Internal Dynamics of Self–Medication (SM)

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Abstract

Recently, especially during Covid-19, there has been an increasing trend of Self-Medication (SM) in rural and semi urban areas of India. There are various contributing factors for these practices. It is defined as the use of medicine by patients on his own initiative or on the advice of pharmacists, previous prescription, and suggestion of family members of friends instead of consulting qualified doctors. The medicines which are available with pharmacists without prescription or over the counter (OTC) are known to be part of self-medication. A medicine that requires doctors’ recommendation is known as prescribed product (Rx products). The present work discusses the positive sides at individual level and community level and at the same time possible risks involved at community level and individual level. It was found that even though there were various risks involved due to self-medication, people in rural and semi-urban areas also find some positive side of the same. Most importantly they believe that it reduces the cost of travelling, and cost of consultation with doctor. Sometimes due to past experience of the same sort of diseases or symptoms, people opt for self-medication practices. The study concludes that Potential benefits at individual levels were self-reliance for preventing minor disease and saving of time & energy. Similarly the same for the community level were extending the health care services to the needy people in rural and remote areas and saving scare medical resources for minor treatments/diseases. Potential risk at individual levels Failure to report or recognize the adverse drug reactions. Failure to seek appropriate medical assistance immediately and from the community point of view wasteful public expenditure and will lead to family disturbance due to death of member of family.

Keywords

Health care
Covid-19
Self- Medication (SM)
Doctors
Pharmacists
**Introduction**

Self-medication is a part and parcel of our self-care system for our health [1]. It is taking in drugs and herbs and home remedies with one’s self initiative or with the suggestion of another person without consulting qualified medical practitioner [2]. Newspaper advertisement, TV advertisement, popular magazines, friends, family members, neighbors, past prescriptions, pharmacists, and friends are the important influencers for self-medication [3]. It is also found that most of the times government directly or indirectly influences the self-care of minor health issues including self-medication. Sometimes people are encouraged towards this because it helps to reduce the cost of treatment, travelling time or treatment time [4]. The various impacts of self-medication include wastage of resources, serious health hazards such as prolonged suffering and adverse health issues [5]. Government should take regulatory measures for self-medication. This can be done by making the availability of drugs in markets with proper instructions of consumption and where ever needed to consult physicians [6]. In India it is very much a challenge to healthcare providers due to this self-medication. These days health care services are a costly affair and also inadequacy of these facilities in the developing countries leads to self-medication most of the times [7]. It is also observed that some of the drugs that need prescription in the developed countries are available in OTC form in the developing and underdeveloped countries. In addition to that, relaxation of distribution of these drugs leads to proliferation of counter free drugs that are in high demand for the treatment of highly prevalent diseases [8]. Self-medication is very common nowadays and it is used worldwide [9]. Self-medication is very common in India, among both literate and illiterate masses [10]. The patient psyche has changed to a great extent. They are sometime competent enough to take care of minor diseases with proper medical diagnosis and occasional professional opinion from doctors. They prefer to avoid visiting doctors as they feel that they can manage themselves with adequate information [11]. Urge of self-care, feeling of sympathy towards family members during sickness, lack of time, lack of health services, financial constraint, ignorance, misbelieves, extensive advertisement, availability of drugs, and illiteracy are accountable for growing trend of self-medication [12]. Improper self-medication could result in increase in drug induced diseases and wasteful public expenditure (Table 1) [13].

| Category       | Drugs                                           |
|----------------|-------------------------------------------------|
| Cough and cold | D-cold, total, corex, benadryl, glycodin, Analgesics  
|                | Sadiron, disprin, diclofenac, nimesulide, paracetamol, ibuprofen |
| Antipyretics   | Calpol, crocin                                  |
| Antiseptic     | Ciprofloxacin, norfloxacin, amoxicillin, cefadroxil |
| Antibiotics    | Ciprofloxacin, norfloxacin, amoxicillin, cefadroxil |
| Others         | Daburchyawanprash                               |

