

# Recall of Malaria Incidents as a Measure of Health Attentiveness of Women and Men in Rural Sri Lanka

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## Abstract

This paper reports on findings from a survey in Kataragama, Sri Lanka of the recalling of incidences of malaria. The survey was conducted in 1994, when the disease was endemic in the area. The findings were that females were better than males in recalling malaria incidents that had occurred during the previous three months. This paper argues that male/female differences in recalling malaria incidence are a consequence of the social construction of gender, particularly in relation to disease perception, caring for children, treatment seeking and preventive behaviours at the household level. The findings of this study have implications for malaria control programs, particularly at community and household levels. The paper concludes that the principal female in the household, who typically displays a high degree of attentiveness to health issues, could be effectively used for community and household disease control programs aimed at reducing the gap between the onset of the disease and treatment seeking as a means to contain the parasite reservoir of patients.

**Keywords:** Recalling of incidences, Malaria, Health Attentiveness, Rural Sri Lanka

## 1. Introduction

Retrieving information from individual respondents by way of their recalling past events and facts provides the basis of many approaches to data collection in the social sciences. This method is quite explicit in interviews, survey questionnaires, case histories and life histories, all of which are important

tools for gathering information in anthropological research. Information such as age, duration of marriage, number of children, their names and ages, or data such as the amount of land, agricultural yield in the past year, annual income, use of fertiliser and pesticides, family planning practices, and episodes of disease are all collected from respondents, relying on their ability to correctly recall such facts and events.

The obtaining of data through such methods is particularly widespread in developing countries because of the absence of systems or traditions of record keeping and the lack of documentation of past events at the household level. Sometimes, documentary evidence can be used to crosscheck the accuracy of the data provided by the respondent, but often such validation techniques are not feasible on account of low levels of literacy, and the non-availability of documented household data. In such situations, information-gathering systems are dependent on the respondents' ability to recall accurately.

It has been shown that, when interviewing key informants, the recall ability of respondents varies with the type of data being collected (De Nicola and Giné, 2012; Morris and Slocum, 2010; Poggie, 1972; Young, 1961). Information recalled by respondents has been shown to be more accurate in relation to the spatial distribution of houses and buildings in communities than for things with a chronological element, such as events and occurrences that are subject to individual interpretation (Pelto and Pelto, 1972). It has also been shown that carers can recall highly sensitive information, such as episodes of pneumonia in children, even if the recall period is increased from two weeks to four or eight weeks (Campbell et al., 2013).

To obtain data that are more accurate, there are methods and procedures that have been developed in anthropology and sociology to provide the respondent with a suitable context for recalling data. These include various techniques for probing further, isolating the respondent from the rest of the family, providing an appropriate setting for respondents to think freely, cross-checking the information provided by the respondent by sourcing it in a different way, becoming closer to the respondent by establishing rapport and friendship, and using the respondent's native language or dialect words and phrases. In health research, for example, using 'pill boards' or showing carers digital formats, that illustrate a range of local drugs, are ways to promote the correct recall of antibiotic prescriptions (Campbell et al., 2013). Use of these procedures is seen mostly in in-depth interviews, unstructured interviews and case studies, rather than for collecting quantitative data. These methods are designed to obtain detailed information on a specific problem, incident or event with a limited focus and with measures to cross-check the validity and reliability of the information provided.

In dietary recall studies, periods of recall are usually limited to three to four days as lengthening the time increases 'respondent fatigue' and the margin of error. In such studies, after each recording period, the trained interviewer reviews, by probing, the records with the respondent to make sure that the entries were correctly recorded and no foods were forgotten. In addition, the respondents are also trained in the level of detail needed to adequately describe the types of food and ingredients, cooking methods, and amounts cooked and consumed, etc. (Thompson and Byers, 1994). In dietary surveys where such probing techniques are not used, it has been found that anything more than a 24-hour recall period can lead to inaccuracies. In a 24-hour recall study, 'during the self-selected diet period, men and women underestimated energy intake by 11% and 13%, respectively' (Jonnalagadda et al., 2000).

