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Knowledge and Attitudes Towards Gout among Adults in Dar es Salaam, Tanzania

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Abstract

Introduction

Gout is one of inflammatory disorders of the joints, which is common in elderly men and mostly affecting the tarso – phalangeal joint of the big toe. Despite its increase in prevalence and associated morbidity and mortality for the past few decades, there is limited knowledge regarding this disease in the general population.

Objective

To assess knowledge and attitudes towards gout among adult community members in Temeke district.

Methodology

A descriptive cross – sectional study was conducted at household level among 323 conveniently selected adult community members in Temeke district from 8th - 15th September, 2017 to determine their knowledge and attitudes towards gout using self-administered questionnaires.

Results

Among the 323 participants, 67.8% were females, with mean age of 35.33 years and most (55.4%) had primary education. Those who knew or had knowledge on etiology, risk factors, complications and preventive measures were respectively 3.7%, 18.7%, 12% and 9.9% on average. Furthermore, approximately 79.1% were undecided with regards to different aspects of gout.

Conclusion

The knowledge towards gout in this studied population is low and majority have undecided/neutral attitude towards several aspects of gout. Education provision in addition to emphasis on attitudes change is vital to address this problem.

Keywords: *Gout, Risk Factors, Knowledge and Attitudes.*

Introduction

Urate crystals deposition into the joints may result into an acute inflammatory condition known as gout that is often characterized by joints pain, swelling and impaired joint function.(1-3). This condition runs in families (genetic) and often presents in elderly males and individuals who are obese, excessively drink alcohol or consume red meat, on medications that promote uric acid production (mercaptopurine) or those that inhibit its excretion by the kidneys. It is also more prevalent in patients with diabetes mellitus (DM), hypertension (HTN), chronic kidney disease (CKD), ischemic heart disease (IHD), hyperlipidemia and obesity due to shared risk factors. (1-4). It is thus important to screen for gout in these patients and vice versa as studies indicate that the coexistence of these conditions with gout is associated with increased mortality rates(5). Several studies show that, there is no uniformity in gout statistics across the globe but the general trend is that, the prevalence across countries has been rising for the recent decades with some having a low prevalence of 0.03% while in other places the prevalence is up to 10% and nutrition transition has been the key drive behind this.(5-7).

Knowledge and attitudes towards diseases play significant role on their management. Studies on the knowledge and attitudes towards gout have shown disappointing results. For instance, only 40% of the studies in the United States of America (USA) were knowledgeable about gout while in Qatar, 58% and 28% of the study participants mentioned urate as the gout etiology and nephrolithiasis as one of gout complications, respectively. (4,8,9). It was further shown in the latter study that, only 27% and 23% of the participants could respectively agree with the fact that, gout is more prevalent in aged people and in men and among siblings whose one of their 1st degree relatives had/have gout. (4). Again, in this study, there was observed low knowledge on gout management as only 27% and 37% of the participants could respectively point out the role of medication and lifestyle modifications in gout management. In addition, very few knew the association between the consumption of red meat and gout. (4). A low level of knowledge on the association between gout and other comorbidities was also demonstrated among the study participants as; 22%, 23%, 33% and 25%, respectively, pointed out that, hypertension, diabetes mellitus, sedentary lifestyle and hyperlipidemia could increase the risk for developing gout.(4). With regard to signs and symptoms, this study found that, only 36% and 33% respectively could point out that, gout patients might present with acute joints pain and joints redness and swelling.(4). In USA, almost the similar situation was seen as only 30% of the population had knowledge on either

etiology, risk factors, prevention or complications of gout.(9). Studies done in Netherlands and USA assessing the attitudes towards gout found that, a number patients believed that, gout was neither a serious condition not does it have impact on quality of life and in fact, was not linked with their lifestyle and as a result they did not adhere to the recommended treatment. This negative attitude in another study was found to be associated with poor health seeking behaviors.(10,11).

