

Medication Adherence In Egypt: A Systematic Review

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BACKGROUND

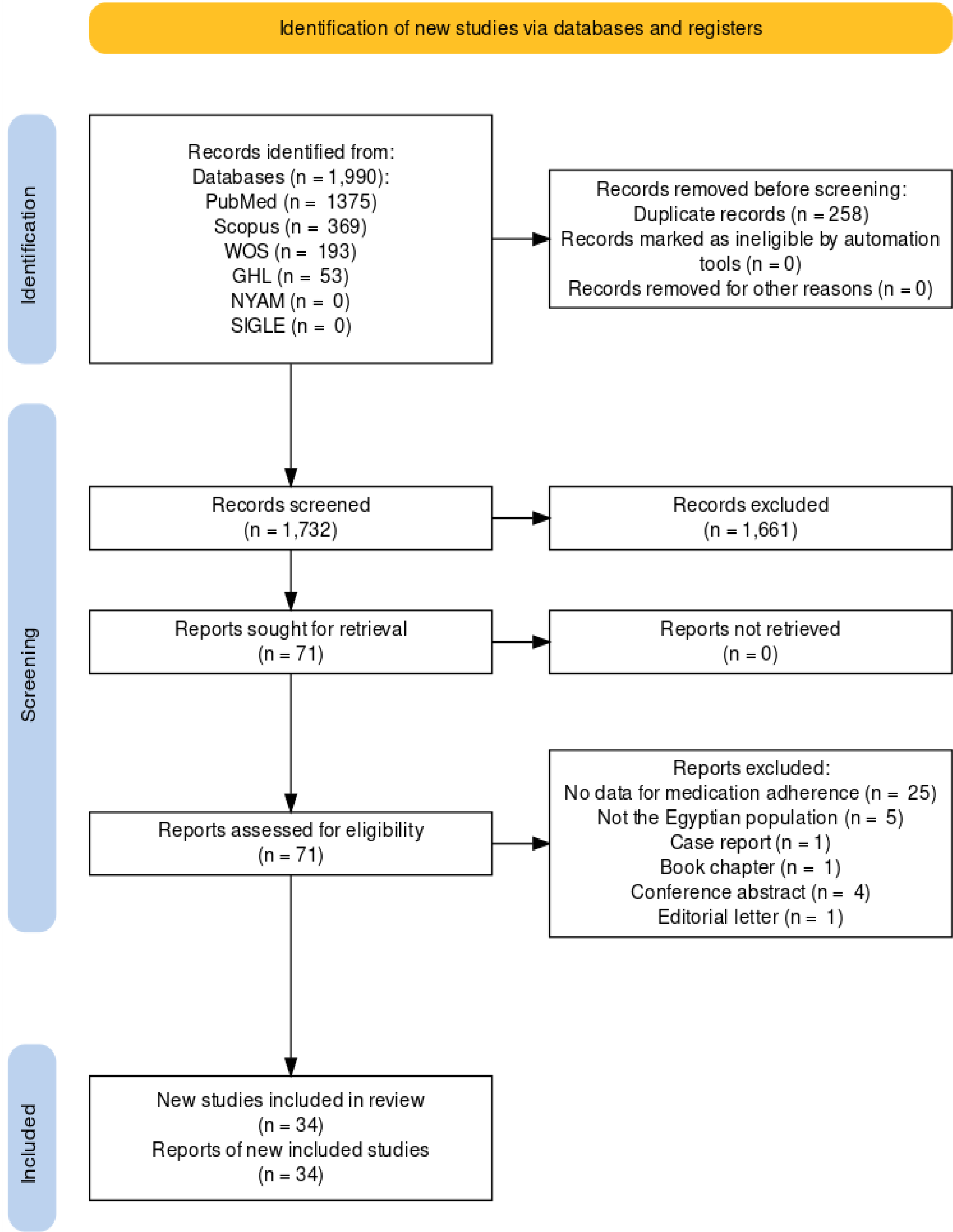
Poor medication adherence is considered a significant healthcare issue leading to suboptimal health outcomes and increased healthcare costs, especially in developing countries. This systematic review systemized existing evidence in assessing medication adherence in the Egyptian population.

