

Socio-Cultural Norms influencing Type 2 Diabetes Risky Behaviors: An Exploratory to Intervention Co-design innovative study in two Hi incidence Districts of Eastern Uganda.



An Exploratory to Co-design report

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List of acronyms

SNET	Social Norms Exploration Tools
HC	Health Center
SNE	Socio Norms Exploratory
EBCD	Experienced Based Co-Design
VHT	Village Health Team
T2D	Type 2 Diabetes
NCDs	Non-Communicable Diseases
SSA	Sub Saharan Africa
LMICs	Low-income and Middle-income Countries
FGDs	Focus Group Discussion
IDIs	In Depth Interviews
RAs	Research Assistants
LC	Local council
HW	Health Worker
FP	Focal Person
DM	Diabetic Clinic

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Executive Summary

Globally the proportion of undiagnosed diabetes is high, standing at 46.5%. In high-income regions like Europe, of all persons with T2D, 39.3% are undiagnosed. Low-income countries in Africa have the highest prevalence of undiagnosed diabetes, estimated at 66.7%. Health systems in most parts of the world are struggling to diagnose and manage T2D effectively, especially in LMIC, and among disadvantaged populations in high-income countries (d-HIC).¹

In sub-Saharan Africa, a number of studies have been conducted amongst people with diabetes attending clinics in urban areas.² However, few studies have been conducted amongst people who do not have diabetes and even fewer amongst people from rural areas. The latter is an important issue as diabetes mellitus is increasing not only in urban areas but in rural areas as well³. It is clear that T2D is a global burden affecting HICs and LMICs in different ways. It is therefore important to identify context relevant interventions that can potentially work across different income settings, aimed at improving the prevention and management of T2D. Many communities may know of diabetes but would indicate that it is an issue they do not understand very well⁴

the sustainable development goal (SDG) 3 is related to the prevention and reduction of NCD mortality including T2D. The SDG target 3.4 is that by 2030, countries should reduce by one third premature mortality from non-communicable diseases through prevention and treatment, and promote mental health and well-being (WHO). However, this can only be achieved if health systems and development partners have a deep understanding of the drivers and social-cultural norms that support the entrenchment of T2D risky behavior, hence this exploratory study. There is not much literature on perceptions of type II diabetes amongst people living in rural areas of sub-Saharan Africa and in Uganda in particular. Yet, some of the people with diabetes use their beliefs to determine the promptness with which they seek appropriate treatment.

¹ IDF. *International diabetes association: Deabetes atlas*. 7th Edition. Brussels, 2015. doi.

² Baumann, L.C., Opio, C.K., Otim, M., Olson, L. & Ellison, S, 2010, 'Self-care beliefs and behaviors in Ugandan adults with type 2 diabetes', *Diabetes Educator* 36(2), 293–300.

³ Reeve, P.A. & Falkner, M.J., 1986, 'Disease patterns in a rural black population', *South African Medical Journal* 69(9), 551–552. PMID:3704872

⁴ Yeoh, S.W. & Furler, J., 2011, 'Perceptions of health and diabetes in a Melbourne South Sudanese community', *Journal of Immigrant and Minority Health* 13(5), 914–918.

The study employed a mixed method cross sectional design using Social Norms Exploration Tools (SNET). It was conducted in Eastern region in the districts of Bugiri and Busia. The study covered a total of 4 health facility catchment areas: Bugiri Hospital catchment, Nakoma H/C IV catchment, Masafu Hospital catchment and Lumino H/C III catchment.

The study utilized the socio norms exploratory (SNE) approach combined with the Experienced based Co-Design (EBCD) approach to address the social-cultural norms influencing and facilitating the entrenchment of T2D risky behaviors. The study also utilized the Community-led “collaborative co-design labs” which led to the development of social innovations that address and/or contribute to the transformation of the identified negative social-cultural norms. An innovation package, and guide on interventions per social-cultural norm and driver were developed and can be implemented at scale.

Data was collected using focus group discussions, key informant interviews, in-depth Interviews, Observation and Photography.

Summary of findings

The main behavioral factors influencing type 2 diabetes were consuming processed and added sugar products, consuming high cholesterol fatty foods, alcoholism, smoking (traditional and contemporary), mental/psychosocial stress and lack of exercise. Further analysis shows that dietary factors contribute the greatest threat to the fight against type 2 diabetes.

From the influence mapping exercise, it was discovered that the main reference groups that have influence over risky factors included **parents, wives/co-wives, children, husbands, extended family members, local council chairmen, peers, grandparents, media, in-laws** and **traditional herbalists**. Therefore, these are the categories that should be engaged by programs and interventions that are working to address/reduce the incidence and prevalence of type 2 diabetes at community level. The interventions must target these points of influence with behavioral change messages, new norms, new beliefs but also use these to identifying and promote factors of non-conformity.

The main behavioral factors influencing type 2 diabetes were a) consuming processed and added sugar products, b) consuming high cholesterol fatty foods, c) excessive alcoholism, d) smoking (traditional and contemporary), e) mental/psychosocial stress and f) lack of exercise. The analysis shows that dietary factors contribute the greatest threat to the fight against type 2 diabetes in Busia and Bugiri.