There is paucity of similar data in Africa and none in Tanzania despite an established evidence of nutrition transition and associated non-communicable diseases (NCDs) occurring in this region.(5,7). This study focused on assessing knowledge on etiology, signs and symptoms, risk factors, prevention and complications. Also, it assessed participants' attitudes towards gout and it is hoped that, the findings may be relied on in providing information about existing gap, in policy formulation against gout and development of further research.

Methodology

Study design

We conducted a cross sectional descriptive study from 8th September to 15th September, 2017.

Study area

The study was conducted in Chang'ombe ward located in Temeke district, Dar es Salaam region in Eastern Tanzania. Temeke is one of the 5 districts in Dar es Salaam region, other districts include Kinondoni, Ubungo, Ilala and Kigamboni. It is bordered on the north by Kinondoni district. To the east of the district is the Indian Ocean and to the south and west is the Coastal region of Tanzania. It has a population of around 1,368,881 of which 699,825 are females and majority (884,693) are in the 15 – 64 years age range (12,13). Human activities conducted in this region include; manufacturing, agriculture, fishing and small-scale businesses. (12,13).

Study population

The study involved individuals within households in Chang'ombe ward, Temeke district, Dar es Salaam. No discrete data describing the characteristics of this particular population, however, the stepwise approach to surveillance (STEPS) national wide survey showed that,

in terms of lifestyle and diseases, the prevalence of selected risk factors for NCDs are as follow: current tobacco users (15.9%), current alcohol drinkers (29.3%), ate less than 5 servings of fruit and/or vegetables on average per day (97.2%), overweight and obese (26%), raised cholesterol (26%) and raised triglycerides (33.8%). In this survey, the prevalence of diabetes was found to be 9.1% and 25.9% for hypertension. (14). We included all adults aged 18 years and above. Those who refused to participate, mentally handicapped and those who could not communicate using Swahili language were excluded.

Sampling technique

A multistage random sampling was done from the region level to the household level. Individuals within the households were conveniently sampled. Of the five districts in Dar es Salaam, Temeke district was chosen using simple random selection. This district has approximately 20 wards and again, through simple random sampling Chang'ombe ward was selected. The households and eligible participants within them were conveniently sampled.

Sample size

The sample size required for the study was calculated from the formula as shown hereunder. Basing on the previous study by Alshammari .et al (2017), the final sample size (N) obtained was 323

$$N = \frac{Z^2 P (100 - P)}{\mathcal{E}^2}$$

Where;

N = sample size

Z = normal standard deviation (as determined by degree of confidence interval CI. Here, chosen as 95% C.I and the corresponding Z was 1.96)

P = proportion of the population with knowledge on gout from previous study
For our study p = 30% from (15)

$\mathcal{E}$ = the margin of error. For this study $\mathcal{E}$ = 5%

Data collection methods and tools

The data was collected by the interviewer using interviewers' administered structured questionnaires where by prior to each interview informed written consent was obtained from the interviewee. This tool was modified from previous studies by Kuo .et al 2015 and *Alshammari et al 2017.* The questionnaire was divided into 4 different sections that reflected

the socio – demographic characteristics of the study participants and components corresponding to each specific objective thus extracting information basing on demographic characteristics of study participants, knowledge on etiology, signs, symptoms and risk factors for gout, knowledge on preventive measures and complications of gout as well as attitudes towards gout. In this study, the author recruited 4 research assistants who collectively aided in the interviewer administered Swahili questionnaires. The medical terminologies including (but not limited to) terms like nephrolithiasis were as well translated to Swahili and explanations were given whenever the interviewee could not understand some of the terminologies. As for the attitudes, on the scale of 5 (Likert scale) the study participants had to select the particular state that befit them as shown in the table below:

Table 1: Likert Scale

Strongly agree	5
Agree	4
Neutral	3
Disagree	2
Strongly disagree	1

Source; (16)

Data processing and analysis

The collected data was fed into the Statistical Package for Social Sciences (SPSS) software version 20 and they were analyzed after being cleaned. This data, was summarized using frequencies and percentages and the presentation was done using frequency distribution tables. For most variables, mean and standard deviation were computed. The attitudes were assessed using Likert scale in which the participants on the scale of five had to select their respective attitudes and from which the frequency was computed.