**Classification According to Size**

Depth of burn injury divides into superficial (first degree), superficial partial thickness (second A degree), deep partial thickness (second B degree), full thickness (third degree) and fourth degree. Size of burn injury classified into minor and major. Superficial burn injury affects the upper area of the epidermis layer, which its consequences are pain and erythema. Superficial partial thickness is deeper than first degree. Blister, pain and scar inducing are prominent symptoms of superficial partial thickness so it needs dressing but doesn’t need surgery (Figure 2). Deep partial thickness due to destruction of pain receptors is less painful, dry and susceptible to scarring so it needs surgery. Full-thickness burns involve epidermis and dermis (all layers of skin) so it’s not painful, susceptible to infection so more attention and surgery are needed. In the fourth degree burn injury deeper tissues are destructed so lead to tissue loss or amputation (Table 2).
### Table 2: Review of literature

| Number | Year | Authors | Findings/observations |
|--------|------|---------|-----------------------|
| 1      | 2008 | Zafar S.N., et.al. [14] | Self-medication is common and positive. |
| 2      | 2013 | Pandy R.N., et. al [15] | Self-medication was mostly found in young generation. |
| 3      | 2010 | Abay [16] | Non seriousness towards illness and prior experience were the important factors for self-medication. |
| 4      | 2012 | Silva M.G., et.al. [17] | Knowledge about medicines leads to self-medication. |
| 5      | 2013 | Kumar et. al [18] | Stringent policy measures need to be implemented for controlling the supply of medicine without prescription. |
| 6      | 2014 | Shaghaghi A., et al [19] | The reason(s) for engaging in self-medication practice in developing countries have been reported to include lack of medical insurance, expensive hospitals visits/consultation fees, easy public access to the prescribed medications. |
| 7      | 2014 | Rout et. al. [20] | The most common indication for self-medication was for immediate relief for symptom of trivial ailments. |
| 8      | 2014 | Salami et. al [21] | Use of previously prescribed drugs when similar symptoms reappear and to use old prescriptions for new drugs. |
| 9      | 2014 | Belkina T., [22] | Availability of non-prescribed drugs leads to more and more self-medication. |
| 10     | 2010 | Nalini G.K., [23] | Self-medication is high among old age people. |
| 11     | 2018 | Kassie A.D., et. al [24] | Earlier studies concluded that around 32.5-81.5 of world population practice self-medication. |
| 12     | 2018 | Noon J., et. al [25] | Self-medication helps cost of medical treatment, reduces burden on government, health care system and at the same time reduces the burden on insurance companies for claim settlement. |
| 13     | 2020 | Yang Y., [26] | SM mainly created by media because confusion created by them people diverted towards self-medication. |
| 14     | 2020 | Onchonga D., [27] | Due to Covid-19 the people used to search medicines in Google and become more habituated towards Self medication. |
| 15     | 2020 | Johnson R.M., et.al. [28] | SM should be used for minor diseases not for the mild and moderate ones. |
| 16     | 2020 | Atif M., et. al [29] | A holistic approach needed in the form of education and regulatory issues for controlling the Self mediation. |
| 17     | 2020 | Mallhi T.H., et.al. [30] | Positive support from health care agencies will reduce the self-medication. |
| 18     | 2020 | Alhomound F., et.al [31] | Mass movement is required to educate the people about the SM's positive and negative sides and this will help to control the SM to a great extent. |
| 19     | 2021 | Sineenart C., et.al[32] | According to the study findings, it is recommended that more information about the risks of self-medication, drug adverse reactions, antibiotic stewardship, more supervision of the prohibition of over-the-counter drugs and selling practices, and adequate facilities for people's access to medical services be provided at the policy level. |
| 20     | 2021 | Abebe B.M., et al. [33] | More than two-thirds of the study participants practiced self-medication. Being from an urban area, having access to a private pharmacy, and higher year of study positively affect self-medication practice. |
| 21     | 2021 | Wuraola A.S., et al [34] | Prevalence of self-medication among the studied healthcare students is moderately high, while approximately half demonstrates good knowledge and perception of self-medication practices. Stimulation for self-medication practice largely arise from the perception of treating minor ailments. This underscores a need for advocacy on responsible self-medication practice during the formal training of these future health professionals, in order to avert its imminent/widespread negative consequence. |

### Objectives of the study

To study the potential benefits at individual level and community level.

To understand potential risks at individual and community level.

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To contribute to the existing literature related to self-medication

**Scope of Study**
The present study will be restricted to the various parts of semi-urban and rural areas of Odisha. It will include doctors, pharmacists, and members representing the study areas. The participants will include both male and female members of the study areas.

