

Review Article

A systematic review of the literature on survey questionnaires to assess self-medication practices

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ABSTRACT

Self-medication is of great public health importance as it often bypasses regulatory mechanisms to assure quality of health care. Nevertheless there are no established standards on how to assess self-medication. We therefore intended to systematically retrieve questionnaires and survey tools used to capture self-medication, with the aim to identify the scope of information investigated in this context and commonalities between the tools. We conducted a systematic review of the literature on questionnaires used for self-medication assessment by searching PubMed and Web of Science databases using the combinations of following keywords; self-medication, self-prescription, non-prescription, questionnaire. Truncation was used to ensure retrieval of all possible variations of search terms. The search was limited to articles published between 1st January 2000 and 31st December 2015, human studies and English language. Duplicate and irrelevant studies were excluded from the final review. A total of 158 studies were included in the review. Studies were from diverse geographical locations, most of the studies were from Nigeria 16 (10.1%) followed by India 10 (6.3%) and Iran 8 (5%). Forty-three studies (27.2%) focused on antibiotic self-medication. Majority of the studies (106; 67%) were done with adult populations. The components addressed by the questionnaires covered: reasons for self-medications in 147 (93%) studies, purchasing source in 136 (86%) studies, medical conditions to be treated in 153 (96.8%) studies, adverse events in 67 (42.4%) studies, use of prescribing information in 24 (15.1%) studies and antibiotic resistance awareness in 20 (46.5%) antibiotic studies. For 74 (46.8%) studies, survey questionnaires were self-administered and most studies (57; 36%) were done at homes of respondents. Thirty-seven (23.4%) studies did not report any recall period for self-medication practices. Study response rates varied from 17.9% to 100%, and while validity of the study questionnaire was reported for 100 (63.3%) studies, 15 (9.5%) studies reported reliability test of the study questionnaire. There is a large variety of questionnaires being used for investigating self-medication practices making comparability and meta-analyses very difficult. It is desirable to have a basic set of standardized survey questions on this topic to make available for future research groups in this field.

Keywords: Self-medication, Self-prescription, Non-prescription, Survey, Questionnaire

INTRODUCTION

Self-medication as defined by World Health Organization (WHO) is the use of drugs to treat self-diagnosed

disorders or symptoms, or the intermittent or continued use of a prescribed drug for chronic or recurrent disease or symptoms.¹ As per WHO guidelines, "responsible self-medication can help prevent and treat diseases that do not require medical consultation and reduce the increasing

pressure on medical services for relief of minor ailments especially when resources are limited".² Researchers have shown that inappropriate self-medication practices may lead to adverse drug reactions, drug induced disease, drug interactions, antibiotic resistance and waste of public expenditures.³⁻⁶

Assessing the practices of self-medication can be useful to governments, drug regulatory agencies, hospitals, physicians, pharmacists and consumers. All these players can use this information to understand the practices, and motives behind self-medication from patients' perspective. Government and regulatory agencies along with health care providers can utilize this information to improve and implement policies, patient communication and medication awareness.

RATIONALE

Importance of questionnaire design for measurement in scientific studies has been highlighted by researchers.⁷⁻⁸ The rationale for this review is based upon the premise that, since measurement is integral to the research process, there is a need for the research community periodically to take stock of the format, content and quality of its more commonly used questionnaires. As part of the background for this effort, the existing literature on survey questionnaires used to collect data on self-medication practices was reviewed. This review describes and compares the format, content, implementation and performance issues associated with these previously used survey questionnaires. Based on the findings from literature on self-medication survey questionnaire, authors wish to develop and propose a standard self-medication questionnaire.