Ethical consideration

Permission to undertake the research was sought from Muhimbili University of Health and Allied Sciences (MUHAS) ethical review board. The permission to conduct the study was also sought from the district and ward administrations. All study participants were provided with an opportunity to ask questions and clarification was provided when needed. The questionnaires did not include any identifying data like names or contacts and they were disposed of properly to prevent access of the information after their use.

Results

Demographic Characteristics

The average age in this population was 35 years and the study involved more of those in the age range of 18 – 28 years (41.8%), females (67.8%) and married individuals (66.9%). Again, those who had/were primary education and those engaged in businesses outnumbered other groups in this study by 55.4% and 50.8%, respectively (**Table 2**)

Table 2 Demographic characteristics of the study participants (N = 323)1

Characteristics	Frequency (n)	Percentage (%)
Age (years)		
18 - 28	135	41.8
29 – 39	79	24.5
40 – 50	62	19.2
51 – 61	29	9.0
≥ 62	18	5.6
Mean	**35**	
Standard deviation (SD)	**2**	
Sex		
Males	104	32.2
Females	219	67.8
Marital Status		
Single	88	27.2
Married / cohabiting	216	66.9
Separated / Divorced	19	5.9
Level of Education		
No formal education	20	6.2
Primary education	196	60.7
Secondary education	94	29.1
Beyond secondary education	13	4.0
Occupation		
House wife	85	26.3
Peasant	4	1.2
Livestock keeping	1	0.3
Employee	14	4.3
Business person	164	50.8
Others	55	17.0

Knowledge on etiology, signs and symptoms, risk factors and complications of gout

The study findings revealed that, on average, only 3.7% and 18.7%, respectively knew of the etiology and signs and symptoms of gout. Furthermore, those who knew of the risk factors and complications of gout were 12% and 9.9%, respectively. This is summarized in tables 3, and 5.

Knowledge about etiology of gout

With regard to the etiology of gout, only 3.7% of the study participants could mention urate crystals as being implicated while 3.1% and 93.2% either did not agree or did not know respectively.

Knowledge about signs and symptoms of gout

The participants were assessed of their knowledge on the major signs and symptoms of gout; joint pain, joint/tissues swelling and red and hot joints and the findings revealed that, about 18.7% could mention these clinical features, 7.4% disagreed on these and the majority (78.8%) did not know them.

Knowledge on complications of gout

The study participants were asked if they knew that, nephrolithiasis is one of the complications of gout and it was found that, 9.9% were in agreement with this, 2.8% disagreed and 87.3% did not know of this.

Knowledge on Prevention of Gout

As pertaining to the knowledge on preventive measures against gout, on average, only 17.1% of the study participants knew at least one of them. This information is displayed in table 4.

Attitudes towards Gout

The participants were assessed of their attitudes regarding the nature (a very bad and dangerous or less dangerous/ with few or no complications) risk factors and management approaches of gout and on average, most (79.2%) of them had neutral attitude as portrayed in table 5.