**Methodology**
The present research includes both primary and secondary sources. In this direction, data is collected from all parts of the state of Odisha and tries to represent all stakeholders. This study is based on cluster and random sampling. The attributes are finalized after pilot study and focus group discussion with various stake holders in the study areas. Eight focus group discussions conducted over the period of six months consisting of 10 members in each group and providing equal representation in the group from all sections of the society. Initially 29 variables were identified, however after the pilot study and focus group discussions the variable got restricted to 23 only. This includes 5 for the potential benefits of self-medication at the individual level, 5 from the potential benefits of self-medication at community level, 10 from potential risks involved in self-medication at individual level and rest from the potential risks of self-medication at community level. Weighted score method is used for analysis. In this regard each attribute is measured under 5-point Likert type scale. For strongly agree - weight 4 was allotted, for agree- weight 3 was allotted, for neutral- weight 2 was allotted, for disagree weight 1 was allotted and for strongly disagree weight 0 was allotted (Table 7).

**Calculation of respondents’ perception: Ideal and least score**
Ideal score is calculated by multiplying the number of respondents in such category with (4) and product with total number of variables. Least score calculated by multiplying the number of respondents in each category with (0) and product with number of attributes in the group or category (Table 3).

| Category                   | Potential benefits of self-medication at individual level (5 attributes) | Potential benefits of self-medication at Community level (5 attributes) | Potential risks of self-medication at individual level (10 attributes) | Potential risks of self-medication at Community level (3 attributes) |
|----------------------------|--------------------------------------------------------------------------|-------------------------------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------|
|                            | Ideal score | Least score | Ideal score | Least score | Ideal score | Least score | Ideal score | Least score |
| Male respondents of rural areas (96) | 1920 | 0 | 1920 | 0 | 3840 | 0 | 1152 | 0 |
| Female respondents of rural areas (91) | 1820 | 0 | 1820 | 0 | 3640 | 0 | 1092 | 0 |
| Male respondents of semi-urban areas (103) | 2060 | 0 | 2060 | 0 | 4120 | 0 | 1236 | 0 |
| Female respondents of semi-urban areas (94) | 1880 | 0 | 1880 | 0 | 3760 | 0 | 1128 | 0 |

**Sample size for unknown population**
\[ N = Z^2 \times P \times (1-P)/C^2 \]
\[ = 384 \]

Where as
\[ Z = \text{Standard normal deviation set at 95\% confidence level is 1.96} \]
\[ P = \text{Percentage picking choice or response is 0.5} \]
\[ C = \text{Confidence interval is 0.05} \]

**Results and Discussion**
As seen in Table 4, 24.48% belongs to age group of 18-30, 34.38% in the age group of 30-50 and remaining were above 50 years of age. Out of the
total respondents, 51.82% were male and rest was female. In case of marital status 14.82% were unmarried and rests were married. In case of education 32.81% were school dropouts, 32.03 were under graduates, 15.36% were graduates, 10.94% were post graduates and rest were other professionally qualified persons.

On the basis of place of stay 48.70% were rural back ground and rest were semi-urban back ground. In case of regular monthly income 11.45% were above Rs50,000 income, 13.73% having income range of Rs25,000-Rs50,000, 32.29% were in the income bracket of Rs10,000- Rs25,000 and remaining falls in the group of below Rs10,000. In case of amount spent on medical expenses purpose 50% participants below Rs1,000, 36.20% respondents between Rs1,000 – Rs5,000 and rest spent more than Rs5,000 per month.