METHODS

We conducted a systematic review of the literature on self-medication practices assessment questionnaires. Preferred reporting items for systematic reviews and meta-analysis (PRISMA) flow diagram and guidance set out by the Centre for Reviews and Dissemination was followed for this review.^{9,10}

Better understanding of diseases and health, growth in information technology, number of available medications, and drug information have been identified as key factors contributing to increase in self-medication practices in the last decade.¹¹⁻¹³ Based on this, authors searched publications for the last 15 years i.e. between 1st January 2000 and 31st December 2015 from databases namely PubMed, and Web of Science. Title/abstract search was conducted with a combination of key words: self-medication, self-prescription, non-prescription, questionnaire. Truncation was used to ensure retrieval of all possible variations of search terms. As per Centre for Review and Dissemination (CRD) guidance, a search strategy for PubMed and Web of Sciences is presented in Figure 1.⁹

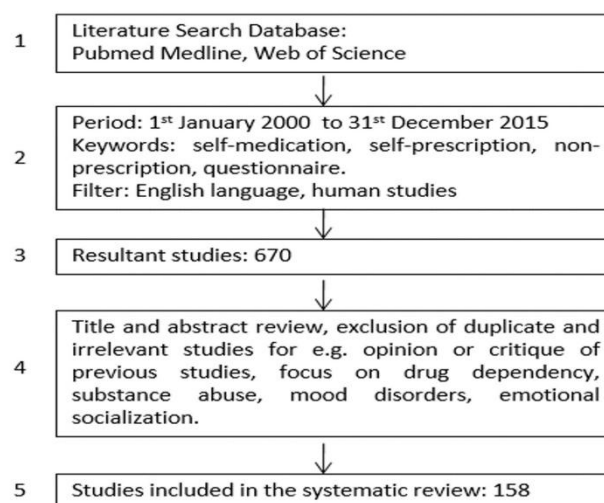


Figure 1: Literature search strategy.

Screening and eligibility criteria

Pairs of reviewers (four - eyes principle) - independently screened the resultant literature from PubMed and Web of Science by reviewing their titles and abstracts. Search was limited to English language articles. Eligible studies for full text review were selected by excluding duplicate studies. Studies which were opinions, critiques of previous studies, physicians or pharmacist's advice were excluded and only those explicitly referring to self-medication practices were included for full text review. Then, the two reviewers appraised the full text of each study independently. Any discrepancies between two reviewers were resolved through discussion, or involving a third reviewer as arbiter, if necessary. Finally, a third reviewer - checked all the excluded and included studies.

Data extraction

A detailed search was done by two reviewers to look for questions and components related to self-medication in the methods, results and conclusion section. Based on these results, a database was designed for all the mentioned publications to list which self-medication components were addressed by them as mentioned below.

Descriptive details

The study author(s), country, and publication year was identified. The information about sample size, specific therapy area of the study if any and population for whom the questionnaire was designed to collect data e.g., subjects, patients, adolescents or housewives was recorded.

Socio-demographic components

Second, the socio-demographic details in the questionnaire like age, income, education, health insurance were documented.

Self-medication practices components

Third, the questions related to self-medication practices were identified and reasons, sources, medical conditions to be treated, antibiotic resistance awareness, use of patient leaflet, and adverse events checks were recorded.

Implementation characteristics

Fourth, implementation characteristics i.e. where and how the survey questionnaires were used were documented. The information regarding where the questionnaire was given to respondents i.e. place of survey (e.g., home, pharmacy, university) and whether the survey was administered by in-person interviews, mail, or self-administered was recorded. The recall period for the survey questions was also documented.

Performance characteristics

Fifth, the performance characteristics of the survey questionnaires i.e. the response rates and whether validity and reliability of the questionnaire was done were recorded.

RESULTS

The literature search as shown in Figure 1 generated a total 670 studies from PubMed and Web of Science. Title and abstract review was done to remove duplicate (170) and irrelevant studies (342) for e.g. opinion or critique of previous studies, focus on drug dependency, substance abuse, mood disorders, and emotional socialization. Finally, 158 studies were included in the systematic review.

Table 1: Descriptive components of the survey questionnaires.

