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Original Article

Perceptions on Drug Use and Behavioural Change Approach: Kanyanga in Rwanda

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ABSTRACT

The newspapers and media as well as scientific papers reveal that alcohol and illicit drug abuse is of major concern in rural and urban areas of Rwanda. Especially in the areas nearing the borders of the country, the illicit gin known as Kanyanga is being consumed. The government of Rwanda has tried to take various measures to stop its use but seems to need more efforts because the local population has not stopped its use, and its smugglers and users increase day to day. The use of Kanyanga was found to bring some consequences that can even lead to death. With this background, the research was conducted to investigate people's perceptions of its use and how a behavioural approach can be used to change them. To achieve the objective of the paper, a quantitative exploratory study was conducted where data were collected via an online survey, and respondents were citizens of Rwanda from six districts of the northern part where the gin is common. The data analysis was done through visualisation and explained using the prospect theory. The findings have shown that what people expect to get from the use of Kanyanga is the opposite of what they get from it because of bad consequences including death, poverty, and domestic conflicts. From these findings, the paper recommended counselling services along with nudging a behavioural perspective to deal sustainably with this illicit gin.

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INTRODUCTION

A token Review of Rwandan newspapers and media as well as scientific papers reveals that alcohol and illicit drug abuse among the youths is of major concern in rural and urban areas (Ngamije, 2016) . The illicit gin known as Kanyanga in Rwanda is being used by the Rwandan population, especially in the northern part of the country, and the government of Rwanda has tried to take various measures, including legal sentences, but no sustainable solution has been found because local population has not stopped its use and contrarily its smugglers and users increase day to day. The study was conducted to examine if behavioural approaches can be adopted to improve people's perception of the use of Kanyanga.

In African countries, it has been shown that substance abuse is common and is one of the most disturbing health-related problems among the youths (Igwe, 2009). Most young people begin with alcohol and cigarettes and later progress to more dangerous ones such as cannabis and cocaine (Abiodun, 1994). The progressive and frequent use of drugs to the point of addiction is considered wilful misconduct (Gishoma, 2012).

Illicit drug use may be associated with various variables that have been analysed one another and their relationship with the subject matter (see conceptual framework figure in the section of methodology). Illicit drug consumption can lead to different consequences, including death and misconduct. To reduce the use of Kanyanga and drug abuse in general, policymakers and researchers need to understand the factors that lead to their use and if a behavioural change approach proposal can improve people's perception of drug use.

While studies have reported high drug use in Rwanda, none has been done to find out how behavioural approach proposals can help to improve perceptions of drug use. This study will allow analysis of data on the perceptions of people from different settings and backgrounds. The study will also provide data for preventive programmes and behavioural change. The concept report may inform policymakers and future researchers of the severity of the problem with policy proposals for handling the issue, and they may take further measures to find sustainable solutions for drug abuse.

CONCEPTUAL AND THEORETICAL REVIEW

Drug use may be due to various factors (*Figure 1*), which will be discussed later and relate to the use of Kanyanga as a product of Uganda on one side and a product of Rwanda on the other side because some Kanyanga is from neighbouring countries, but it is also produced in Rwanda from banana beer.

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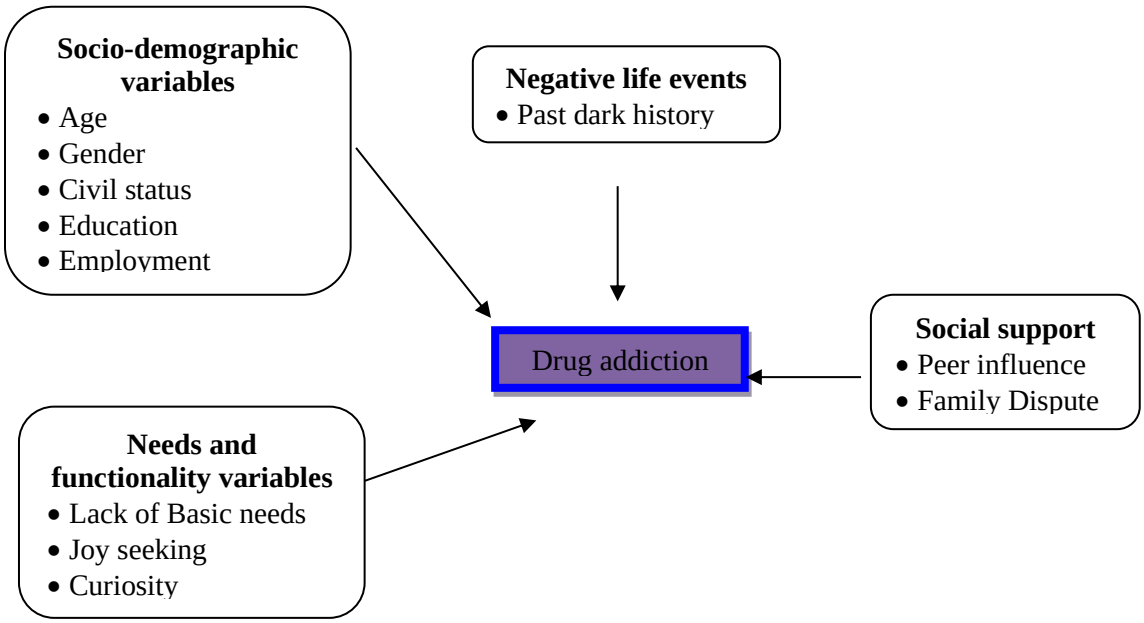
Figure 1: Conceptual framework of variables associated with drug use