Although different methods, such as participant observation, have been developed in anthropology to enhance the reliability and validity of information, their uses are limited in present-day research, for logistical and practical reasons, particularly in circumstances where information on a particular behavioural matter is required in a very short time. It has also been found that the recall period is an important issue when it comes to different types of data. Certain types of data can be recalled without much distortion over a longer period of one year or even more. These include life events such as births and deaths that have a great bearing upon the respondents' behaviour. However, respondents may find it more difficult to recall accurately other types of data which do not have a significant bearing on individual behaviours, or which form part of the routine, recurrent activities of day-to-day life. It is, therefore, important to establish culturally appropriate recall periods for the collection of data in different fields and domains of research. At the household level, the recollection of health data by members of the family is an important basis for them to make decisions regarding health matters. Immunisation schedules for children are often decided by the woman in the household calling the relevant history (Kempe et al., 2001).

The early diagnosis of malaria followed by appropriate treatment can help to interrupt transmission of the disease and reduce morbidity and mortality. This is particularly so, for example, in Sri Lanka, where malaria has been nearly eliminated, and the former community-based approaches or macro programs with area fogging etc are no longer appropriate strategies for malaria control. The current challenge is to ensure adherence to treatment regimens in those households where individuals are detected with the disease. In particular, 14 per 1,000 returnees from places where malaria is endemic, such as Africa and India, are affected with malaria and need effective treatment procedures in order to curtail the spread of the disease (Wickramage and Galappaththy, 2012). The

identification and training of key carers in affected households could be an effective strategy for managing new malaria cases as they are detected.

Attentiveness is an interdisciplinary concept, which is used in psychology, philosophy and spiritual or religious studies. Attentiveness has many meanings such as awareness, alertness, watchfulness and vigilance, concentration, diligence, thoughtfulness, deliberation and consideration, concern, solicitude, respect, devotion, application and sympathy (Klaver and Baart, 2011). When attentiveness is used in healthcare it is about caring for the patient. It is about caregiver responsibility in respect to an identified need pertaining to the patient requiring care. It involved looking after physical, mental and relational requirements of a care receiving person with the objective of making him or her better and improved in health until the patient becomes disease free and able to look after him or herself independently.

The literature suggests the role of women in seeking treatment for members of their families has been crucial in reducing morbidity and mortality, especially in children (de Silva et al., 2001). Although it is widely known that women play a critical role in seeking medical assistance in Sri Lanka, their abilities as carers have not been assessed. Moreover, it is important to determine the effects on recall data of contextual factors, such as the respondents' level of education, gender, and occupation. This paper aims to examine the attentiveness of females caring for malaria patients, based on data collected in 1993-94, when malaria was endemic in the Kataragama and Buttala areas. The findings of this paper will be useful for developing a strategy for the management of malaria at the household level, based on the high degree of attentiveness of female and male members, at a time when Sri Lanka is seeing malaria episodes among those returning from countries where the disease is endemic. Such a strategy for managing malaria is important, as there is always a risk that sufferers

will tend to choose socially preferred traditional treatments, rather than adhering to those that are prescribed by official healthcare programs.

## **2. Methodology**

This paper examines the degree of accuracy of recalling malaria incidents exhibited by respondents. They were asked to recall incidents of malaria that had occurred in their families during the previous six months (from October 1993 to March 1994). In doing so, the paper ascertained the difference of health attentiveness between males and females as carers of malaria patients in their own families by focussing on the following aspects:

- How different are women from men in recalling malaria incidents?
- Are these differences dependent on the age and marital status of the respondent?
- Is there a relationship between the educational attainment and occupation of the respondent and his/her ability to recall correctly?
- Do males or females as individual respondents recall their own episodes better than their family members do?
- What factors contribute to the differences between males and female in recalling malaria incidents?