Country, number of studies	Therapy area	Respondents	Validity	Reliability
Albania, 1 ⁸⁹	Antibiotics	Subjects	N ⁸⁹	N ⁸⁹
Argentina, 2 ^{14,15}	Ophthalmology, psoriasis	Patients	Y ¹⁴ , N ¹⁵	N ¹⁴ , N ¹⁵
Australia, 1 ⁹⁰	Antibiotics	Chinese migrants	N ⁹⁰	N ⁹⁰
Bahrain, 2 ^{3,16}	NS	Students	Y ³ , Y ¹⁶	N ³ , N ¹⁶
Belgium, 3 ^{17,18,134}	Headache, rhinitis	Patients	Y ¹⁷ , Y ¹⁸ , N ¹³⁴	N ¹⁷ , Y ¹⁸ , N ¹³⁴
Brazil, 6 ^{19-23,135}	ENT, musculoskeletal, NS	ENT patients, students	N ¹⁹ , Y ²⁰ , Y ²¹ , N ²² , N ²³ , N ¹³⁵	N ¹⁹ , N ²⁰ , N ²¹ , N ²² , N ²³ , N ¹³⁵
Cameroon, 2 ^{24,136}	NS, malaria	Subjects, patients	N ²⁴ , N ¹³⁶	N ²⁴ , N ¹³⁶
China, 4 ²⁵⁻²⁸	Antibiotics, psoriasis	Students, subjects, patients		
Croatia, 2 ^{29,30}	NS, analgesics	Students	N ²⁹ , N ³⁰	N ²⁹ , N ³⁰
Czech Republic, 1 ¹³⁹	NS	Students	Y ¹³⁹	N ¹³⁹
Democratic Republic of Congo, 1 ¹³⁸	Malaria	Patients	N ¹³⁸	N ¹³⁸
Egypt, 3 ³¹⁻³³	NS	Subjects	N ³¹ , n ³² , y ³³	N ³¹ , n ³² , n ³³
Ethiopia, 5 ^{6,34-36,139}	NS, antibiotics	Subjects, patients, pregnant women	Y ⁶ , y ³⁴ , y ³⁵ , n ³⁶ , y ¹³⁹	N ⁶ , n ³⁴ , n ³⁵ , n ³⁶ , y ¹³⁹
Europe, 3 ¹⁴⁰⁻¹⁴²	Antibiotics	Subjects	Y ¹⁴⁰ , y ¹⁴¹ , n ¹⁴²	N ¹⁴⁰ , n ¹⁴¹ , n ¹⁴²
Euro-Mediterranean, 1 ³⁷	Antibiotics	Patients	Y ³⁷	N ³⁷
Finland, 2 ^{38,39}	NS	Subjects, children	N ³⁸ , n ³⁹	N ³⁸ , n ³⁹
France, 1 ⁴⁰	NS	Patients	Y ⁴⁰	N ⁴⁰
Germany, 1 ⁴¹	Endocrinology	Patients	N ⁴¹	N ⁴¹
Ghana, 1 ⁴²	Antibiotics	Students	Y ⁴²	N ⁴²
Greece, 3 ^{43,44,143}	NS, antibiotics	Subjects	N ⁴³ , n ⁴⁴ , y ¹⁴³	N ⁴³ , n ⁴⁴ , n ¹⁴³
Guatemala, 1 ⁴⁵	Antibiotics	Subjects	Y ⁴⁵	N ⁴⁵
Hong Kong, 3 ^{46,144,145}	NS, antibiotics	Subjects, students	Y ⁴⁶ , y ¹⁴⁴ , y ¹⁴⁵	N ⁴⁶ , n ¹⁴⁴ , n ¹⁴⁵
Hungary, 1 ¹⁴⁶	NS	Pharmacy patients	Y ¹⁴⁶	N ¹⁴⁶
India, 10 ^{47-53,147-149}	NS, dysmenorrhea	Hospital staff, housewives, students, subjects, patients	N ⁴⁷ , y ⁴⁸ , y ⁴⁹ , y ⁵⁰ , y ⁵¹ , y ⁵² , y ⁵³ , y ¹⁴⁷ , y ¹⁴⁸ , y ¹⁴⁹	N ⁴⁷ , n ⁴⁸ , n ⁴⁹ , n ⁵⁰ , n ⁵¹ , n ⁵² , n ⁵³ , n ¹⁴⁷ , y ¹⁴⁸ , n ¹⁴⁹
Indonesia, 2 ^{54,150}	Antibiotics	Subjects, patients	Y ⁵⁴ , n ¹⁵⁰	N ⁵⁴ , n ¹⁵⁰
Iran, 8 ⁵⁵⁻⁶¹	Antibiotics, NS	Subjects, pregnant women, patients	Y ⁵⁵ , y ⁵⁶ , y ⁵⁷ , y ⁵⁸ , y ⁵⁹ , Y ⁶⁰ , n ⁶¹	Y ⁵⁵ , n ⁵⁶ , y ⁵⁷ , y ⁵⁸ , y ⁵⁹ , Y ⁶⁰ , n ⁶¹
Iraq, 1 ⁶²	Antibiotics	Subjects	N ⁶²	N ⁶²

