Perceptions Influencing Self Medication with Antibiotics and/or Antimalarials among the Households in Nyalenda B Sub-Location, Kisumu County, Kenya

Owour I. A.*, Prof Alwar J., Oyugi H.

Tropical Institute of Community Health, Great Lakes University of Kisumu
*Corresponding author: isabelowuor@yahoo.com

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Abstract

Objectives: This study was designed to investigate the level of self medication with antibiotics and/or antimalarials and perceptions influencing the practice among the households in Nyalenda B Sub Location. Methods: This is a cross sectional study carried out on 350 systematically sampled household heads after clustering the households into five clusters of 70 households in November 2012. Quantitative primary data was obtained through the administration of pretested structured questionnaires comprising of likert scales, multiple and closed ended questions on the perceptions of consumption of self medication as a good and a service and questions establishing the demographics of the consumers. Results: The proportion of self medication with antibiotics and/or antimalarials is 76.9% (95% CI: 3.01-3.17) and the households perceptions influencing the practice are availability of information through advertisement (OR: 2.065, 95%CI: 1.218-3.502, p-value 0.007) of antibiotics and/or antimalarials and advise given by medical practitioners (OR: 0.467, 95%CI: 0.272-0.800, p-value0.006), distance from the health facility (OR: 2.743, 95% CI:1.042-5.009, p-value: 0.001), inadequately equipped local health facilities (OR:1.948, 95% CI:1.042-3.642, p-value: 0.037), sexually transmitted diseases (OR: 1.869, 95% CI: 1.039-3.362, p-value, 0.037). Conclusion: Households perceive self medication with antibiotics and/or antimalarials as convenient and appropriate and this has an influence on the practice.

Keywords: self medication, antibiotics and/or antimalarials, Household’s perceptions


1. Introduction

Self-medication is the obtaining and consumption of a drug without the advice of physician either for diagnosis, prescription or surveillance of the treatment or medication of oneself without the advice of a physician [2] or the use of medication by a patient on his own initiative or on the advice of a pharmacist or a lay person instead of consulting with a medical practitioner [3].

Self-medication with prescription only medicine can readily relieve acute medical problems, but most importantly, it can save the time spent in waiting to see a doctor, and even save life in a cute condition and may contribute to decreased healthcare cost [4]. The practice may associate with risks. From studies [5,6] it is reported that self-medication with prescription only medicine results in wasting of resources, increase in pathogens resistance and generally entails serious health hazards such as risk of drug interactions, adverse drug reactions, prolonged suffering and drug dependence [4,7,8,9].

Kenya bureau of statistics [10] states that the prevalence of self medication in Kenya is 58.2%, in Nyanza it is 68.5% and in Kisumu it is 64.8%. Legal provisions exist in Kenya to govern dispensing practices of pharmaceutical personnel [11] and professional codes of conduct exist governing their professional behavior [12,13]. There is irrational dispensing of antibiotics at retail pharmacies and formal health care facilities with patient self medication and consumer demand for specific antibiotics (i.e. up to 1/3rd of the population uses retail pharmacies as their first point of care, with a large majority of clients demanding specific drugs). Over 94% of pharmacies interviewed in Nairobi indicated a willingness to negotiate antibiotic treatment protocols to meet the financial needs of clients. Laws and policies are in place to manage antibiotics, but government regulation is neither effective nor enforced [14].

The National major causes of outpatient morbidity are infectious diseases [15] and the physician patient ratio is one to 17,000 [16] as opposed to one to 1,000 which is WHO recommendation [17], this could have an effect on the patient perception on health care services and product.

The patient's perception of quality of care is critical to understanding the relationship between quality of care and utilization of health services and is now considered an outcome of healthcare delivery [18,19].

Perceived service delivery quality is the manner in which service is made accessible to consumers, it borders...
on the attitude of service providers and “Service delivery seems to imply service encounters that entail more intense and deliberate use of emotions” [20].

Self medication service providers have realized that consumers are concerned with the process of how the service is delivered along with the outcome of the service [21].

Perceived service quality has been considered as one of the primary drivers of customer satisfaction [22,23].

Grönroos (1984) [24] define service quality as a perceived judgment, resulting from an evaluation process where customers compare their expectations with the service they perceive to have received. The author also suggests that service quality issues can be split into technical quality or service content (product) and functional quality or service delivery (how it is done).