Table 3: Proportion of participants with knowledge on risk factors for gout

Risk factors for gout	Agree	Don't agree	Don't know
	%	%	%
Older people are more likely to have gout than Children	15.5	5.9	78.6
Gout can be hereditary	6.2	11.8	82.0
Men, are more likely to develop gout at younger age than women	12.1	8.4	79.6
People with high uric acid level are more susceptible to gout.	5.9	4.0	90.1
Hypertension can increase the risk for gout occurrence.	12.7	5.9	81.4
Hyperlipidemia can increase the risk for gout development	12.1	6.2	81.7
Diabetes mellitus may increase the risk for gout.	12.4	5.9	81.7
Administration of certain drugs may increase the risk for developing gout.	11.1	4.6	84.2
Sedentary life style is among the predisposing factors for developing gout.	15.2	5.0	79.9
Loss of body weight can help decreasing uric acid levels	15.5	4.3	80.2
Increase in consumption of red meat and sea food help in decreasing gout attacks	18.6	1.9	79.6
Alcohol consumption is a risk factor for gout	10.2	6.2	83.6
Consumption of cream and full-fat milk have relation with gout disease	3.1	10.5	86.4
Gout patient should increase amount of fluids and water consumed per day	17	2.5	80.5
Average	**12**	**5.9**	**82.1**

Table 4: Knowledge on prevention of gout.

Statement	Response		
	Agree	Don't agree	Don't know
	%	%	%
Consumption of low purine rich foods can reduce the risk for gout	19.8	2.2	78.0
Physical activity and avoiding sedentary lifestyle can be helpful in gout prevention	17.3	4.3	78.3
Reducing/ avoiding alcohol consumption can reduce the risk for gout	17.6	3.7	78.6

Controlling DM, HTN is useful in gout prevention	15.5	5.9	78.6
Cautious administration of some drugs is key to reducing gout risk.	15.5	3.4	81.1
Average	**17.1**	**3.9**	**78.9**

Table 5: Attitudes towards gout

Statement	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
	%	%	%	%	%
Gout should be considered as one of major diseases.	8.4	11.1	78.0	2.5	0
People taking alcohol should feel embarrassed as they are predisposing themselves to gout	2.2	10.2	81.8	5.9	0
Gout is a disease of affluent individuals	2.5	1.5	79.6	12.1	4.3
Gout should be considered to be a result of witchcraft	0.3	3.1	79.3	9.6	7.7
Gout must be given a similar priority as other diseases	8.7	12.4	77.7	1.2	0
Gout patients must accept dietary modifications in managing their condition.	9.0	13	78.0	0	0
Alternative conventional drugs like herbal medicine should be advocated for gout treatment	5.0	5.60	80.2	9.0	0.3
Average	**5.2**	**8.1**	**79.2**	**40.3**	**1.8**

Discussion

This study that was conducted in Chang'ombe ward, to identify existing gaps in peoples' knowledge on etiology, risk factors, signs and symptoms, complications and prevention of gout. It is known from the existing literature that, urate crystals deposition in joints is responsible for the subsequent development of gout.(5). In this study however, only 3.7% agreed with this fact. A similar study done in Saudi Arabia revealed that, about 58% of its

participants concurred with this fact.(4). These findings present an opportunity for addressing this gap by utilizing the education and information systems.

The same symptoms and signs experienced by gout patients may also be experienced by patients suffering from other arthritis conditions. The patterns of their occurrence however, may help to clinically differentiate these conditions.(17,18). Knowledge of the participants on these signs and symptoms was found to be low as only 18.7% (average) could recognize such clinical presentations as manifestation of gout. In the Saudi Arabian' study, the situation was slightly different as 30% were found knowledgeable(4). This needs to be addressed as it may worsen the already observed poor health seeking behaviors once the condition sets in.

The literature has clearly shown that, obesity, hypertension, over consumption of red meat, being alcoholic and some genetic factors (among others) are implicated in the development of gout. Some of these risk factors are modifiable and understanding them can be key in the prevention of gout.(2–5). Very few (12% on average) of this study's participants pointed to any of those risk factors as being linked to the development of gout. A study done in America also demonstrated low knowledge as only 20% of the population had any idea on these risk factors. Almost similar situation was established by a study done in Saudi Arabia.(4,9). The existence of such low knowledge may on long run foster unhealthy lifestyle and consequently development of gout and other comorbidities. This may definitely give the explanation of the management challenge encountered in such situations.(4,9).