In terms of social norm strength around dietary factors, the two strongest norms were *“people who don’t prepare fried food are poor people”*, *“taking tea without adding sugar is mistreatment to your husband”* and *“Bwita/kalo is our staple food, we eat it daily”*. Some of the less strong norms included; *“eating greens is mistreatment to your man/husband”*, *“fat people especially men are respected in the community”*, and *“A true samia meal must contain meat or fish daily”*

The strongest social norms around alcoholism were *“alcohol takes away negative thoughts and stress”*, *“when you take alcohol with your friends, they can’t abandon you”*, *“Waragi reduces diabetes because it is sour”*, *“religion does not allow us to take alcohol”*.

The social norms around smoking included; *“if you want to feel good, you have to smoke”*, *“most old people and our grandparents lived long and were smokers”* and *“traditional religion demands and allows smoking of pipes, it’s part of our culture”*.

The main social norm around physical exercise was that *“men are expected to rest/lie down and wait to be served by women”*. They have to sit and wait for food.

From the study, some of the drivers that cause deep entrenchment of these norms include:

- **Inadequate and poor-quality information on T2D** since most patients lack knowledge about T2D and its risky behaviours. It was also discovered that VHTs have little or no knowledge about T2D, yet their role is health promotion and healthy wellbeing at community level.
- **Alcohol and processed beverage availability** emerged as a major driver for T2D risky behaviors. The ease to access alcohol around the communities increases the demand and consumption.
- **Gender Based violence and intimate partner violence** was found to be related to T2D in that most people resort to taking alcohol whenever get misunderstandings with their spouses. This increases their risk of becoming pre and eventually diabetic.
- **Social-economic hardship** (*poverty, low finances, debt, unemployment*) among families was also reported because it makes people to eat the same type of food because they can’t afford alternative foods.
- **Wrong peers** (*need to fit-in*). Young people/youth involve themselves in certain behaviors such as smoking and alcoholism due to peer pressures.
- **Cultural set up** (*norms around socialization*). People believe that drinking together is togetherness and sense of belonging. This was common with people who take smoke and or take alcohol

- **Polygamy:** Most women continue to fry and prepare fatty foods on a daily basis with the aim of pleasing their husbands' *wives compete to attract their husband, unhealthy feeding.*
- **Staple food syndrome.** Most communities are attached to the foods they call staple foods in their own contexts.

Recommendations

1. Since most There is need to develop new social norms that promote health
2. For effective and efficient behavioural change programs, social network analysis to identify key behavioural influencers (reference group members) should be adapted as opposed to community-wide sensitization
3. Since people learn how to act through social norms, behavioural change programs give keen attention to social norms around T2D risky behaviours.
4. VHT training and mentorship onT2D is vital if they are to provide health education and health promotion targeting T2D. Results showed that they lack accurate information and this could be linked to community ignorance of T2D risky factors.

Background and introduction

Type 2 diabetes (T2D) and prediabetes is one of the NCDs that are increasingly contributing to the global burden of disease. The global burden of diabetes in adults >18 years old is projected to increase from an estimated 415 million (prevalence of 8.8%) in 2015 to 642 million (prevalence of 10.4%) by 2040. The most dramatic change is expected to come from the projected increase in the number individuals with T2D in Sub-Saharan Africa (SSA) from 14.2 million in 2015 to 34.2 million, an increase of more than 100%. Of all individuals with T2D worldwide, 80% live in low-income and middle-income countries (LMICs).

There is very little evidence on the deep-rooted social constructs around T2D, therefore most programs address prevention from a belief, perception and treatment point of view. The deep-rooted social norms and not social determinants are central in understanding why T2D is increasing even with increased awareness by governments. The understanding on social-cultural norms and how they entrench T2D risky behaviors is vital in informing the co-design of locally accepted innovative interventions that contribute to behavioral change around the identified risky factors.

Social norms

Social norms are the often implicit, informal rules that most people accept and abide by. They are influenced by belief systems, perceptions of what others expect and do, and sometimes by perceived rewards and sanctions. Norms are embedded in **formal and informal institutions** and produced and reproduced through **social interaction**.

Simply put, What people in a group believe is a typical (what others do) and appropriate (what others expect me to do) behavior

A reference group network

is a group of people, a community—from a village to a broad religious community—for which these behaviors are relevant. Some define the reference group as a valued social group.

The important thing is that they can exert a considerable amount of influence on behavior and we might not be particularly influenced by behavior of individuals that we do not interact with or value their approval or disapproval.

These are individuals who:

- Social group listens to
- Give information and advice

- Influence attitudes, behaviors and decisions of a specific group
- They tell us if we're behaving correctly or not, and whether there are consequences (sanctions, rewards)

Target Behaviors

Key behaviors explored were Excessive drinking, Smoking, Consuming added sugary foods and high cholesterol foods, and lack of exercise.