Bateson and Hoffman (1999) [25] states, when a consumer purchases a service, he or she purchases an experience created by the delivery of that service. During the consumption experience, various types of emotions can be elicited, and these customer emotions convey important information about how the customer will ultimately assess the service encounter and subsequently, the overall service quality. If the customer is displaying positive emotions during the service encounter, it is expected that he or she will also form positive perceptions of the service.

The perception of service consumption are developed from these dimensions of service consumption experience and the factors influencing behaviour as reflected in the theory of reasoned action. They are perceived ease of use (convenience), perceived usefulness or appropriateness, perceived service quality, perceived value.

Perception of performance level affects customer’s satisfaction directly or indirectly via disconfirmation [26,27,28,29]. Perceived service quality is described in terms of customer’s assessment of the overall excellence or superiority of the service [30]. Parasuraman, Zeithaml and Berryll (1985,1988) [31] consider that a customer’s assessment of the overall service quality depends on the gap between expectations and the perceptions of actual performance level. The determinants of perceptions are presumably influenced by attributes of the service delivery process.

Despite the growing research interest in self medication, information on perceptions of self medication with antibiotics and/or antimalarials among households is lacking in developing countries especially in Nyalenda B Sub Location. This study investigated households’ perceptions on procurement and on response (transformational experience) thus making a distinction between perception of self medication with antibiotics and/or antimalarials as a good and as a service in order to enhance effective provision and acquisition of antibiotics and/antimalarials.

2. Methodology.

2.1. Study Design

This is a cross sectional descriptive study that focused on primary quantitative data. Structured questionnaires of four likert scale, multiple choices and closed ended questions were administered to sampled household heads in Nyalenda B Sub Location, Kisumu County. The respondents were selected by random and systematic sampling of all and any type of household.

2.2. Study Area

The study was conducted in Nyalenda B Sub Location, Kisumu County. Nyalenda B stretches from Kachok junction on the Kisumu-Nairobi highway to Dunga and Nanga primary school, it lies between latitudes 0° 6’ 0”S and longitude 34° 45’0”E. and features smaller units or villages (Kilo, Got Owak, Dunga, Nanga and Western). The area coverage is 4.7 sq. km and a population of approximately of 32,430, 16,189 male, 16241 female, 8561 households and a population density of 6,886 people per sq. km[32] In Kisumu an estimated 60 percent of the population lives in informal settlements, with the majority living in abject poverty [33]. The choice of the study area was informed by the population density and the need to achieve the MDGs which will not be possible without efforts made to gather essential data identifying household perceptions on self medication as well as their urgent needs in such sectors as health. Self medication with antibiotics and/or antimalarials has been identified as a form of health seeking behaviour that results in wasting of resources and prolongs suffering [3,7,8,34].

2.3. Study Population

The study target population consisted of all households (8561 households [32]) in Nyalenda B Sub Location Kisumu County. The sample population consisted of 350 household drawn from this population.

2.4. Sampling Method

The study combined cluster sampling technique and systematic random sampling technique. The aerial cluster sampling method was used and it divided Nyalenda B into five clusters and to further to identify the respondents we used systematic random sampling method. The sample size was 350 and this was divided among the 5 villages (clusters) in Nyalenda B Sub location, therefore each cluster had 70 households. The study decided on a sample interval of 7 by allocating 500 households to each cluster to allow for some uniformity in the level of spacing.

The first household was picked randomly by getting a central place in the village and numbering the households in vicinity, each number was then assigned a piece of paper and one of them unconsciously picked and became the first household interviewed. The next household was picked by jumping 7 households until a total of 70 households were reached in each village.

2.5. Determination of the Sample Size.

The sample size was calculated using the formula below

\[ n = \frac{Z^2 \cdot p \cdot (1-p)}{d^2} \]

Where

\[ n = \text{sample size} \]
\[ Z = \text{Statistics corresponding to a chosen level of confidence} \]
\[ p = \text{Expected prevalence} \]
\[ d = \text{Precision} \]
This formula was applied in a study done among university students in South West Nigeria [36] and among households in an urban slum community in Asia [37] to establish factors influencing self medication with prescription only medicine among the targeted population to calculate the sample size.

Using this formula the sample size is calculated at P = 65% this is approximate prevalence of self medication in Kisumu District [10] and N = 349.59.

\[ n = \frac{(1.96)^2 \times 65\% \times (1 - 65\%) \times (0.05)^2}{(0.05)^2} \]

\[ n = \frac{(1.96)^2 \times 0.65 \times 0.35}{0.0025} \]

n = 350

This is supported by the Saunders Mark et al., (2003) formula for calculating sample size

\[ N = \frac{p\% \times (1-p\%) \times (z/e\%)^2}{d^2} \]

N = 0.65 x 0.35 x (1.96/0.05) (1.96/0.05).