### ***Study setting***

The present exercise is a spinoff from a larger study of malaria in Kataragama, Sri Lanka, a project designed to measure the effectiveness of impregnated bed nets for controlling malaria and of improving a community's ability to manage the disease by adopting appropriate methods of detection and

treatment of the infected population. The malaria research program in Kataragama, administered by the Malaria Research Unit (MRU) of Colombo University, is well known, and various aspects of it are well documented (Mendis, et.al., 1990; Gamage-Mendis, et.al., 1991; Bandara et.al., 1995; Abeysekera et al. 1997; Mendis et al., 2000)

The study was carried out in the district of Moneragala in some selected villages in the two Divisional Secretaries divisions of Buttala and Kataragama. The villages are located along the west bank of the river Manik (*Manik Ganga*). The research area had a population of 3,964 people dispersed in 925 households in two villages of Buttala and nine villages of Kataragama.

### **Sample**

The MRU research project maintained a register of all infected people in the selected villages using information collected from the two treatment centres and the hospital clinic that provide diagnostic services and treatment for villagers in the two areas. This data set provided the sampling frame for the present article. It contains information on each individual patient: his or her name, home address, the date of treatment, the severity and symptoms of the disease, past incidents of malaria, and various aspects of malaria entomology.

There were 185 households in three villages randomly selected for the study – 20 per cent of the sampling frame of 925 households. As three households selected for the study did not participate, the final sample consisted of 182 households or 19.68 percent of the total. The study sample had a population of 893 giving an average of 4.9 people per household. There were 160 households in the sample with one or more episode of malaria during the previous six months from 1<sup>st</sup> October 1993 to 31<sup>st</sup> March 1994. The remaining 22 households did not experience any episode of malaria during the period under

investigation. The incidence of malaria in the sample population, as shown in Table 1, indicates that 37% of them had been ill with malaria during the previous six months.

**Table 1**  
Malaria episodes occurring in the sample households  
from October 1<sup>st</sup>, 1993 to March 31<sup>st</sup>, 1994  
by gender and age of patient

Age	Gender		Total
	female	male	
less than 15 years	37	29	66
16-25 years	33	27	60
26-35 years	41	46	87
36-45 years	18	34	52
46-55 years	12	27	39
56 years or more	4	23	27
Total	145	186	331

Source: MRU

A simple questionnaire was used to collect data from the respondents on malaria patients in each sample household. Data were collected for each episode of malaria that had taken place in the household during the six-month period. With reference to each episode, the respondents were asked for the date of occurrence / treatment (as recognised by them); the name, age and gender of the patient; and the respondent's educational level and relationship to the chief householder.

The chief householder was initially regarded as the respondent. However, if the chief householder was not found for interviewing after repeated (usually two to three) visits, the chief householder's spouse was interviewed. If neither of them was found after several visits, another willing member of the

household was interviewed. Interviews were administered after obtaining the verbal consent of the respondent to participate in the study. 37% of respondents were the chief householder or his/her spouse (of whom 52.1% were male and 47.9% female), while 46.7% were their daughter or son, and the remaining 16.3% were the other members of the household. Of the total respondents, 55.9% were female while 44.1% were male.

On average, each respondent was interviewed for about 30 minutes. The interviews were carried out by an interviewer who had not been informed of the past incidents of malaria in the households. The survey was completed within two to three weeks. The rapport established through the larger project in these villages helped to facilitate the interview process of the study.

#### ***Measurement of male – female recall accuracy***

According to MRU documents, there were 331 episodes of malaria in the sample households during the previous six months (see Table 1). Of the 331 actual episodes of malaria in the sample, only 220 (66.4 %) were recalled by the respondents during the survey. Therefore, the respondents were unable to recall 111 episodes that had occurred in their families, and which had, according to MRU records, been diagnosed and treated at the treatment centres during the reference period. Moreover, there were 70 episodes of malaria outside the 331 episodes, which were recalled by the respondents, but for which there were no records available at MRU. These 70 cases might have been diagnosed at treatment centres as non-malarial febrile cases, but perceived as malaria by the respondents. There is also an extremely slim possibility that these patients might have obtained treatment from hospitals outside the research area for which MRU has no records. The 111 episodes have been treated in the analysis as errors committed by the respondents and were assigned a zero accuracy score.