Objectives of the study

- To Understand and categorize negative social-cultural norms that promote T2D risky behaviors
- Identify the key drivers that facilitate the entrenchment of the socio-cultural norms identified at patient, influencer and health provider level.
- To Co-design social-innovations with the target populations that can transform the Socio-cultural norms that influence T2D risky behaviors
- To develop a social innovation package and guide that can be adapted and scaled for T2D SNE and other NCDs

Data collection methods used;

The study used/adapted the social norms exploration toolkit methods (my social network, influence mapping, vignettes, pocket chart, problem tree and 5-whys) in the data collection process. Data was collected qualitatively (FGDs and IDIs) through interviews. The data collection process was done by the research assistants with direct technical support of two Researchers who have expertise in facilitating the social-norms exploration approach. The team explained to the respondents the nature of the exploratory process before each step of the study. FGD and IDI guides were developed to guide data collection interviews. As a standard practice, two RAs (1 interviewer and 1 note taker) collected the data, through FGDs and IDIs. All qualitative data was audio-recorded. The different adapted standard tools of the SNE toolkit were explained to respondents during the data collection process. Male and female respondents were interviewed separately. Below is a brief elaboration of the data collection tools used during the focus group interviews.

My Social Networks tool

This tool was used to collect information from each of the subpopulations, allowing us to profile the social reference groups. We were able to understand who the key players were in relation to the risky

behaviors around T2D and also identified and classified the social networks for the T2D patients and community members.

Influence Mapping Tool

This tool was used to rank the key influencers per subpopulation and this gained us deeper understanding of who to target in addressing issues around type II diabetes. Key influencers identified by the patients and community members during the interviews helped in the socio-cultural transformation of the socio norms.

Vignettes

Appropriate short stories about T2D and its risk factors in the context of our subpopulations were developed and this method allowed participants to think about T2D in the real world and think in community-centered ways that bring out underlying societal norms. We ensured that the stories are culturally appropriate and acceptable for the community and subpopulations. This was achieved through first pre-testing them on non-participants in the same community.

Pocket Chart

The pocket chart tool was used to classify what a social norm is and what is not, and thus was very vital in the exploration process. Participants were asked to vote on cards known beliefs, perceptions and practices related to T2D risk factors. This helped us to identify and ascertain on whether these were just beliefs, perceptions and practices or whether they have indeed have become norms. Frequency of mention and accompanying sanctions helped the research team to determine whether a practice, perception or belief was a social norm or not, based on the votes and nature of sanctions.

Problem Tree analysis tool

The problem tree was used to understand the causes of the socio-cultural norms. It also helped the target population and the influencers to get to know what the effects of these behaviors were if they continued.

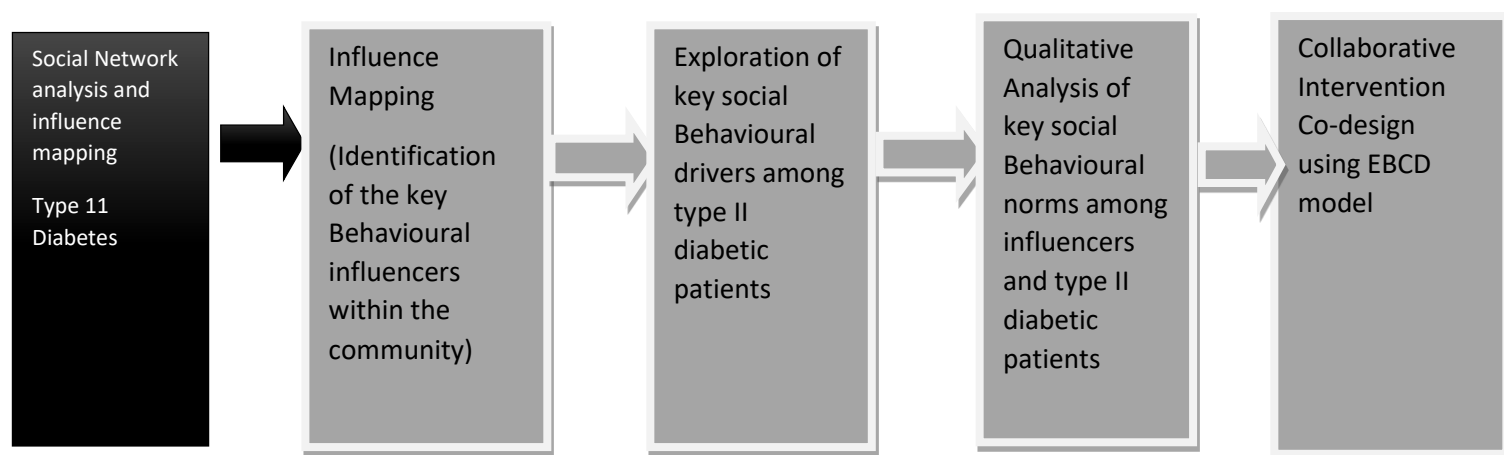
The 5 Whys

Like the problem tree, this tool also enabled us to identify the root causes of the negative socio- norms. It helped the research team to dig deeper into the underlying drivers that influenced the entrenchment of the negative socio-cultural norms more than the problem tree. The tool rotated around answering the “why question” for each identified driver among the patients, providers, influencers and community members.