In long term, gout patients may develop tophi, significant joints destruction, nephrolithiasis and other systemic manifestations of uric acid crystals deposition in these sites.(2,19). Nephrolithiasis was the only complication used in the assessment of the participants' knowledge on gout complications and only 9.9% of them knew about it. Without knowing the linkage between gout and nephrolithiasis (or any other complication) it is possible for one to concentrate on managing only one of these especially when the other is asymptomatic. Consequently, the latter (asymptomatic one) may be diagnosed when it has already significantly advanced. Nothing can be done about sex, age and heredity in the control of gout unlike other modifiable factors like alcoholism or eating habits. As for most lifestyle diseases, the cornerstone for gout management is prevention by among other things, adhering to lifestyle modifications in addition to cautious drugs administration and management of other comorbidities (2,3,6,20).

Only 17% of the study participants knew of the preventive measures of gout. Logically, it is unlikely one to be aware of such measures while they know very little about gout. For example, in this study where the studied participants were already shown to have low knowledge on other general aspects of gout. Their low level of education and possibly low availability and poor access of gout related information may be behind their observed situation.

Attitudes on the other hand, may determine the likelihood that, the community will embrace the recommended lifestyle modifications, can have good health seeking behaviors and/ or adhering to the given treatments as one of the strategies of managing diseases including gout. This means that, attitudes can determine the path/direction patients take in dealing with their health problems.(10,11).

The study focused on the different aspects of gout that had emotional component in the assessment of the participants' attitudes and it was found that, on average, 79.1% of the participants had neutral/ undecided attitude. The lifestyle choices and health seeking behaviors may be adversely affected by neutral attitude in real life as people may opt for whatever choices as they do not want to / cannot consider the consequences of their standings/ choices. (4,10,11). Lastly, knowledge and attitudes can also determine the daily practices. Since the lifestyle practices were not assessed in this study, further researches may be targeted to these aspects as they are also linked to the development of diseases including gout.

Conclusion

The knowledge about gout in the study population is insufficient and combining it with their neutral attitude towards gout, demonstration of healthy lifestyle and consequently sustainable gout control measures cannot be guaranteed. Emphasis on education, ensuring availability and accessibility of gout related information may be key in addressing the existing gap.

Recommendation

Since majority of the study participants had inadequate knowledge about gout, then provision of education is key/ mandatory. This can be delivered through media and/ or during community meetings and it may serve to develop the right attitude among them. Further researches should be conducted to identify those at risk of suffering from gout and those

who have already developed it. This may provide an overview of the disease burden and thus help in planning the countermeasures. Researches should also be conducted to establish the practice of healthy life style as unhealthy lifestyles are the main culprits for gout and other non-communicable diseases (NCDs). Once established, the foundation for dealing with NCDs through lifestyle modifications could be laid down.

Study limitations

i. The scope of this study was narrow given the limited time and budget set for the activity and as a result only one ward was selected among many, something that may affect the generalizability of the study findings.
ii. There was a comprehension challenge on some translated medical terminologies. This was however mitigated through giving the explanations of the particular terminologies.
iii. The participants within the households were conveniently sampled, an event that would as well affect the generalizability of the study findings

List of Abbreviations

BMI	Body Mass Index
CAD	Coronary Artery Disease
CRF	Chronic Renal Failure
CVS	Cardiovascular System
DM	Diabetes Mellitus
GIT	Gastro - Intestinal System
HTN	Hypertension
IHD	Ischaemic Heart Disease
IRB	Institutional Ethical Review Board
MSD	Musculoskeletal Disorders
MUHAS	Muhimbili University of Health and Allied Sciences
NSAIDS	Non-Steroidal Anti – Inflammatory Drugs
PUD	Peptic Ulcer Disease
SPSS	Statistical Package for Social Sciences
USA	United States of America
WHO	World Health Organization

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Conflict of Interest.

Authors declare that, there was no conflict of interest from the designing of the proposal to the completion of this manuscript.

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