### Table 4: Socio-Demographic Profile of the respondents

| Variables                  | Category                  | Frequency | Percentage |
|----------------------------|---------------------------|-----------|------------|
| Age in years               | 18-30                     | 94        | 24.48      |
|                            | 30-50                     | 132       | 34.38      |
|                            | 50 above                  | 158       | 41.14      |
| Sex                        | Male                      | 199       | 51.82      |
|                            | Female                    | 185       | 48.18      |
| Marital status             | Married                   | 327       | 85.16      |
|                            | Unmarried                 | 57        | 14.84      |
| Education                  | School dropout            | 126       | 32.81      |
|                            | Under graduate            | 123       | 32.03      |
|                            | Graduate                  | 59        | 15.36      |
|                            | Post graduate             | 42        | 10.94      |
|                            | Other professionally qualified | 34  | 8.86       |
| Place of stay              | Rural                      | 187       | 48.70      |
|                            | Semi urban                | 197       | 51.30      |
| Monthly income             | 0-10,000                  | 98        | 25.53      |
|                            | 10,000- 25,000            | 124       | 32.29      |
|                            | 25,000- 50,000            | 118       | 30.73      |
|                            | 50,000 and above          | 44        | 11.45      |
| Amount spent on medicine monthly | Below Rs1,000 | 192 | 50.00 |
|                            | 1000-5000                 | 139       | 36.20      |
|                            | 5000- above               | 53        | 13.80      |

Source: Primary data

In Table 5, responding to the symptoms for self-medication for headache 21.61%, 24.48% for respiratory, 23.96% for fever, 13.80% for eye disease, 5.99% for skin disease, 7.29% for gastrointestinal disease and rest for others. In regard to duration of illness before using self-medication, within 12 h 30.99%, within 24 hours 24.22%, within 48 hours 22.66%, within 72 h 8.85%, within a week 7.03% and remaining more than a week.

Responding to the question related to reasons for self-medication, 19.79% believe that disease is not serious, 16.67% believe that due to emergency, 10.94% feels that due to prior experience, 10.16% believe that less expensive in terms of time and money, 18.49% due to suggestion by family members, 11.46% feel that suggestion by friends and rest feel that due to old prescriptions.

Responding to the drug request way or type, 10.02% by describing the shape or another mode, 13.80% by presenting piece of paper where name of the drug is written, 16.67% by showing old sample/ package of the drugs, 34.38% by telling symptoms of illness, rest by mentioning the name of the drugs (Table 6).

Responding to the type of drugs requested 24.74% requested for analgesic/ antipyretic, 20.31% requested for antimicrobial, 17.45% requested for respiratory drugs, 19.01% requested for gastrointestinal drugs, 11.46% requested for vitamin and remaining for others.

Responding to the source of drugs for self-medication, 51.30% purchased from pharmacists, 10.94% used the unused medicine at home,
23.18% from friends and family members, rest from herbalists.
Responding question about knowledge of drug requested, 55.73% opined that name of the drug, 10.94 feel that due to indication, 9.24% feel dose, 7.29% feel how to use, 9.64% knowledge about frequency, 3.13% knowledge about duration and rest feel that storage at home. Responding to the source of information for self-medication, 22.14% aware of the medicine, 9.90% read leaflet or promotional material, 20.57% advised by doctors, nursing staff or health workers without prescription, 24.22% advised by friends and relatives, 8.85% from internet and rest from pharmacists those working in pharmacy.

**Table 5:** Symptoms for self-medication and duration of illness before self-medication

| Variables | Frequency | Percentage |
|-----------|-----------|------------|
| Symptoms do participants use self-medication | | |
| Headache | 83 | 21.61 |
| Respiratory | 94 | 24.48 |
| Fever | 92 | 23.96 |
| Eye disease | 53 | 13.80 |
| Skin disease | 23 | 5.99 |
| Gastrointestinal disease | 28 | 7.29 |
| Others | 11 | 2.87 |
| Duration of illness before using self-medication | | |
| Within 12 hours | 119 | 30.99 |
| Within 24 hours | 93 | 24.22 |
| Within 48 hours | 87 | 22.66 |
| Within 72 hours | 34 | 8.85 |
| Within a week | 27 | 7.03 |
| More than a week | 24 | 6.25 |