Target groups

- T2D Female patients above 30years
- T2D Male patients above 30 years
- T2D Behavior influencers (Positive and negative)
- Health facility workers
- Health community workers
- District Health teams

Figure 1. The Social Norms Exploration Process



Study area demographics and sub-populations

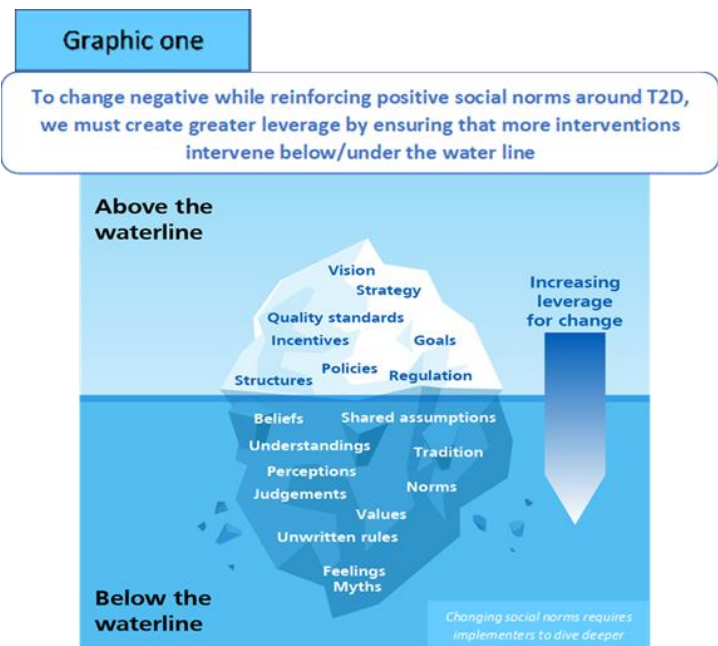
S/N	Study area	FGDs/IDIs	
1.	Nankoma Health center IV	<ul style="list-style-type: none"> ❖ 1 FGD Male patients ❖ 2 FGD Female patients ❖ 2 FGD Influencers 	<ul style="list-style-type: none"> ❖ 7 IDI Patients ❖ 1 IDI Health worker
2.	Bugiri Hospital	<ul style="list-style-type: none"> ❖ 1 FGD Male patients ❖ 2 IDI Health workers 	<ul style="list-style-type: none"> ❖ 1 FGD Female patients ❖ 1 FGD Influencers
3	Masafu Health Centre IV	<ul style="list-style-type: none"> ❖ 3 IDI Health workers ❖ 1 IDI Community H/W 	<ul style="list-style-type: none"> ❖ 2FGD Male patients ❖ 1 FGD Influencers
4	Lumino Health Centre III	<ul style="list-style-type: none"> ❖ 1 FGD Male patients ❖ 1 FGD Female patients 	<ul style="list-style-type: none"> ❖ 2 IDI Health workers ❖ 1 IDI Community

5	Bugiri District	❖ 1 IDI ADHO ❖ 1 Health Educator	
6	Busia District	❖ 1 IDI DHO	

Key Findings

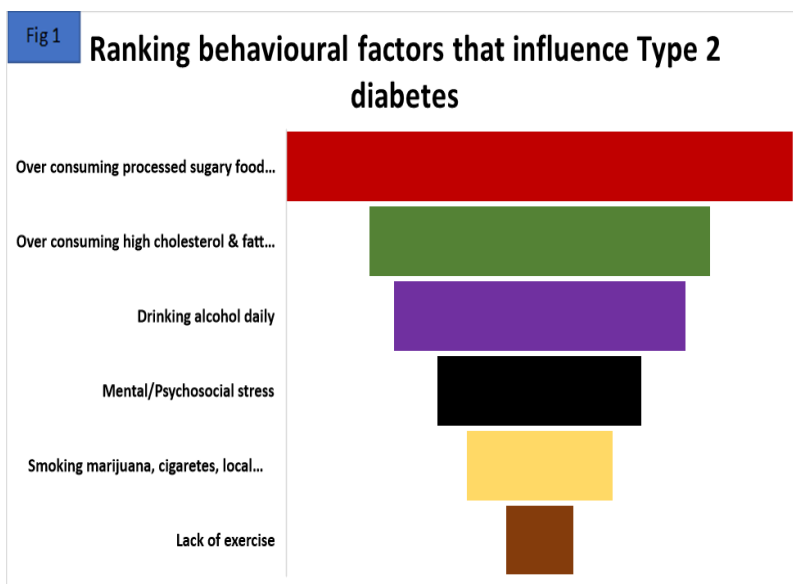
The depth of social norms

Experience has shown that social norms are very so deep rooted but most programs target aspects and events that are above the water line, hence they mistarget. This study found out that type 2 diabetic behaviors are influenced by social norms, some of which are injunctive (they have sanctions associated with them, while others don't have sanctions (descriptive in nature) – but none of the of the stakeholders considered their role in T2D. Therefore, although the social norms diagnosis and exploratory approach helped the researchers to identify **knowledge** based, **attitude/belief** based, **perception** based and **normative** factors/practices around type 2 diabetes. Our focus was specific to social norms.