Recall accuracy was measured by calculating the difference between the actual date of the diagnosis or treatment of the episode at any of the treatment centres, and the date of diagnosis or treatment as recalled by the respondent during the survey. Except in very exceptional cases of malaria, the diagnosis and treatment of the disease take place on the same day at the treatment centres or at the hospital in Kataragama. The difference between the reported date and the recalled date was presented as a percentor ranging from 0-100 in the analysis. Those who could not recall the episodes at all were given a rate of 0% accuracy while those who could recall the date as it was mentioned in MRU records were given 100% recall accuracy  $[(\text{total number of days} - \text{the difference between perceived treatment date and the actual date of treatment in absolute value}) / \text{total number of days}]$ . The primary focus of the study was on a comparison of the recall ability of the female respondents with that of the male respondents. In the analysis, however, no attempt was made to examine male/female differences by reference to categories such as father/mother or brother/sister, because of the small sample size. Furthermore, the recall ability of females has been viewed as an index of their attentiveness to broader issues of family health.

**Table 2**  
Number of episodes and average recall accuracy  
by month. (n=331)

Month	Number of Episodes	Average Accuracy
1993 - October	85	36.46
November	42	48.62
December	85	54.51
1994 - January	29	58.51
February	37	63.93
March	53	72.90
All months	331	53.48

Source: Sample survey

### 3. Findings

The sample comprised 182 households with a population of 893 people. There were 331 malaria episodes in the sample for the six-month period from October 1993 to March 1994 as documented in the lists available with MRU. The number of malaria episodes per household varied between zero and ten, with an average of 1.8. The majority of episodes (56.1%) occurred among males and the 26-35 year age category saw the highest percentage (27.4%) of malaria episodes as shown in Table 1. There was no significant difference between the sampling frame (MRU data) and the study sample in terms of the age and sex distribution of the episodes.

### ***Recalling accuracy***

The analysis of the recall data shows that recall accuracy diminishes as the gap between the date of treatment and the date of interview increases (see Table 2). Recall was most accurate for episodes that were treated within the most recent three months and then decreased rapidly. This was true for both male and female respondents, although the accuracy of females was significantly higher than that of males ( $p < .001$ ). After three months had elapsed since the event, average accuracy fell to below 55.0%. In the analysis, the 70 cases that did not have records at MRU were not taken into account. To examine differences in recall accuracy between age and sex groups, we analysed recall data for only those events that occurred during the most recent three months ( $n=119$ ), unless otherwise stated, as the reliability of recall data more than three months after seeking treatment is highly variable. Those people who remembered the dates of treatment fairly well also seemed better able to recall other details. They had paid more attention to the patients and were more directly involved in caring for the sick; knew more about the medication that had been given; and remembered other anecdotal information about particular incidents and malaria in general.

During the most recent three months (from January to March 1994), there were 119 malaria cases recalled by 79 respondents. The average recall accuracy of females during these three months was 69.0, while it was 64.4 for males. During the most recent two months, females also had higher average recall accuracy compared to that of the male respondents. The relationship between demographic variables and the average recall accuracy of male and female responses is shown in Table 3.

**Table 3**  
 Relationship of demographic data to recall accuracy  
 (119 episodes recognised by 79 respondents)

Variable	Attributes	Female	Male
age	Less than 24 years	17 (79.7)	5 (92.5)
	25 to 35 years	25 (62.4)	19 (53.3)
	36 to 45 years	6 (93.3)	21 (61.1)
	46 years or more	8 (48.6)	18 (72.2)
education	Up to grade 2	14 (72.3)	13 (49.5)
	Grade 3-4	8 (93.1)	15 (62.8)
	Grade 5-6	13 (59.0)	8 (46.0)
	Grade 7-8	6 (89.0)	13 (68.7)
	Grade 9 or higher	15 (53.7)	14 (86.6)
employment	employed	4 (79.7)	52 (67.1)
	not employed	52 (68.2)	11 (51.8)
marital status	married	42 (68.0)	38 (68.2)
	single	14 (72.3)	25 (58.7)
Gender	last 3 months	56 (69.0)	63 (64.4)
	last 2 months	47 (72.8)	43 (65.3)
	last month	28 (78.1)	25 (67.0)
Episodes referred to	Respondent (self)	12 (65.3)	25 (78.3)
	Family	44 (70.0)	38 (55.4)