OBJECTIVE

To have an overview of medication adherence research among people in Egypt.

METHODS

Original research articles reporting quantitative results in medication adherence among the Egyptian population were systematically searched from six databases including PubMed, Scopus, Web of Science, Virtual Health Library, New York Academy of Medicine, and System for information on Grey Literature in Europe from inception till November 22, 2022. Two authors screened the title and abstract independently followed by a full-text review, and studies were included upon consensus. We included original papers reporting quantitative results in medication adherence among the Egyptian population. No restrictions regarding study design, language, publication date, medication therapeutical class, disease, or medication adherence measures were placed.

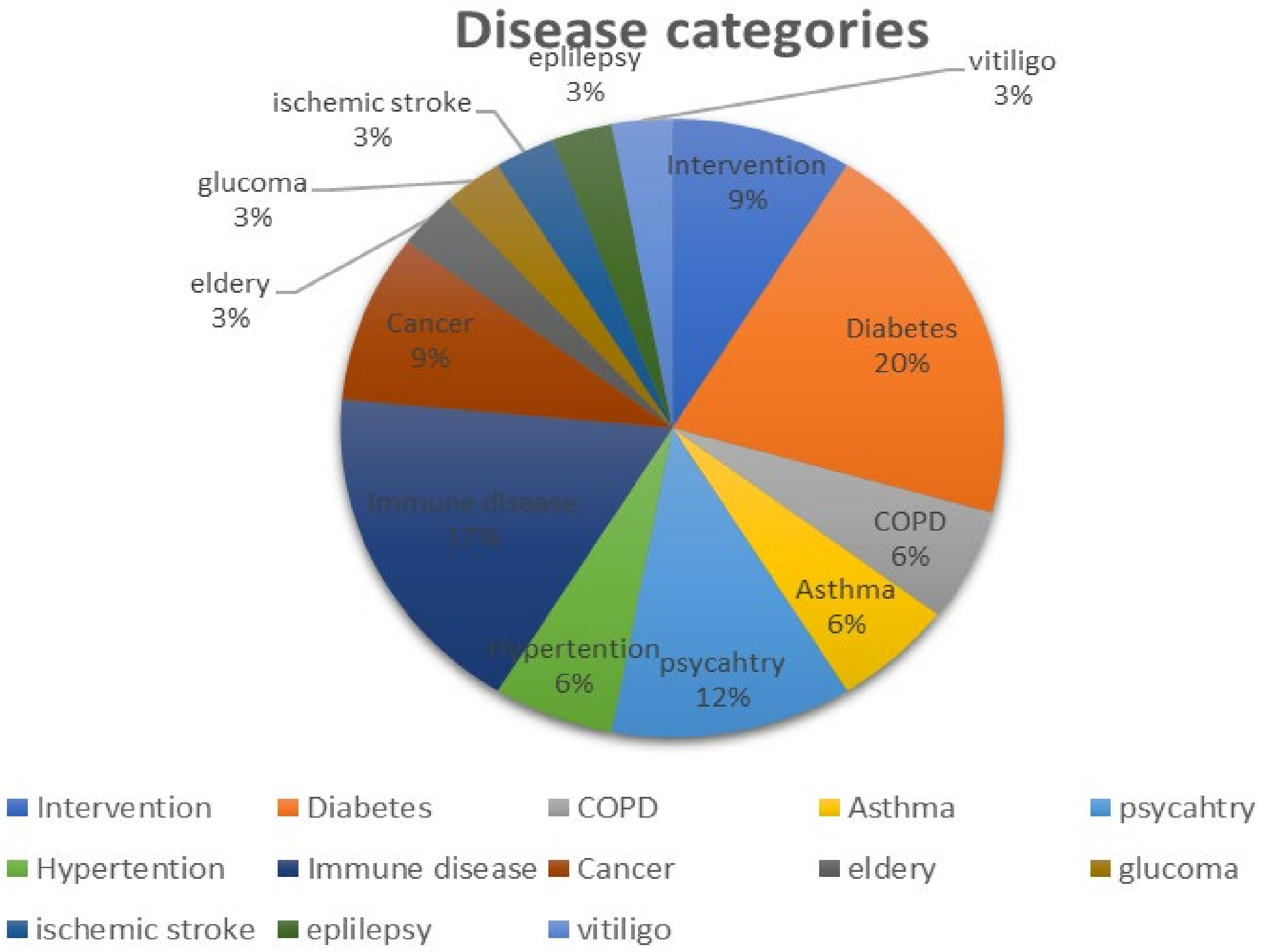


PRISMA 2020 flow diagram of the screening process

RESULT

Characteristics of included studies						
ID	Population	Adherence Measurement	Medication Adherence (N)			Quality Assess ment*
			Low	Medium	High	
Abdul-Sattar 2014(1)	systemic lupus erythematosus	The Compliance Questionnaire for Rheumatology-19	38	42		Fair
Algameel 2020(2)	residents in the elderly homes	Structured interview	8	39	16	Poor
Ali 2016(3)	vitiligo patients	(MMAS-8)	148	76		Poor
Awwad 2021(4)	Glaucoma Patients	Self-reported missed medication doses	1312	1469		Fair
			1224	348		
Ebid 2020(5)	Type-2 Diabetic Patients	(MMAS-8)	15.1± 2.1#			Poor
			12.7± 2.3#			
Esmael 2019(6)	Epileptic Patients	self-reported, medication-taking behavior scale used by Pande Ayu et al.	5.27 ± 0.95#			Fair
			6.3 ± 1.12#			
Gadallah 2015(7)	Rheumatoid Arthritis Patients’	Arabic version of (MMAS-8)	13	127	0	Fair
Hammad 2022(8)	Inflammatory rheumatic Diseases	Arabic version of (MMAS-8)	10	43	3	Fair
Abdel Khalek 2015(9)	Acute lymphoblastic Leukemia, oral 6-mercaptopurine adherence	serum 6-MP level and a questionnaire	72	57		Poor
Kamal 2021(10)	patients with recurrent ischemic stroke	Hospital records	100	22		Poor
			19	23	31	
Mahran 2020(11)	rheumatoid arthritis patients, disease-modifying anti-rheumatic drugs adherence	Clinician Rating Scale (CRS)				
El Malla 2013(12)	Children with cancer	Reported by children’s parents	123	58		Poor
Zayed 2019(13)	Behçet’s disease patients	Compliance Questionnaire of Rheumatology (CQR)	69.2 ± 11.8#			Poor