Behavioral factors influencing Type 2 diabetes

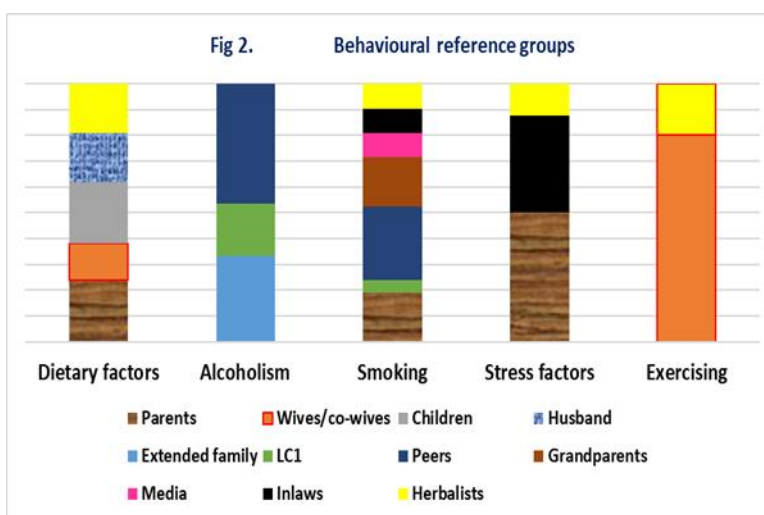
The main behavioral factors influencing type 2 diabetes were consuming processed and added sugar products, consuming high cholesterol fatty foods, alcoholism, smoking (traditional and contemporary), mental/psychosocial stress and lack of exercise. This is not far and or so different from what has been known, but this study helped us to get deeper insights and identifying the most prominent factor that accounts for high



levels of T2D. This also shows what people know about the factors that are behind T2D. Further analysis shows that dietary factors contribute the greatest threat to the fight against type 2 diabetes. Figure 1 shows the factors by hierarchy.

Influence mapping and identification of behavior influencers.

The value of social norms exploration approach is rooted in the focused nature of influence and power centers around specific behaviors that facilitate poor health. From the influence mapping exercise, it was discovered that the main reference groups through which T2d risky factors are entrenched are parents, wives/co-



wives, children, husbands, extended family members, local council chairmen, peers, grandparents, media, in-laws and herbalists. These are non-conventional stakeholders by function, and thus understanding them in reference to their influence on the risky behaviors is very vital to addressing harmful behaviors and practice, but also promoting positive behaviors that help to address T2D. In seeking to change the behaviors that facilitate T2D, it is important to look at the Husbands by role and not just as men. Many women noted

that the they prepare oily and fatty foods for their husbands because if you don't conform to this expectation, then the husband may leave you or eat at a co-wife's house. Other women noted that their "Husbands" and not just men would take if for mistreatment if the food is not fried, oily and fatty. Therefore, to change this, interventions should approach men as husbands which would not be the case when working with general change initiatives. Overall, the categories of people identified in figure 2 above should be engaged by programs and interventions that are working to address/reduce the incidence and prevalence of type 2 diabetes at community level.

Social norm around dietary factors

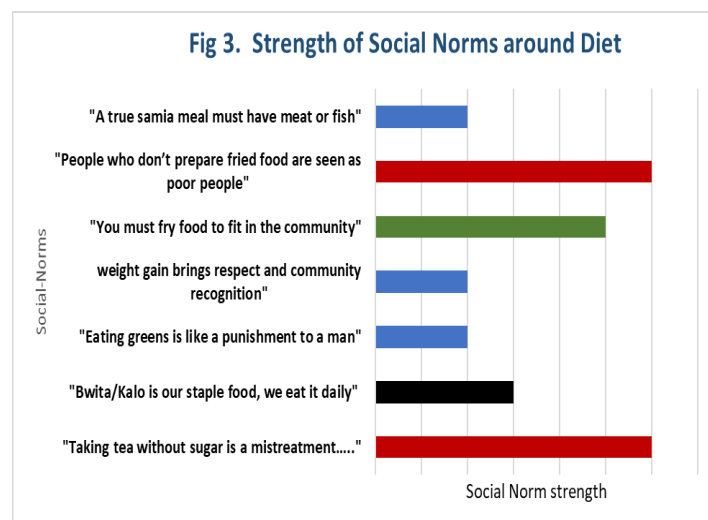
The main behavioral factors influencing type 2 diabetes were dietary factors, related to consuming high cholesterol foods, but also foods with high amounts of added sugars.

In terms of strength/ranking, the two strongest norms were *"people who don't prepare fried food are poor people"*, *"taking tea without adding sugar is mistreatment to your husband"*, *"you must fry food in our community"* and *"Bwita/kalo is our staple food, we eat it daily"*.

Some of the less strong norms included; *"eating greens is mistreatment to your man/husband"*, *"fat people especially men are respected in the community"*, and *"A true samia meal must contain meat or fish daily"*. It is important to note that strength of a norm is not directly related to the amount of effort needed to transform it. Therefore, in designing interventions, it is critical that the right strategies and tools are used, regardless of norm strength.