Therefore N = 349.59.

Krejcie and Morgan (1970) [39] who worked out a sample size table. From the table if the population of study is 7000 or about and you need a sufficient number to generate a 95% confidence interval that predicts the characteristics of the population under study with a marginal error of + or – 5 % then the sample population will be 378.

This study used 350 as the sample size.

2.6. Study Instrument and Conduct

Studies on consumers perceptions has been carried out using questionnaires with standardized set questions in a 5 likert scale [40], 3 Likert scale [41], in depth interviews [42] and focused group discussions [43]. This study used a pretested structured questionnaires with standardized set questions in a 4 likert scale, multiple choices and closed ended questions that were responded to as the questions suggested.

This enabled objective assessment of the level and perceptions of self medication with antibiotics and/or antimalarials. The instrument also offered anonymity, further reducing social pressure and hence social desirability bias [44]. Likert scale allowed the individuals to make decisions on their level of agreement and so tapping into the cognitive and affective components of attitudes 45, each item had equal value therefore the scores were for the respondents and so giving quantitative data which is fast and easy to analyse. Logistic regression analysis to predict perceived factors that influence self medication with antibiotics and or antimalarials among households in Nyalenda B Sub Location, Kisumu County was done.

The structured questionnaire contained items assessing the prevalence and perceptions of self medication with antibiotics and or antimalarials among households in Nyalenda B Sub Location and was administered to the sampled households after taking informed consent. The head of each sampled household was the respondent, in the absence of the household head the interview was postponed to a later date. Help of Community health volunteers was taken to establish rapport with the respondents. Questionnaires provide a high degree of data standardization and adoption of generalized information amongst any population. They are useful in a descriptive study where there is need to quickly and easily get information from people in anone threatening way [46]. The questionnaires were self administered by the respondent in the presence of an enumerator to aid the respondents in understanding the questions where necessary and to avoid unresponed to questions. The questionnaire was structured so as to get definite responses which the study required in a relatively short time and to cover a larger.

The administration of study instrument took place from 27th–30th November, 2012.

2.7. Validity and Reliability

The research assistants went through one day training on objective data collection.

A pretest was done to ascertain the appropriateness of data collection instruments, identify any issue that could affect their administration besides correcting areas where ambiguity and weaknesses were identified and to confirm that the enumerators understood the instrument well. The pretest was conducted within Kilo Village and each of the enumerators administered the questionnaires to three households randomly picked. These very households were marked to prevent them from participating in the study.

2.8. Data Analysis and Presentation Techniques

Data was entered, analyzed and digitally stored with the assistance of Statistical Package for the Social Sciences (SPSS) version 17. The data was cleaned and analyzed using descriptive and inferential statistics. Results have been presented as proportions, along with 95% confidence interval (CIs) in form of tables.

Descriptive statistics was used to describe socio-demographic characteristics of the respondents, the level of self medication with antibiotics and/or antimalarials and perceptions of self medication with antibiotics and/or antimalarials.

Logistic regression were applied to estimate odds ratio, 95% confidence and p-values <0.05 for the significant association between households perceptions and self medication with antibiotics and/or antimalarials.

The predictor variables were households’ perceptions on procurement of self medication with antibiotics and/or antimalarials factors which included perceived ease of use (convenient) perceived usefulness (Appropriate) and households’ perception on responses (transformational experience) to self medication with antibiotics and/or antimalarials factors which included perceived treatment, drug resistance ,adverse effects of drugs , drug toxicity and non treatment. The criterion variable was the actual self medication with antibiotics and/or antimalarials.

3. Results

3.1. Respondent Demographic Characteristics

Majority of the respondents (42.9%) are of age 20-34 years, 58.9% were males, 56.0% were fathers, 45.7% were
Christian Protestants, and 88.6% had a net income of less than Ksh10,000 and 91.7% had attained primary education and above.