Ireland, 1 ¹⁵¹	NS	Students	N ¹⁵¹	N ¹⁵¹
Israel, 1 ⁶³	Antibiotics	Subjects	N ⁶³	N ⁶³
Italy, 1 ¹⁵²	Antibiotics	Parents	Y ¹⁵²	N ¹⁵²
Jordan, 5 ^{64,65,153-155}	Antibiotics, NS	Subjects, students	Y ^{64,y^{65,y¹⁵³}, Y^{154,y¹⁵⁵}}	N ^{64,n^{65,n¹⁵³}, N^{154,n¹⁵⁵}}
Kuwait, 2 ^{66,67}	Diabetes, NS	Diabetic patients, students	Y ^{66,y⁶⁷}	N ^{66,n⁶⁷}
Lao, 1 ¹⁵⁶	NS	Subjects	Y ¹⁵⁶	N ¹⁵⁶
Lebanon, 1 ⁶⁸	Antibiotics	Patients	N ⁶⁸	N ⁶⁸
Libya, 1 ⁶⁹	Antibiotics	Students	N ⁶⁹	N ⁶⁹
Lithuania, 2 ^{70,71}	Antibiotics	Subjects	Y ^{70,n⁷¹}	Y ^{70,n⁷¹}
Macedonia, 1 ⁷²	Uruti	Patients	Y ⁷²	N ⁷²
Malaysia, 2 ^{13,73}	NS	Students	Y ^{13,y⁷³}	N ^{13,n⁷³}
Mexico, 2 ^{74,75}	Dysmenorrheal, NS	Females students, urban adults	Y ^{74,n⁷⁵}	N ^{74,n⁷⁵}
Mongolia, 1 ¹⁵⁷	Antibiotics	Children	Y ¹⁵⁷	N ¹⁵⁷
Mozambique, 1 ¹⁵⁸	NS	Students	N ¹⁵⁸	N ¹⁵⁸
Nepal, 1 ⁷⁶	NS	Subjects	Y ⁷⁶	N ⁷⁶
Nigeria, 16 ^{77-88, 91-94}	Infantile colic, dentistry, NS, ENT, antibiotics, antimalarial	Dental patients, pregnant women, ENT patients, hospital workers, mothers, medicine vendors	N ^{77,n^{78,y⁷⁹}, Y^{80,y^{81,n⁸²}, N^{83,y^{84,y⁸⁵}, Y^{86,y^{87,y⁸⁸}, Y^{91,y^{92,y^{93,n⁹⁴}}}}}}}	N ^{77,n^{78,n⁷⁹}, N^{80,n^{81,n⁸²}, N^{83,n^{84,n⁸⁵}, N^{86,y^{87,n⁸⁸}, N^{91,n^{92,n^{93,n⁹⁴}}}}}}}
Pakistan, 7 ^{95-100,159}	Antibiotics, NS	Subjects, students	Y ^{95,y^{96,y⁹⁷}, Y^{98,n^{99,n¹⁰⁰}, Y¹⁵⁹}}	N ^{95,n^{96,n⁹⁷}, N^{98,n^{99,n¹⁰⁰}, N¹⁵⁹}}
Palestine, 2 ^{101,102}	NS	Students, subjects	Y ^{101,y¹⁰²}	N ^{101,n¹⁰²}