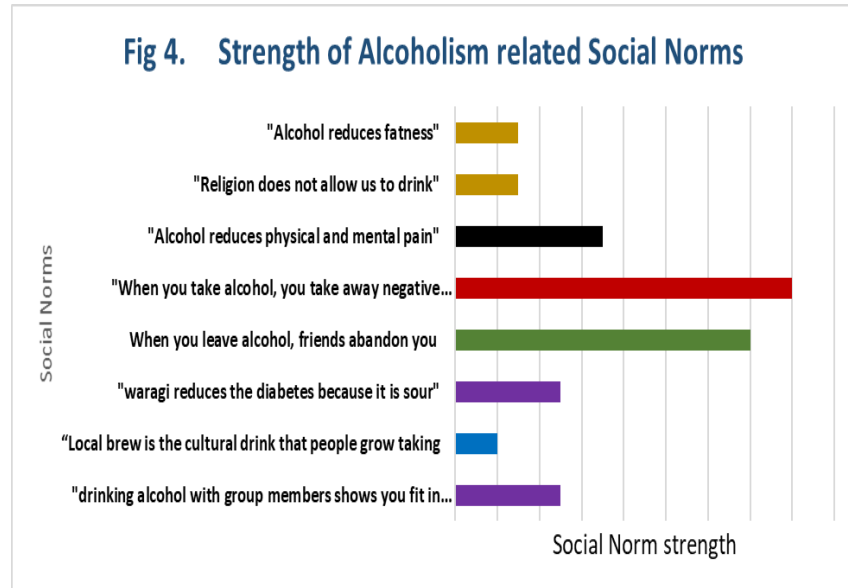
It should also be noted that the norms that emerged had gender and power dimensions and thus qualify to be gender norms. For example, *"eating greens is punishment to a man"* is a gender norm and thus to address it, gender transformative approaches should be used.

One social norm that was not the strongest but which can be very difficult to transform was *"Bwita/kalo is our staple food, we eat it daily"*. This social norm is related to staple-food syndrome, which is intergenerational, deeply rooted in culture and can be difficult to transform. For this kind of norm, systemic level changes in food systems may be required as part of the norms transformation strategies.



Social norms around excessive alcoholism.

Medically, excessive alcohol consumption has been known as a key risk factor for T2D, but from the point of view of the communities, the study found that the reverse is true. The strongest social norms around alcoholism were *“alcohol takes away negative thoughts and stress”, “when you take alcohol with your friends, they can’t abandon you”, “Waragi reduces diabetes because it is sour”* and *“religion does not allow us to take alcohol”*.



Even when it is known that excessive alcohol is a strong risk factor for T2D, the study found out that one of the hitherto beliefs/attitude that has now transformed into is social norm is that *“Waragi reduces diabetes because it is sour”*. It was also reported that some health workers mis-inform diabetic patients to drink some alcohol so that their sugar levels come down, and the reason is that they need to consume sour foods and drinks. The exploration noted that this has now shifted from being an attitude/belief to a deep-rooted norm that has caused many diabetic patients to weaken or die. To the general community (especially those who drink), they are encouraged to take it so that they don’t become T2D, yet the reverse is the most likely occurrence.

Additionally, while we thought that *“alcohol takes away negative thoughts and stress”* is a perception/belief, the exploration showed that it is now a social norm because people now drink because they see others drink to take away negative thoughts. It has gone from personal motivation to drink to social motivation, this points to the fact that if beliefs/perceptions are not addressed early enough, they can change into norms that are deeply rooted and require much more time to address.

However, the exploration also found one positive social norm related to religion thus; *“religion does not allow us to take alcohol”*. Therefore, such a norm should be used to promote non-smoking behavior, the reference groups/network can also act as change agents in addressing this behavior.

Social norms around smoking cigarettes and traditional pipes

The exploration also found that in Busia and Bugiri, smoking was a strong risky behavior that causes high rates of T2D. The social norms around smoking included; *"if you want to feel good, you have to smoke"*, *"most old people and our grandparents lived long and were smokers"* and *traditional religion demands and allows smoking of pipes, it's part of our culture* as shown in figure 5. Peers were

identified as the group that facilitates this norm and thus to address it, positive peer networks can be a useful strategy, so that a new positive reference group is formed.

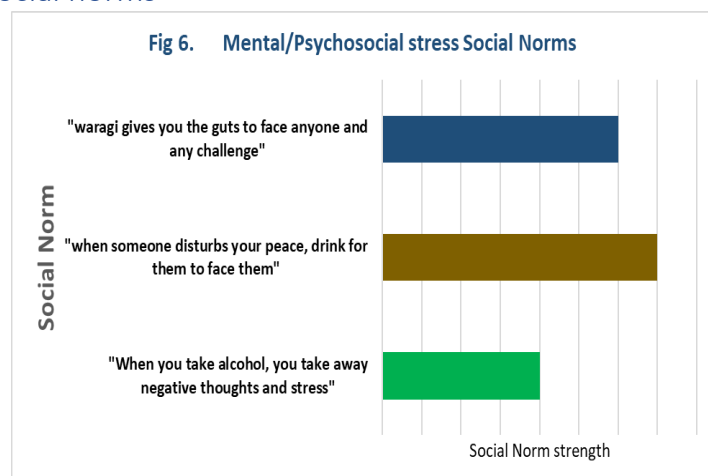
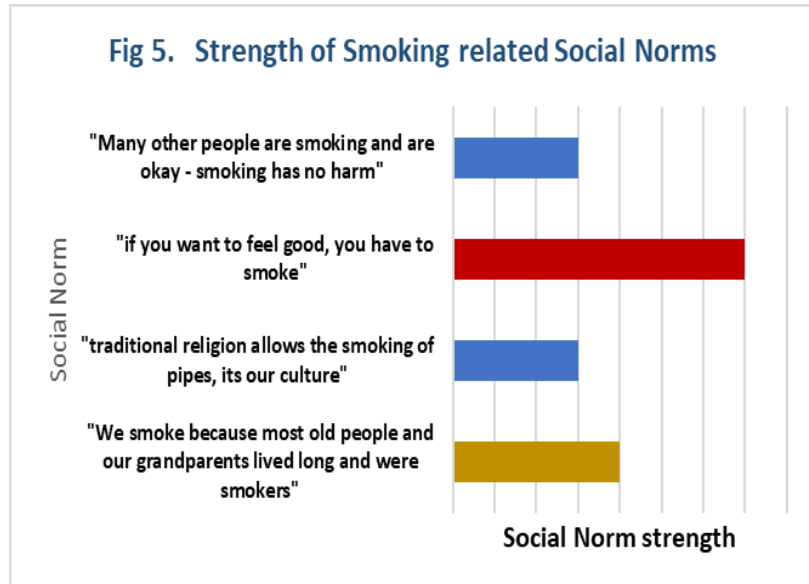
Physical exercise