3.2. The Level of Self-medication with Antibiotics and/or Antimalarials

The proportion of the households of Nyalenda B households self medicating with antibiotics and/or antimalarials is 76.9%

3.3. Perceptions on Self Medication with Antibiotics and/or Antimalarials as a Good.

A) Perception on responses to self medication with antibiotics and/or antimalarials

Majority of the respondents reported were not fully recovered from their illnesses (45.7%) and cured of their illnesses (42.0%). A good number of households (51.2%) are misusing or overusing medications, 36.9% reported resistance or misdiagnosis and 46.6% underuse. Negative effects of drugs rise from mild adverse effect to drug toxicity. Most respondents have reported a known medicine that makes one sick whe n taken (47.1%) and having been taken to the hospital for drug effect (37.1%), this can be due to non-response to treatment, adverse effect or drug toxicity

B) Table 1

<table>
<thead>
<tr>
<th>Variables in Equation</th>
<th>% (n)</th>
<th>p-value</th>
<th>OR</th>
<th>95.0% CI for OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory tract infection(1)</td>
<td>76.5% (176)</td>
<td>.614</td>
<td>1.170</td>
<td>.635 - 2.154</td>
</tr>
<tr>
<td>Gastrointestinal tract infection(1)</td>
<td>76.1% (172)</td>
<td>.947</td>
<td>.979</td>
<td>.522 - 1.838</td>
</tr>
<tr>
<td>Sexually transmitted infection(1)</td>
<td>69.7% (83)</td>
<td>.0 37</td>
<td>1.869</td>
<td>1.039 - 3.362</td>
</tr>
<tr>
<td>Eye disease(1)</td>
<td>75.6% (136)</td>
<td>.845</td>
<td>.941</td>
<td>.510 - 1.735</td>
</tr>
<tr>
<td>Headache/Fever(1)</td>
<td>77.0% (204)</td>
<td>.920</td>
<td>1.032</td>
<td>.558 - 1.908</td>
</tr>
<tr>
<td>Skin disease(1)</td>
<td>75.4% (144)</td>
<td>.865</td>
<td>1.053</td>
<td>.579 - 1.916</td>
</tr>
<tr>
<td>Maternal diseases(1)</td>
<td>73.9% (68)</td>
<td>.968</td>
<td>.987</td>
<td>.524 - 1.861</td>
</tr>
</tbody>
</table>

3.4. Perceptions on Self Medication as a Service

A) Table 2

<table>
<thead>
<tr>
<th>Variables in Equation</th>
<th>% (n)</th>
<th>p-value</th>
<th>OR</th>
<th>95.0% CI for OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency use(1)</td>
<td>78.4%(181)</td>
<td>.605</td>
<td>.847</td>
<td>.450 - 1.592</td>
</tr>
<tr>
<td>Disease not serious (1)</td>
<td>82.4%(159)</td>
<td>.064</td>
<td>1.755</td>
<td>.968 - 3.184</td>
</tr>
<tr>
<td>Prevention of known or unknown disease (1)</td>
<td>68.9%(62)</td>
<td>.026</td>
<td>.506</td>
<td>.278 - .921</td>
</tr>
<tr>
<td>Prior experience with the drug(1)</td>
<td>68.9%(62)</td>
<td>.659</td>
<td>.856</td>
<td>.429 - 1.707</td>
</tr>
<tr>
<td>Less expensive in terms of time or money(1)</td>
<td>77.1%(175)</td>
<td>.120</td>
<td>.611</td>
<td>.329 - 1.136</td>
</tr>
<tr>
<td>Proximity to the pharmacy(1)</td>
<td>73.5%(100)</td>
<td>.628</td>
<td>.850</td>
<td>.442 - 1.637</td>
</tr>
<tr>
<td>Health facility is far(1)</td>
<td>84.4%(179)</td>
<td>.001</td>
<td>2.743</td>
<td>1.502 - 5.009</td>
</tr>
<tr>
<td>Health facility not adequately equipped(1)</td>
<td>81.3%(122)</td>
<td>.037</td>
<td>1.948</td>
<td>1.042 - 3.642</td>
</tr>
</tbody>
</table>

B) Table 3

<table>
<thead>
<tr>
<th>Variables in Equation</th>
<th>% (n)</th>
<th>P-value</th>
<th>OR</th>
<th>95.0% CI for OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mentioning the name of the drug(1)</td>
<td>73.1(117)</td>
<td>.139</td>
<td>.677</td>
<td>.404 - 1.134</td>
</tr>
<tr>
<td>Mentioning the group of the drug(1)</td>
<td>72.7(32)</td>
<td>.719</td>
<td>.863</td>
<td>.386 - 1.928</td>
</tr>
<tr>
<td>Mentioning the symptoms of illness (1)</td>
<td>76.8(183)</td>
<td>.665</td>
<td>.884</td>
<td>.507 - 1.543</td>
</tr>
<tr>
<td>Presenting an old sample or package(1)</td>
<td>85.0(34)</td>
<td>.146</td>
<td>2.121</td>
<td>.769 - 5.852</td>
</tr>
<tr>
<td>Presenting an old prescription(1)</td>
<td>62.2(46)</td>
<td>.001</td>
<td>.360</td>
<td>.200 - .647</td>
</tr>
<tr>
<td>Describing the shape or color of the drug(1)</td>
<td>87.5(14)</td>
<td>.414</td>
<td>1.909</td>
<td>.404 - 9.024</td>
</tr>
</tbody>
</table>