Poland, 2 ^{103,160}	Antibiotics	Patients	N ^{103,y¹⁶⁰}	N ^{103,n¹⁶⁰}
Portugal, 2 ^{104,105}	NS, antibiotics	Subjects	Y ^{104,n¹⁰⁵}	N ^{104,n¹⁰⁵}
Romania, 2 ^{106,107}	Antibiotics, analgesics	Subjects, students	N ^{106,y¹⁰⁷}	N ^{106,n¹⁰⁷}
Saudi Arabia, 5 ^{108,109,161-163}	NS, analgesics, antibiotics	Subjects, students, parents	Y ^{108,y^{109,y¹⁶¹}, Y^{162,n¹⁶³}}	N ^{108,y^{109,n¹⁶¹}, Y^{162,n¹⁶³}}
Serbia, 2 ^{110,164}	NS	Students, subjects	N ^{110,n¹⁶⁴}	N ^{110,n¹⁶⁴}
Slovenia, 3 ¹¹¹⁻¹¹³	NS	Students, subjects	Y ^{111,n^{112,n¹¹³}}	N ^{111,n^{112,n¹¹³}}
Spain, 3 ^{114,165,166}	Antibiotics, analgesic, NS	Subjects	N ^{114,y^{165,y¹⁶⁶}}	N ^{114,y^{165,y¹⁶⁶}}
Sri Lanka, 1 ¹¹⁵	Antibiotics	Students	N ¹¹⁵	N ¹¹⁵
Sudan, 3 ^{4,116,117}	Antibiotics, antimalarial, NS	Students, subjects	Y ^{4,y^{116,y¹¹⁷}}	N ^{4,n^{116,n¹¹⁷}}
Sweden, 1 ¹¹⁸	Antibiotics	Subjects	Y ¹¹⁸	N ¹¹⁸
Thailand, 2 ^{119,120}	NS	Students	N ^{119,n¹²⁰}	N ^{119,n¹²⁰}
Turkey, 3 ^{121,167,168}	Antibiotics	Subjects, students, patients	Y ^{121,n^{167,y¹⁶⁸}}	N ^{121,n^{167,n¹⁶⁸}}
UAE, 2 ^{122,123}	Antibiotics, NS	Book fair visitors, Students	N ^{122,y¹²³}	N ^{122,n¹²³}
Uganda, 2 ^{124,169}	Antibiotics	Subjects, patients	Y ^{124,y¹⁶⁹}	N ^{124,n¹⁶⁹}
USA, 4 ^{125,170-172}	NS, antibiotics	Subjects, students	N ^{125,y^{170,y¹⁷¹}, y¹⁷²}	N ^{125,n^{170,n¹⁷¹}, n¹⁷²}
Vietnam, 1 ¹²⁶	NS	Subjects	Y ¹²⁶	N ¹²⁶
Yemen-Saudi Arabia-Uzbekistan, 1 ¹⁷³	Antibiotics	Teachers	N ¹⁷³	N ¹⁷³