The main social norm around physical exercise was that men are expected to rest/lie down and wait to be served by women. They have to sit and wait for food. This combined with the unhealthy diet makes older men prone to T2D, and is a facilitating norm.

Mental/Psychosocial stress, T2D and social norms

Very interestingly, the exploration unearthed mental and psychological stress as a risky factor around social norm. The strongest norm under this risky factor was that *"when someone disturbs your peace, drink for them to face them"*. This emerged from the main population (T2D patients) and the reference group members interviewed. The respondents identified violence in

homes as one of the issues related to drinking for them, often to attack verbally, under the guise of drunkenness. Psychosocial/mental factors are therefore related to alcoholism as a key factor in T2D.



Normative-tending statements from both districts of Bugiri and Busia

In the deep conversations with the study respondents, many statements that relate to beliefs, norms and attitudes were mentioned, and these speak to the cultural and society construction in the two districts. Below are some of the quotes for self-reflection.

- ❖ *“Alcohol does not cause diabetes. diabetes is glucose, it is caused by sweet things but not sour things” (influencer, male Bugiri)*
- ❖ *“Alcohol is an energy booster” (VHT Busia)*
- ❖ *“People take alcohol in order to reduce or increase on the sugar levels” (Influencer, Bugiri and VHTs Busia)*
- ❖ *“When you are fat, you need to take some alcohol because if you don’t, you will get diabetes” (Influencers, Busia)*
- ❖ *When you get diabetes and get fat, you take a lot of alcohol to reduce the fats (VHTs, Busia)*
- ❖ *“When you bath in front of any one’s grave, the dead will talk to you and the diabetes will cure”. The Basamia call it ohweyabula” (VHTs, Busia)*
- ❖ *“Type 2 diabetes affects the temper of patients” (Influencer, Bugiri)*
- ❖ *“Doctors say thoughts are the ones which cause diabetes” (Patient, Bugiri)*

Wrong beliefs, perceptions and attitudes

As earlier on noted, the exploration identified the social norms, but also the beliefs, attitudes and perceptions among the target respondents on T2D. It was evident that the information gap is very wide given the high level of mis-information, misconceptions and beliefs around T2D.

Very interestingly, these came from a cross section of respondents, including health workers who are expected to provide accurate information to patients. We unearthed wrong beliefs around T2D, which if not addressed can turn into social norms, that will be very difficult to transform. These are listed in table D below.

Table D		Wrong beliefs around T2D, from respondents
1	"The wrong belief that herbal medicine cures type 2 diabetes (Patient, Bugiri)	
2	"wrong perception among patients that alcohol helps them to get sleep (Patient, Masafu)	

Table D	Wrong beliefs around T2D, from respondents
3	“Reverse perception that alcohol reverses diabetes and pressure yet the reverse is true”
4	“Doctors say thoughts are the ones which cause diabetes” (Patient, Bugiri)
5	"Type 2 diabetes affects the temper of patients (Influencer, Bugiri)
6	“People eat fried, fatty and sugary stuff because they think is good feeding”
7	"When you get diabetes and get fat, you take a lot of alcohol to reduce the fats (VHTs, Busia)
8	"People take alcohol in order to reduce or increase on the sugar levels (Influencer, Bugiri and VHTs Busia)
9	"When you are fat, you need to take some alcohol because if you don't, you will get diabetes (Influencers, Busia)
10	"When you think of dying, you just decide to fry so that you enjoy the meal after all everyone will die (Influencers - Bugiri, Patient - Bugiri & Busia)
11	``When you bath in front of any one's grave, the dead will talk to you and the diabetes will cure". The Basamia will say`ohweyabula`` (VHTs, Busia)
12	"Each person has their own type of diabetes (Patient, Bugiri)
13	“Alcohol is an energy booster”
15	Alcohol does not cause diabetes. diabetes is glucose, it is caused by sweet things but not sour things” (influencer men Bugiri)

Drivers that support Norm entrenchment

The exploration was intended to inform the co-design of interventions that can address T2D risky factors and behaviors at community, facility and household level. We conducted an analysis of the factors and drivers that are facilitating the entrenchment of these social norms through the reference groups and below are the findings.