Source: Primary data

**Table 6:** Reason, source of drug information for self-medication etc

| Particulars | Details | Frequency | Percentage |
|-------------|---------|-----------|------------|
| Reasons for self-diagnosis or self-medication | Disease is not serious | 76 | 19.79 |
| | Emergency use | 64 | 16.67 |
| | Prior experience of drugs | 42 | 10.94 |
| | Less expensive in terms of time and money | 39 | 10.16 |
| | Suggestion by family members | 71 | 18.49 |
| | Suggestion by friends | 44 | 11.46 |
| | Old prescriptions | 48 | 12.49 |
| Drug request way/ type | By mentioning the name of the drugs | 97 | 25.26 |
| | By showing old sample/ package of the drugs | 132 | 34.38 |
| | By presenting piece of paper where name of the drugs is written. | 64 | 16.67 |
| | By describing the shape or another mode | 53 | 13.80 |
| | By describing the shape or another mode | 38 | 10.02 |
| Type of drugs requested | Analgesic/ antipyretic | 95 | 24.74 |
| | Antimicrobial | 78 | 20.31 |
| | Respiratory drugs | 67 | 17.45 |
| | Gastrointestinal drugs | 73 | 19.01 |
| | Vitamins | 44 | 11.46 |
| | Others | 27 | 7.03 |
| Sources of drugs for self-medication | Purchased from pharmacists | 197 | 51.30 |
| | Unused medicines at home | 42 | 10.94 |
| | From friends and family members | 89 | 23.18 |
| | From herbalists | 56 | 14.58 |
### Continue of Table 6

| Particulars                                                                 | Details                                                                                       | Frequency | Percentage |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-----------|------------|
| **What is the knowledge about drug requested? (If any specific drug is requested)** | Name of the drug                                                                             | 214       | 55.73      |
|                                                                             | Indication                                                                                  | 42        | 10.94      |
|                                                                             | Dose                                                                                        | 37        | 9.64       |
|                                                                             | How to use                                                                                  | 28        | 7.29       |
|                                                                             | Frequency                                                                                   | 37        | 9.64       |
|                                                                             | Duration                                                                                   | 12        | 3.13       |
|                                                                             | Storage at home                                                                             | 14        | 3.63       |
| **Source of information for self-medication**                               | Aware of the medicine                                                                       | 85        | 22.14      |
|                                                                             | Read leaflet or promotional material                                                        | 38        | 9.90       |
|                                                                             | Advised by doctors, nursing staff or health workers without prescription                    | 79        | 20.57      |
|                                                                             | Advised by friends and relatives                                                           | 93        | 24.22      |
|                                                                             | From internet                                                                               | 34        | 8.85       |
|                                                                             | From pharmacists those working in pharmacy                                                  | 55        | 14.32      |

Source: Primary data

### Table 7: Weighted score of various respondents

| Attributes                                                      | Aggregate weighted score |  |  |  |  |  |
|----------------------------------------------------------------|--------------------------|----------------|----------------|----------------|----------------|----------------|
| **Potential benefits of self-medication at individual level**   |                          | Male respondents of rural areas | Female respondents of rural areas | Male respondents of semi-urban areas | Female respondents of semi-urban areas |
| An active role for the own health care                          | 302                      | 315                      | 340                      | 300                      |
| Self-reliance for preventing minor disease                      | 358                      | 289                      | 320                      | 292                      |
| Learning opportunities on specific health issues                | 313                      | 305                      | 351                      | 292                      |
| Saving of time and energy                                       | 331                      | 305                      | 349                      | 305                      |
| Saving in consultancy fees for minor health care issues.       | 325                      | 295                      | 316                      | 309                      |
| **Total score**                                                 | **1629**                 | **1509**                 | **1676**                 | **1498**                 |
| **Ideal score**                                                 | **1920**                 | **1820**                 | **2060**                 | **1880**                 |
| **Least score**                                                 | 0                        | 0                        | 0                        | 0                        |
| **Percentage of total score to ideal score**                   | 84.84%                   | 82.91%                   | 81.36%                   | 79.68%                   |
| **Potential benefits of self-medication at Community level**   |                          |                          |                          |                          |
| Saving scare medical resources for minor treatments /diseases   | 325                      | 279                      | 332                      | 309                      |
| Lowering the cost of community funded health care programs     | 303                      | 293                      | 305                      | 296                      |
| Reducing absenteeism from work places due to minor health care issues. | 266                      | 282                      | 308                      | 286                      |
| Managing the health care services where health care workers are in sufficient. | 271                      | 301                      | 333                      | 320                      |
| Extending the health care services to the needy people in rural and remote areas | 313                      | 297                      | 334                      | 295                      |
| **Total score**                                                 | **1478**                 | **1452**                 | **1612**                 | **1506**                 |
| **Ideal score**                                                 | **1920**                 | **1820**                 | **2060**                 | **1880**                 |
| **Least score**                                                 | 0                        | 0                        | 0                        | 0                        |
| **Percentage of total score to ideal score**                   | 76.98%                   | 79.78%                   | 78.25%                   | 80.11%                   |
| **Potential risks of self-medication at individual level**     |                          |                          |                          |                          |
| Incorrect self-diagnosis                                        | 299                      | 296                      | 333                      | 309                      |
| Failure to seek appropriate medical assistance immediately.    | 331                      | 283                      | 299                      | 296                      |
| Incorrect choice of therapy                                     | 304                      | 284                      | 301                      | 297                      |
| Failure to recognize pharmacological risks                      | 306                      | 282                      | 315                      | 294                      |
| Rare but severe adverse effects                                 | 323                      | 279                      | 310                      | 314                      |
Potential benefits of self-medication at individual level