Zeeneldin 2012(14)	breast cancer patients, Oral hormonal therapy during Ramadan fasting	Self-reported numbers of days receiving the medications divided by the total days	8	131		Fair
			6	133		
Ali 2020(15)	Lupus Nephritis Flares, Immunosuppressive Medications adherence	The Morisky, Green, and Levine (MGL) Adherence Scale	49	17		Fair
			19	19		
Elhenawy 2022(16)	Children with Type 1 Diabetes, Insulin Treatment adherence	Arabic version of the four-item MGL Adherence Scale	105	161	134	Poor
Habib 2018(17)	Diabetic Macular Edema patients, Intravitreal Anti-Vascular Endothelial Growth Factor drugs adherence.	Hospital records of dropped/delayed visits or injection rate	71	272		Fair
Heissam 2015(18)	type 2 diabetics, oral anti-diabetic adherence	Delgado and Lima treatment adherence scale	99	179	98	Poor
Ibrahim 2010(19)	diabetic patients	Self-reported	19	236	345	Poor
Salama 2020(20)	Type 2 diabetic patients	Arabic version of the (MMAS-8)	45	24	13	Fair
Saudi 2020(21)	Type 2 diabetic patients	Arabic version of the (MMAS-8)	101	78	86	Fair
Shams 2010(22)	Type 2 diabetic patients	Delgado and Lima treatment adherence scale	37	101	88	Fair
Hassanein 2020(23)	Essential hypertensive patients, Antihypertensive fixed dose combination adherence	(MMAS-8) scale	652	523	825	Fair
Hussein 2020(24)	Hypertensive patients	Structured interview	1304	1116		Fair
			2	36		
Eldeib 2018(25)	metastatic colorectal or gastric cancer treated patients, Telephone-Based Follow-Up effect on adherence to Oral Capecitabine-Based Chemotherapy	pill count method	1	43		Poor
Abaza 2017(26)	Diabetic patients, SMS messages effect on diabetes self-management	(MMAS-4)	3.94 ± 1.20#			Poor
			3.90 ± 1.21#			
Mohsen 2019(27)	Chronic obstructive pulmonary disease patients	(MMAS-8)	60	73		Fair
Ali 2020(28)	Asthma patients	(MMAS-8)	39	25	46	Fair
Bassam 2020(29)	Asthma patients	(MMAS-4)	624	415		Fair
			170			
Ladner 2020(30)	chronic obstructive pulmonary disease patients	Patients who had decided to stop treatment was considered non-adherent	631			High
El-Missiry 2015(31)	Impact of medication adherence on schizophrenic patients	the Brief Adherence Rating Scale (BARS)	75	34		Poor
Okasha 2020(32)	Bipolar I disorder patients	(MMAS-8)	64	25	21	Fair
Khalil 2021(33)	bipolar I disorder patients	(MMAS-8)	64	25	21	Poor
Sultan 2015(34)	Schizophrenic patients	Brief Adherence Rating Scale	75	34		Poor