- Sanctions: This factor is linked to the desire to fit in by the community members. People stick to these behaviors for fear of the sanctions related to deviating from the norm. For example, a woman will continue to prepare deep fried food for the husband, even when she knows that it is harmful, for fear of being rejected or abused by the husband.
- Cultural set up in both districts calls for social gathering especially for men, and often around alcohol and local beer points. This makes most men attracted, attached and conformant. People

believe that drinking together is togetherness and sense of belonging. This was common with people who take smoke and or take alcohol

- One sided food system (*staple-food disorder*)
- Inadequate and poor-quality information on T2D. Patients lack knowledge about T2D and its risky behaviours
- Alcohol and processed beverage availability – The easy to access alcohol around the communities increases the demand and consumption.
- Gender Based violence and intimate partner violence. Most patients resort to taking alcohol whenever get misunderstandings.
- Social-economic hardship (*poverty, low finances, debt, unemployment*). Families are forced to eat the same type of food due to poverty.
- Wrong peers (*need to fit-in*). Young people/youth involve themselves in certain behaviors such as smoking and alcoholism due to peer pressures.
- Polygamy (*wives compete to attract their husband, unhealthy feeding*). Most women continue to fry and prepare fatty foods on a daily basis with the aim of pleasing their husbands.
- One sided food system (*staple-food disorder*). Both from Busia and Bugiri, most individuals take the same type of food (*kalo*) because it's their staple food.

Gaps identified

- The respondents noted that there is no culture of routine checkup among the community and the facility level.
- Focus is not preventive strategies. People come to health facilities when they are already sick (VHT Lumino), ``People only get to know the consequences after becoming sick and they go to the doctors'' (T2Dmales Busia). `Someone gets to know about diabetes when they are already sick' (T2D Males Lumino)
- There is lack of knowledge on T2D among VHTs (VHT Lumino and Chairperson Diabetic patients), VHTs not involved in T2D/NCD health education (community does not know the risks of bad diet)
- Alcohol is used as a preventive remedy to T2D (Influencers Lumino)

- Food systems versus commercial demand-Determines the type of vegetables to plant (*Influencers masafu*)
 - Staple-food disorder: Patients don't have a choice on what to eat. What is available is what they consume for survival (*Female Nankoma*)
 - Little or no information/health talk is given to newly diagnosed patients on the cause. They only tell you what to do next, change your eating, exercise etc. (Patient)
 - How much is enough added sugar, how much is enough fat?

Some puzzling questions

- Some people take a lot of sugars and fats but they are not sick. Why? (Patient, Busia & Influencers in Bugiri)
- We know of people who are real drunkards, they drink daily but they don't have T2D, why do you say alcohol puts you at risk?
- Cost of pain killers is higher than the cost of alcohol as a pain killer (Patient - Busia, Influencer - Masafu)
- Doctors encourage us to drink a little to get relieved of pain, why? (Influencers Masafu)

Innovative Co-design actions to transform social negative norms

The study employed a co-design methodology to identify collaborative innovations that the community can implement to address T2D. These need to be tested in these two geographies to assess efficacy over time before scale-up and spread.

- VHTS increased sensitization through home visits and outreaches/village meeting
- Health Education by on radios and or VHTs and volunteers during triage on nutrition and balanced diets
- Integrating T2D health talks in other health facility outreaches
- Nutrition assessment at all health facility entry points needs to be introduced targeting T2D.
- VHT involvement in demo gardens at health facilities will improve live learning.
- Religious leaders can continuously preach and teach to the masses about the risky behaviors to T2D
- Display of posters at health facilities about the dangers of T2D risky behaviors
- Involving social health workers or counselors

- DHT to use nutrition coordination committees to reach out information
- DHT to influence local councils to enact laws and regulations on alcoholism
- DHT to train local council leaders on how to pass information about T2D
- DHT to encourage communities to do physical exercises during community dialogues.

Conclusions

When social norms conflict with attitudes and beliefs, people will always follow the norm because it is stronger and externally motivated than their personal beliefs. A woman may have a good attitude towards healthy feeding (greens, fish, vegetables – with a balance), but if the social norm is that the healthy food is a punishment to the husband, she will follow the norm (cook deep fried oily foods) to keep her husband, and not be condemned by the community.

The study of social norms can help us understand a wide variety of seemingly puzzling behaviors. According to some accounts, a social norm results from conditional preferences for

Recommendations

- Addressing T2D required a multi-sectoral community approach. The reference groups and drivers are multi-disciplinary, and at community level.
- There is need for the district and community health systems to focus on preventive strategies especially on the culture of routine checkup among the community.
- Integrate type 2 diabetes health education at facility and community/VHT level activities. Most VHTs and health workers don't know the risks of bad diet.
- Need to orient and/or train VHTs and other community structures with accurate information on type 2 diabetes, especially the risky factors. More non-health actors need to be engaged.
- There is need to rethink food systems versus commercial demand. The speed-profit orientation is the main determinant of which types of foods and/or vegetables to plant and not health-orientation.
- Staple-food disorder needs to be addressed at multiple levels. Many people eat food because they are meant to believe that it's their staple food, which is descriptively normative. A one-size-fits all feeding arrangement/culture needs to be addressed at systemic level – so that a mixed food system is promoted. Communities need to know what healthy feeding is in terms of quality and quantity.

- Health workers need deeper knowledge and skills on assessing the causes of type 2 diabetes for their patients. There is a skills, information and technical knowledge gap among health practitioners.