In case of male respondents of rural areas, self-reliance for preventing minor disease gets first preference followed by saving of time and energy, saving in consultancy fees for minor health care issues, Learning opportunities on specific health issues and an active role for the own health care. In case of female respondents of rural areas, an active role for own health care stood first preference followed by equal weight by learning opportunities on specific health issues and saving of time and energy, saving in consultancy fees for minor health care issues and self–reliance for preventing minor disease.

In case of male respondents of semi-urban area, learning opportunities on specific health issues, saving of time and energy, an active role for own health care, self–reliance for preventing minor disease and saving in consultancy fees for minor health care issues are the order of preference.

In case of female respondents of semi-urban areas, the order of preference were saving scare medical resources for minor treatments /diseases, extending the health care services to the needy people in rural, managing the health care services where health care workers are in sufficient and reducing absenteeism from work places due to minor health care issues.

The overall percentage of total score to ideal score taking all the attributes for male respondents of rural areas, female respondents of rural areas, male respondents of semi-urban area and female respondents of semi-urban areas were 84.84%, 82.91%, 81.36% and 79.68% respectively.

Potential benefits of self-medication at community level

For female respondents of rural areas, managing the health care services where health care workers are in sufficient was first preference followed by extending the health care services to the needy people in rural and remote areas, lowering the cost of community funded health care programs, reducing absenteeism from work places due to minor health care issues and saving scare medical resources for minor treatments /diseases.

For male respondents of rural areas, the order of preference was saving scare medical resources for minor treatments /diseases, extending the health care services to the needy people in rural, lowering the cost of community funded health care programs, the health care services where health care workers are in sufficient and reducing absenteeism from work places due to minor health care issues.

In case of male respondents of semi-urban areas, the preference order was extending the health care services to the needy people in rural, managing the health care services where health care workers are in sufficient, scare medical resources for minor treatments /diseases,
reducing absenteeism from work places due to minor health care issues and lowering the cost of community funded health care programs.

Responding to the questions by the female participants in the semi-urban areas, managing the health care services where health care workers are in sufficient stood first choice followed by saving scarce medical resources for minor treatments /diseases, lowering the cost of community funded health care programs, extending the health care services to the needy people in rural and reducing absenteeism from work places due to minor health care issues.

The overall percentage of total score to ideal score taking all the attributes for male respondents of rural areas, female respondents of rural areas, male respondents of semi-urban area and female respondents of semi-urban areas were 76.98%, 79.78%, 78.25% and 80.11% respectively.

Potential risks of self- medication at community level

Joining the survey, the female respondents of semi-urban areas, the order of preferences -will lead to family disturbance due to death of member of family stood first followed by wasteful public expenditure, and increased drug induced disease.

Similarly for the male respondents of semi-urban areas, will lead to family disturbance due to death of member of family stood first, increased drug induced disease and wasteful public expenditure.

In case of female respondents of rural areas- will lead to family disturbance due to death of member of family stood first followed by wasteful public expenditure, and increased drug induced disease.

For the male respondents of rural areas- will lead to family disturbance due to death of member of family stood first followed by wasteful public expenditure, and increased drug induced disease.

Potential risks of self-medication at individual level

In case of male respondents of rural areas, the opinion on the basis of weight score were failure to seek appropriate medical assistance immediately, followed by rare but severe adverse effects, inadequate or excessive dosage, excessively prolonged use, failure to report or recognize the adverse drug reactions, failure to recognize pharmacological risks & incorrect route of self-administration, incorrect choice of therapy and incorrect self-diagnosis.