Descriptive components

The descriptive components are shown in the Table 1. Studies have been done in geographically diverse locations coming from Africa, Asia, Middle-East, Europe and America. Majority of the studies were from Nigeria 16 (10.1%) followed by India 10 (6.3%) and Iran 8 (5%).

Number of respondents included in these studies varied from 72 to 20311. Out of 158 studies, 82 (51.9%) studies were done without focus on any specific therapy area, but 43 (27.2%) studies were done in the area of antibiotic self-medication. Large number of studies had students 46 (29.1%) and normal subjects 60 (37.9%) as respondents,

although a few assessed patients 29 (18.3%), or pregnant women 5 (3.2%).

Socio-demographic components

Most studies (106; 67%) were done with adult population, while some studies were done in children (8; 5%) or geriatric population (4; 2.5%) and other age groups (40; 25.3%). In 52 (32.9%) studies respondents were enquired about income, while education and health insurance component was investigated in 134 (84.8%) and 32 (20.2%) studies respectively.

Self-medication practices components

Most of the study questionnaires enquired about reasons (147; 93%), purchasing source (136; 86%) and medical conditions to be treated with self-medication (153; 96.8%). Sixty-seven (42.4%) studies had a question on adverse event/s after self-medication and only 24 (15.1%) studies enquired about use of prescribing information while practicing self-medication. Twenty (46.5%) studies done in the area of antibiotics, assessed antibiotic resistance awareness.

Implementation characteristics

Majority of the studies (57; 36%) were done at homes of respondents, while some were done at university (35; 22.1%), hospital (32; 20.2%), pharmacy (17; 10.7%), and other places (17; 10.7%) such as market, medicine vendor, shopping mall, book fair, school, online. For 74 (46.8%) studies survey questionnaire were self-administered, out of which for 3 studies, questionnaire was sent by post. For 84 (53.1%) studies respondents were interviewed face to face to get the necessary information. Studies reported recall periods ranging from - on the day of the study, to ever. 37 (23.4%) studies did not report any recall period for self-medication.

Performance characteristics

Reported response rates varied from 17.9% to 100% for the studies. Validity of the study questionnaire was reported for 100 (63.3%) studies while 15 (9.5%) studies reported reliability test of the study questionnaire.

DISCUSSION

Self-medication has been an active area of research because of its rising global prevalence, and associated problems like incorrect self-diagnosis; inadequate treatment of a disease leading to disease progression and adverse events, drug interactions, antibiotic resistance and most importantly waste of public resources.¹¹⁷

Many studies have been done to assess the prevalence and practices of self-medication. There has been variation in the measures of self-medication practices as depicted by survey questionnaires from various studies. This

variation can give rise to confusion for health researchers at the same time some variation reflects differences in research focus i.e., developing a specific questionnaire to assess self-medication in specific therapy area, age group, or among specific occupation.

While focusing on socio-demographic component it was observed that considerably high number of studies 134 (84.8%) enquired about education of the respondents while income 52 (32.9%) and health insurance 32 (20.2%) components were investigated in minimal number of studies. Education, income and health insurance have been shown to play an important role in the practices of self-medication.^{76,121,127} Study questionnaires with all three components i.e. education, income and health insurance will not only help to gain better understanding but also to suggest policy measures in the area of self-medication.

The World Health Organization recently reported alarming levels of resistance to antibiotics in member countries.¹²⁸ The misuse of antibiotics poses a serious risk to infectious disease control and public health in general.^{128,129} Twenty (46.5%) studies done in the area of antibiotic self-medication assessed patients' knowledge/awareness about antibiotic resistance. While 67 (42.4%) studies enquired about adverse drug reactions and use of prescribing information 24 (15.1%) during self-medication. Stricter implementation of regulatory policies for prescription medicines might be useful to increase awareness of critical areas as affected by self-medication practice; it may promote rationale drug use.

Amidst this variety, the following three topics were consistently covered by the questionnaires: reasons for self-medication, source of purchase and medical conditions for which self-medication is done. This consistency suggests that these items are viewed as core dimensions of self-medication practices questions. Other frequently seen topics were education of the respondent and adverse events following drug consumption. In our view questions on income, health insurance, and verification of prescribing information should also be considered for a core set of questions, even if our review indicated that they have been less commonly addressed in past research.

In the implementation part most questionnaires were administered at (57; 36%) homes of the respondents. While other locations (101; 63.9%) like university, hospital or pharmacies were also used which was in line with the objectives of specific studies intending to cover respondents like general population, patients or students.