Source: Sample survey

### *Females' ability to recall*

As Table 3 shows, at younger ages (i.e. below 24), both males and females were highly accurate in recalling malaria events that affected them and members of their family. Many people in this age cohort were adolescents who spent most of their time at home assisting their parents, and this is the likely reason for their higher recall accuracy. In respondents who were in the age group of 25-45 years, the recall ability of the sexes diverged widely, females being much more accurate

than males. The males aged 46 years or more recorded a high recall ability of their own individual episodes. Overall, recall accuracy was significantly higher among females than among males when comparing their age groups ( $P(\chi^2 > 19.198) = 0.0002$ ).

The mean age at marriage of Sri Lankan women is slightly less than 24 years (23.5 years according to Director of Health Services, Colombo 2006-2007). On marriage, women begin to take on household responsibilities, which include caring for children and other family members, managing the family finances, doing the household chores, educating children, and often earning money for the family. In the sample, women were engaged in many different occupations including working on the family farm, doing labouring jobs and cultivation work, running boutiques, and sometimes engaging in employments such as pre-school teaching or occasional clerical work in government offices. Women, who manage their families, often as the shared decision maker of the household, are particularly prevalent in the 25-45 age group. Household matters, especially those relating to children, are routinely the responsibility of women. Men are out in the paddy fields or chena farms (slash and burn cultivation) and often not present at home during the daytime. Therefore, the whole responsibility for running the home falls on the shoulders of women in the virtual absence of men. The average recall scores of women and men reflect the gender roles that women and men play in their day-to-day activities, especially for those in the 25-45 age group.

Typical responses include:

*"Let me ask my wife. She knows exactly when this episode occurred. She is the one who provides healthcare in this household. .... She is the one who gives me medicine when I fall*

*ill... She knows where the medicines are kept... She takes the children to the clinic if they fall ill ..."*

*"...these people [a women referring to her husband]are not serious about malaria. Most of the time, they are infected with the disease, and live with it... very often they take leftover malaria pills, or some local or home based treatment....only if they fall extremely ill, do they go for treatment.... So how can they tell you when they fell ill and when they sought treatment..."*

### ***Young females' attentiveness***

When those less than 24 years were disaggregated, it shows that the female respondents who were below 19 years of age could recall malaria episodes of family members more accurately than their own ( $p < .001$ ). 24.7% of female respondents in this age group could recall malaria episodes of their family members within plus or minus one week of the actual date of treatment, compared with only 11.7% of their male counterparts. This shows that females younger than 19 years of age are more attentive to family health than their male counterparts. Adolescent girls assist their mothers in various ways to run the family, a prerequisite for a marriageable girl in village Sri Lanka.

*" ... they [a mother said, referring to her 15-year-old daughter] should remember well because they are trained to remember things at school. ... She hardly gets ill .... If she were ill, she would remember all the details of the episode ... my son is also like that .... However, my daughter remembers these things better than*

*anybody in the family... We have no time to think about these things... we are heavily involved in work ... at chena, paddy field, at home ... cooking..."*

*"...No Amma[mother], I went to the clinic with you on 30<sup>th</sup> of last month ... At the clinic they took some blood from me ... I was asked to take two types of tablets ..." (young girl, aged 14 at the time of interview).*

### ***Female's ability in recalling malaria incidences***

When malaria cases were subdivided into patient-respondents (self) and non-patient respondents (family) as shown in Table 3, the female respondents were significantly more accurate in recalling malaria incidents of their family members than their own ( $P < .05$ ). Males, however, were highly accurate in recalling their own malaria history, but their accuracy in recalling malaria within their families was poor. In terms of recalling episodes of malaria occurring among family members aged under 19, the average recall accuracy was 68.0 among female respondents, compared with 57.2 among males. When analysing the full six months, the difference between recalling family incidents and respondents' own episodes by the respondents become much clearer. These data are shown in Table 4. Here, the recall data is grouped into two categories according to whether the malaria episode affected the respondent (33.8% of the cases) or a member of the respondent's family (66.2% of cases). As Table 4 shows, the ability of females to recall malaria episodes that occurred in their families is significantly higher than that of the male respondents.