C) Table 4

<table>
<thead>
<tr>
<th>Variables in Equation</th>
<th>% (n)</th>
<th>P-value</th>
<th>OR</th>
<th>95.0% CI for OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read label or promotional material (1)</td>
<td>81.8%(189)</td>
<td>.007</td>
<td>2.065</td>
<td>1.218 - 3.502</td>
</tr>
<tr>
<td>Advised by friends or relatives (1)</td>
<td>82.5%(52)</td>
<td>.415</td>
<td>1.366</td>
<td>.645 - 2.895</td>
</tr>
<tr>
<td>Advised by medical practitioners (1)</td>
<td>69.2%(119)</td>
<td>.006</td>
<td>.467</td>
<td>.272 - .800</td>
</tr>
<tr>
<td>Recommended by pharmaceutical personnel (1)</td>
<td>78.1%(171)</td>
<td>.607</td>
<td>1.149</td>
<td>.678 - 1.946</td>
</tr>
</tbody>
</table>
4. Discussion.

4.1. The Level of Self Medication with Antibiotics and/or Antimalarials

The proportion of self medication with antibiotics and/or antimalarials in Nyalenda B Sub Location is above (76.9%) the reported ranges in the developing countries, in Africa it ranges from 24% to 73.9% in Africa [47], 36.1% to 45.8% in the Middle East 48.49,50. 29% in South America [51,52], 4% to 75% in Asia [53] A much lower self medication prevalence has been reported in developed countries with 3% in northern Europe, 6% in central Europe, and 19% in southern Europe [54], but it in Nylaenada B it is lower than Bangladesh where there is no prescription only medicine at present [52].

4.2. Perceived Factors that Influence Self Medication with Antibiotics and/or Antimalarials

One of the perceived factors that influence self medication with antibiotics and/or antimalarials is convenience, since the health facility is far (OR: 2.743, 95%CI: 1.042-5.009, p-value: 0.001) and the local health facilities are in adequately equipped (OR: 1.948, 95%CI: 1.042-3.642, p-value: 0.037) therefore self medication becomes accessible and efficient. A study done in Uyo, Nigeria revealed a higher magnitude (70%) among only illiterate pregnant women that were unable to access prescribed medicine due to distance from the health facility [55]. The other factor is appropriateness, since information on self medication with antibiotics and/or antimalarials is made available through advertisements (OR: 2.065, 95%CI: 1.218-3.502, p-value 0.007), this is also the case in Gujarat [56], advise is given by medical practitioners (OR: 0.467, 95%CI: 0.272-0.800, p-value 0.006) this is similar to Khartoum state Sudan [57] where source of information is either the pharmacist or the doctor (52%, 46%) respectively.

5. Conclusion

The use of self medication with antibiotics and/or antimalarials is high (76.9%). The households perceive self medication with antibiotics and/or antimalarials as convenient and appropriate. The predisposing factors are the perceived long distance from the preferred health facility, inadequately equipped local health facility, low income and time factor. The enabling factors being the perceived availability of information through advertisement of antibiotics and or antimalarials, advise from the pharmaceutical personnel, medication made available by mentioning the symptoms or the name of the medicine, illnesses perceived to be manageable at the pharmaceutical outlets, efficient self medication service delivery. Therefore households perceptions on self medication with antibiotics and/or antimalarials has an influence on the practice.

6. Recommendations

In the view of the level, perceived benefits and risks of self medication with antibiotics and or antimalarials among the households in Nyalenda B Sub Location the Ministry of Health should develop a working party comprising of professionals that are likely to be most affected by the availability of antibiotics and antimalarials for self prescription. This Working party should produce a report on issues relevant to the possibility of switch from POM to P that would be informative to the licensing authorities, pharmacy practitioners, pharmaceutical industries, prescribers, and the public. The working party should avoid groups with vested interests and be composed of experts in drug regulation and specialists in areas of medicine. This will enhance flexibility when dealing with minor infectious illnesses, the general practitioners may gain from having fewer consultations for minor illnesses and have more time for cost effective treatments and the pharmaceutical practitioners would have further opportunities to use their professional knowledge and develop their range of services to the public.
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