For (84; 53.1%) of the studies done as face to face interviews, questionnaires were filled in by researchers. Face to face interviews involve more-direct contact, it may be more difficult for the respondent to feel anonymous. This may lead to report more socially desirable answer and underreporting of self-medication

practices.¹³⁰ At the same time self-administered questionnaires may fail to get the required information due to limited understanding of the questions, inability of the respondents to get clarifications or details.¹³¹ Authors feel that ethical balance, guaranteed anonymity, proper communication and study explanation to respondents can offer solution to this dilemma.

There was great variation in the recall periods. This is noteworthy as it is a potential bias for collecting information on self-medication practices. Comparison of recall information about present and past medication use with prospective data from pharmacies and clinic has revealed that respondents had accurate recollections not only about medication use but also start dates of therapy. It was also reported that longer recall period were related to more inaccuracies.¹³² However, it is not logical to simply generalize that shorter recall periods are more beneficial. This may also give false negative information as chances of sickness in shorter time frame and hence associated self-medication may be minimal. Longer recall periods may also give additional time points to respondents to give data regarding adverse events, self-medication diseases. Recall period should be fine-tuned with the help of pilot studies to compare information against available sources such as medical records at pharmacy shops.

Validity of the study questionnaire was reported for 100 (63.3%) studies while only 15 (9.5%) studies reported reliability test of the study questionnaire. Validity is the extent to which a questionnaire measures what it is intended to measure or more broadly, the range of interpretations that can be reasonably attributed to a measure. Reliability refers to the stability of a measurement - the extent to which a questionnaire will provide the same result on separate occasions.¹³³ Validity and reliability should be done and reported as standard practice. Without this information it is difficult to evaluate the appropriateness of the studies or to use them for further research.

It is evident that the decades of attention to research in the area of self-medication have obscured the importance of the need to develop standardized questionnaire to assess the self-medication practice. The overall lack of attention to have a standard set of questions is not consistent with their practical importance. As no standard measurement technique exists for assessing the self-medication practices, based on the literature review done in the present study, authors will like to propose a standard questionnaire to meaningfully measure the self-medication practices in further research projects (Appendix-1).

CONCLUSION

An attempt has been made to provide a review of selected measures designed to assess the concepts of potential interests to epidemiology and public health researchers.

As far as we are aware, this systematic review is the first review on the questionnaires to determine self-mediation practices. The plethora of survey questionnaires measuring self-medication practices is heartening. The overall lack of attention to standardizing the questionnaire components is not consistent with their practical importance. To continue to overlook them will only serve to limit our understanding of the phenomena that we, as epidemiology and public health researchers, are so interested in understanding. It is certainly desirable to use a self-medication questionnaire with standardized self-medication practices components, survey implementation and performance items. Finally this review may help to focus on various components like self-medication practices, implementation, performance etc. while studying self-medication practices and will also offer some insights on critical evaluation of study instruments or questionnaires.

STUDY STRENGTHS

- This is the first systematic review of questionnaires for determining self-medication practices.
- A rigorous methodology was used which included a very sensitive and comprehensive search strategy, a duplicate and independent selection process, and a duplicate and independent data review process.

STUDY LIMITATIONS

- PubMed and Web of Sciences were the only 2 databases used for survey of literature.
- This review included articles published only in the timeframe of 1st January 2000 to 31st December 2015.
- Articles published only in English language were included in this review.

IMPLICATIONS AND CONTRIBUTION

This study unfurled the abundance of diverse survey questionnaires to assess self-medication practices. It enumerated various components (descriptive, socio-demographic, self-medication practice, implantation, performance) of the self-medication practices questionnaires. Finally this review emphasized the need to have a standardized survey questionnaire to gain the meaningful insights in the self-medication practices and authors have proposed a pilot tested and validated self-medication questionnaire.

Appendix

Limaye Dnyanesh. Appendix 1 Self-medication study questionnaire [Data set] 2017. Zenodo. <http://doi.org/10.5281/zenodo.826877>

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