For the male respondents of semi-urban areas, the opinion was failure to report or recognize the adverse drug reactions flowed by incorrect self-diagnosis, failure to report present self-medication to the physician, inadequate or excessive dosage, failure to recognize pharmacological risks, incorrect route of self-administration, rare but severe adverse effects, excessively prolonged use, incorrect choice of therapy and failure to seek appropriate medical assistance immediately.

For the female rural respondents, the preferences for the various variables were, incorrect self-diagnosis, followed by incorrect choice of therapy, equal weight for the failure to seek appropriate medical assistance immediately & failure to report present self-medication to the physician, failure to recognize pharmacological risks, rare but severe adverse effects, excessively prolonged use, failure to report or recognize the adverse drug reactions, Incorrect route of self-administration and inadequate or excessive dosage.

Finally for the female respondents of sub-urban areas the perception for the various attributes according to first choice and followed by others were, incorrect route of self-administration, incorrect self-diagnosis, failure to report or recognize the adverse drug reactions, inadequate or excessive dosage, excessively prolonged use, Failure to report present self-medication to the physician, incorrect choice of therapy, failure to seek appropriate medical assistance immediately and failure to recognize pharmacological risks.

The overall % of total actual score to ideal for the male respondents of rural areas, female respondents of rural areas, male respondents of semi-urban area and female respondents of sub-urban areas were 80.65%, 76.57%, 77.04% and 81.25% respectively (Figures 1-4).
Figure 1: Potential benefits of self-medication at Individual level
Source: Table 7

- Saving in consultancy fees for minor health care issues.
- Saving of time and energy.
- Learning opportunities on specific health issues.
- Self-reliance for preventing minor disease.
- An active role for the own health care.

Figure 2: Potential benefits of self-medication at Community level
Source: Table 7

- Extending the health care services to the needy people in rural and remote areas.
- Managing the health care services where health care workers are in sufficient.
- Reducing absenteeism from work places due to minor health care issues.
- Lowering the cost of community funded health care programs.
- Saving scarce medical resources for minor treatments/diseases.

Figure 3: Potential risks of self-medication at Individual level
Source: Table 7

- Excessively prolonged use.
- Inadequate or excessive dosage.
- Incorrect route of self-administration.
- Failure to report or recognize the adverse drug reactions.
- Failure to report present self-medication to the physician.
- Rare but severe adverse effects.
- Failure to recognize pharmacological risks.
- Incorrect choice of therapy.
- Failure to seek appropriate medical assistance immediately.
- Incorrect self-diagnosis.
**Suggestions**

- Role of health workers is more important. They should counsel the people about the negative side of self-medication and advise them to avoid such practices which will help to control the diseases.
- Proper information of usage of drugs should be informed such as the frequency and quantity to be used.
- Proper health education should be given to the patients.
- Pharmacists can play a crucial role for motivating people against the self-medication.
- Pharmacists should guide the patients to consult the physicians before consuming the medicines.
- Family members and friends should restrain from suggesting unwanted medicines.

**Conclusions**

SM is a very contemporary topic and we experience in day-to-day life. This is being experienced in the day to day life among all of us. It is very core area in health care service and at the same time very major concern for all the health care providers. It may provide better health care with better cost efficiency and saving of time but inappropriate SM practices will lead to serious health issues. SM may lead to incorrect diagnosis, adverse effects, drug interaction and antibiotic resistance etc. There are various laws to control the SM but various challenges related to people in general cannot be ignore. There is need for creating awareness among the general public is the need of the hour to have some desired control in self-medication. There is a need for a movement among the public for awareness about the positive side and negative impact of SM. Most of the time it was found that people try to adopt SM practices due to influence of family members and friends. This needs to be controlled if the nature of disease is serious and for the minor diseases it is fine. Immediate qualified doctor's consultation should be followed instead of SM. It was also observed during the study at individual and community level, and most of the respondents practice the SM with the consultation of pharmacists. These practices should be minimized and those pharmacists should counsel the public to visit the hospitals and take the advice of the specialist and use the medicine. This approach will have more impact for controlling the self-medication.

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Conflict of Interest
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