**Table 4**  
 Respondents' ability to recall malaria episodes that affected them or members of their families (n=331)

Age	Family				Individual			
	Female		Male		Female		Male	
Less than 24 years	37	70.937	12	36.958	15	63.169	8	35.594
25-35 years	51	54.014	29	44.859	18	45.242	18	62.755
36-45 years	16	50.504	37	48.091	6	38.266	21	59.940
45 or more years	12	39.873	25	48.395	9	47.683	17	71.010
Total	116	57.465	103	45.958	48	50.430	64	60.629
Significance	P( $\chi^2 > 31.031$ ) = 0.0000				P( $\chi^2 > 10.861$ ) = 0.0125			

Source: Sample survey

### ***Employment and recall ability***

The men in the sample were mainly engaged in agricultural work as farmers, chena cultivators or agricultural labourers, while most of the married women identified themselves as housewives. Housewifery is not considered an employment in the villages and hence they are regarded as not employed. There were only a few women in the sample who were employed as teachers and clerks. When compared with those men who were employed and engaged in agriculture, the females rated better in recalling malaria incidents, as shown in Table 3. The men, being agriculturalists working in the paddy and chena fields away from home, were less knowledgeable about health-related matters pertaining to their families. However, when men get married, they become more responsible and are more knowledgeable than unmarried men in recalling incidents of malaria, as shown in Table 3. This phenomenon does not happen in the same way with females, as young unmarried females are already more attentive to family affairs during their youth. The ability to recall malaria incidents

is related to the gender roles of men and women as homemakers or employees that vary with age. However, in this sample, education was not relevant as a further predictor of the recall ability of the respondents.

#### 4. Discussion

This study shows that females become more attentive to malaria with increasing responsibility, particularly during adolescence and when of childbearing age. The high level of accuracy displayed by females in recalling malaria episodes that occurred in their families shows that, in their youth and early childbearing age, they pay more attention to the health of the family and assume a responsible and caring role in the family. After menarche, girls begin to assume household responsibilities, including caring for malaria patients in the family, and this is the key factor behind the recall accuracy of female adolescents. Young females or adolescent girls (*lamissiyo*) are not allowed to leave the house unaccompanied. There are taboos restricting contact between boys and girls, and girls are not allowed to take part in games involving jumping, running and similar physical activities, as these are believed to be harmful for the young girls in maintaining their 'social virginity' or the image of a 'well-behaved young woman'. During adolescence, girls are given added responsibilities in the household for childcare and home management, through which they learn to play the roles of mother and housewife. These role changes, which take place among females in their extended adolescence,<sup>1</sup> become more structured in their early twenties when women become marriageable and ready to assume the roles of housewife and mother. Unmarried young women take on household responsibilities including looking after their younger siblings at home, especially when their parents are away in the paddy fields, chena or in employment. When the females marry and subsequently become mothers, they have to run the

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<sup>1</sup> Extended adolescence is the period from adolescence to marriage, during which time females are expected to behave well and safeguard their social virginity.

house, and take on the responsibility of caring for their children, husband and any other family members living within the household.

The accuracy of recalling malaria events in their families by women in extended adolescence and youth implies that they are more health-attentive than their male counterparts. This may be due to women's involvement in treating and caring for malaria patients in the family. When a child or a family member becomes ill with malaria, it is the woman who spends most of the time with the patient. She cares for the sick, and obtains, prepares and administers medicine. Women's role in malaria control, detection and treatment becomes more apparent during the agricultural season, when the males are busy with activities out in the field and have little time to devote to family affairs or caring for the ill.