MMAS; Morisky Medication Adherence Scale. #: Adherence is measured in Mean ± SD. *Quality assessment was done using NIH tool a score was given for each item, A score of 13–14 was good, 9–12 fair and studies scoring below 9 were deemed to be of poor quality (35).



The frequency of papers for each Disease category

SUMMARY OF FINDINGS

Study characteristics

- There were 26 cross-sectional studies (1-25), five prospective longitudinal studies (26-31), and three randomized controlled trials (32-34).
- Fifteen studies measured medication adherence using either four or eight items MMAS (2, 3, 7, 8, 14, 18, 19, 22-25, 29, 30, 32, 34), two studies used Delgado and Lima scale (16, 20), two studies used structured interview (21, 26), two studies used the Brief Adherence Rating Scale (28, 31), four studies used self-reported missed medication doses (4, 13, 17, 27), one study used Pande Ayu scale (6), one study used serum 6-MP level (10). Two studies used hospital records (9, 15), one study used clinical rating scale (11), one study used parents to report children adherence (5), two studies used Compliance Questionnaire of Rheumatology (1, 12), and one study used pill count method (33).
- Out of 34 included studies, 16 showed poor quality, 17 showed fair quality, and only one study demonstrated high quality using the NIH quality assessment tool.

Medication adherence

- Seven studies focused on diabetic patients' medication adherence, with 5 reporting an adherence rate of less than 50% and 2 reporting a rate of more than 50% (14-20).
- Two studies reported chronic obstructive pulmonary disease with a rate of more than 50% (25, 27).
- Asthmatic patients were reported by two studies with more than half of the patients being non-adherent (23, 24).
- Four studies included psychiatric patients (two bi-bolar and two schizophrenia) with a medication adherence rate lower than half (28-31).
- Hypertensive patients were involved in two studies showing less than 50% medication adherence rate (21, 22).
- Three Trials showed interventions to improve medication adherence.
- SMS messages, telephone-based follow-up, and clinical pharmacists (32-34).
- Only clinical pharmacist intervention group showed significant increase in medication adherence (32).

CONCLUSIONS

- Our study found a low medication adherence rate among Egyptians, with few studies on medication adherence improvement interventions.
- Further research is needed to develop and implement effective interventions to improve medication adherence in Egypt.