries.

Future Search Directions

Due to the scarcity of studies focusing on perceptions and self-perceptions related to such a broad and complex topic as adherence to treatments for chronic diseases in the older population, primary studies are needed that address many aspects.[1] Other ways of assessing adherence, contrasting with self-report instruments.[2] Qualitative studies on the perceptions and self-perceptions of older adult people regarding the treatment of chronic diseases, aiming to understand individual and collective experiences of the adherence phenomenon.[3] Studies that explore other dimensions of adherence to treatments, such as changes in habits, routines, and diets, not just the behaviour of taking medications as prescribed.[4] Additionally, in future research on this topic, it is important to expand the search for the perceptions of others involved in

the process, such as family members, caregivers, pharmacists and prescriber. It is very important to increase adherence to treatments, to have a comprehensive knowledge of the patients' reality, and to identify the main predictors, facilitators, and barriers to therapeutic adherence in older adults.[60–63]

Secondary research can also greatly contribute to a better understanding of subjective aspects related to adherence.[1] A systematic review to identify high-quality research that describes the most significant factors evaluated in studies with perspectives of older people with chronic illnesses about their treatments.[2] A systematic review to identify the main ways to assess adherence, map the most used instruments, and explore other dimensions of adherence that go beyond medication adherence alone. A holistic view is important to improve adherence to medical plans.[50,64–67]

Regarding bias, this research only covered articles produced in English and Spanish, in the PubMed, Web of Science and Scopus databases, published in the last ten years. For future studies on the topic we suggest searches in other databases, including studies carried out in other countries and continents. Furthermore, adding other languages can bring scientific productions from other countries not included in this review.

Conclusion

In conclusion, the subjective and individual factors influencing adherence to treatments are only known generically and superficially. The perspectives of patients and others involved are little considered in studies that investigate therapeutic adherence in the older adult population. The psychological and subjective aspects that affect the perceptions and self-perceptions of the older adult population concerning the treatment of chronic diseases have not been deeply studied. Research involving interviews and focus groups with this population can lead to a better understanding of non-adherence and promote effective interventions to increase adherence.

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