In Kataragama, management of health in the family is considered the responsibility of the principal female in the household. She takes care of the sick and the invalid. Women make visits to the hospital and the clinic during pregnancy, childbirth and post-natal care, and, therefore, they are familiar with hospital and clinical staff. Primary care units in the villages, where monthly clinics are held and staffed by female family health workers, who maintain a close association with women of child bearing age through various health programs, may also be a factor that has contributed to the level of health attentiveness of the females in the villages.

Women in their youth and of childbearing age, quite unlike men of a similar age, change their daily schedules and time use patterns to suit the demands of their family and children, especially when members of the latter group are ill. The men, who spend most of the day outside the household in chena farms, paddy fields or in small business ventures near the shrine of

Kataragama, do not have the time or opportunity to become involved in family affairs or caring for the ill. It is the duty of the men, however, to provide money to purchase medicine, and pay for the doctor and transport.

As shown in the analysis (Table 4), men, particularly as they reach adulthood become less concerned with malaria in the family. As revealed in the interviews, most of them not only consider malaria as not worthy of treatment, but also forget malaria episodic history. 63 of the 111 cases recorded in the MRU register that were not recalled by the respondents had been male respondents. 35 of the 63 male respondents were older than 36 years. The forgetting of past malaria events and the reluctance to seek care or treatment for malaria are largely a reflection of their lack of concern over the disease, and constitute a health-compromising behaviour <sup>2</sup> often found in Kataragama. It is generally believed that diseases such as malaria do not affect the males who are 'strong' (*haiyayi*) and 'robust' (*orottudenawa*). For the same reason, adult males resent using mosquito nets. Poor adherence to malaria preventive measures and treatment by adult males is a reflection of these beliefs.

According to villagers, malaria is a serious issue only in children and women:

*"Men often get it and live with it and, therefore, it is a disease that is always found in males. Women and children rarely get it and, if they get it, it becomes severe and needs treatment."*

The analysis in this paper shows that the health attentiveness of females in Kataragama in relation to malaria is a reflection of the social construction of gender in that particular society. The study shows that recall as an index of health attentiveness towards malaria in women increases in line with household

<sup>2</sup> Behaviors practiced by people that undermine or harm their current or future health.

responsibilities. The health attentiveness of women is not influenced by other factors such as education and socio-economic status, a finding that demonstrates the importance of singling out women as a category that could be of influence in improving healthy behaviour at the household level in rural communities in Sri Lanka.

## 5. Conclusions

As shown in the above analysis, women in their youth and of childbearing age, particularly those who were married or running families, were better than their male counterparts at recalling malaria events that had occurred in their families. Their ability to recall the incidence of malaria among their children was far greater than that of the males.

Interviewing women of child-bearing age could be an effective method for establishing accurate incidence rates for malaria in a population over a short period, particularly when documentary or clinical data are not present. Such a recall survey would be much cheaper and less arduous than carrying out a mass blood survey, which requires much preparation, expenditure, labour, and processing time. When invasive procedures such as mass blood surveys are not practical in community settings and experimental research is problematic for ethical reasons, the recall method, with women as respondents, could be used effectively to obtain similar data on past incidents of malaria, as demonstrated in this article.

The poor ability of older people to remember malaria episodes among family members indicates that they pay only cursory attention to malaria within their families, and do not regard malaria as a significant disease. They may have not recognised the importance of obtaining treatment for malaria at the treatment centres and hospital clinics. The confusion of febrile diseases and

malaria is another facet of the ignorance of malaria among older people. They may thus be contributing considerably to the existence of a malaria reservoir in the community. It is extremely important that the right interventions, such as those that use bed nets for malaria control, be directed at those particular age cohorts that are neglected in preventive programs. Such interventions aimed at reducing the gap between the onset of the disease and treatment seeking as a means to contain the parasite reservoir of malaria in endemic populations is vital.

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