Source: Adopted from (Fleury, 2014)

According to Fleury (2014), in the case of drug use, users with drug abuse are more likely to be male, young, and single, with low education, low incomes and lack of basic needs, which can bring people to selling or smuggling drugs. Among the main causes that bring these drug users are joy seeking, curiosity of how they test, past dark history with an influence of peer groups, and the conflict between parents and children can bring the last to start using drugs, and many of the above factors may be applied to the use of Kanyanga especially the Kanyanga users' expectations are likely different from what they get as it will be discussed later with prospect theory. People with a high risk of utilising Kanyanga are poor or unemployed youth who decide so because of poverty, peer influence or even domestic conflicts.

Behavioural Concepts to Understand and Handle Illicit Drug Use

In this concept report, prospect theory is suggested to be used to explain why people prefer to use Kanyanga, which is irrational behaviour and proposes some nudges that can be used as behavioural sustainable solutions to the raised problem. Among the thought concepts include the following:

- **Prospect theory, decision under risk** (Kahneman & Tversky, 1979) Prospect theory is a behavioural model that shows how people decide between alternatives that involve risk and uncertainty (e.g., % likelihood of gains or losses). It demonstrates that people think in terms of expected utility relative to a reference point (e.g., current wealth) rather than absolute outcomes. With the context of this research, what pushes people to choose to continue using illicit drugs or leave them? Prospect theory has four main elements (Barberis, 2013), which are:
    - *Reference dependence:* to understand the change in people's lives, you should have a reference or a starting point)
    - *Loss aversion:* people are likely more sensitive to losses, even small losses, than to gain the same. People who use the system think that they will gain more in utilising Kanyanga, but on the contrary, they will face losses rather than gains.
    - *Diminishing sensitivity:* there is a need to nudge people to be more sensitive on the

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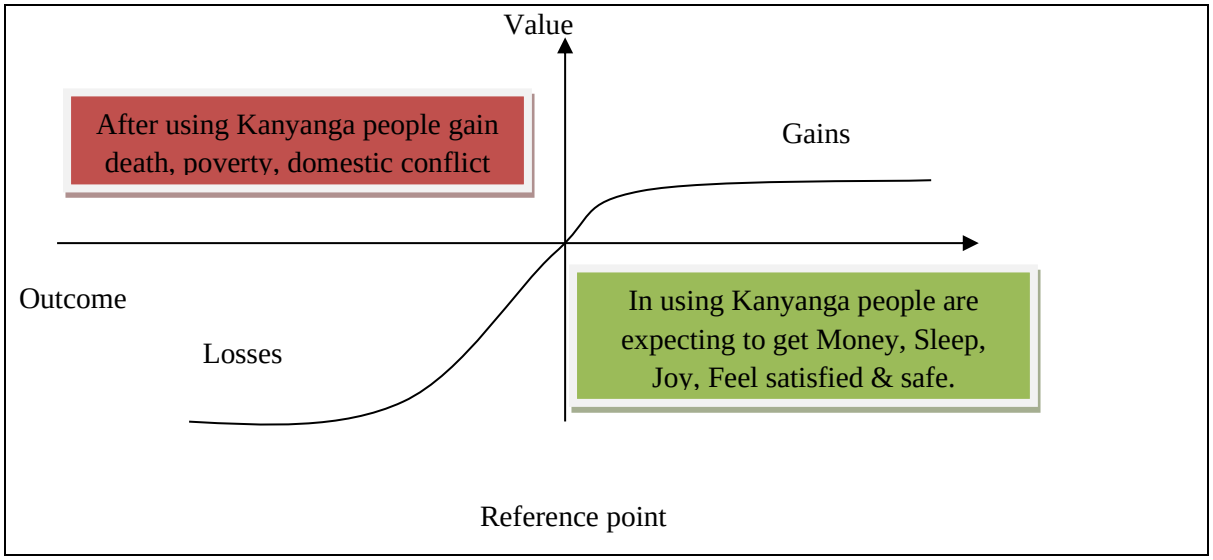
consequences of using Kanyanga than having a bias on gains

- *Probability weighting:* people do not think, for example, about the probability of being caught by the national police or local leaders because of using Kanyanga and rethink what will happen to them or, even if they are not caught, what the effects of Kanyanga on their health.

In this work, we may ask ourselves why people prefer the irrational behaviour of using the illicit Kanyanga in Rwanda (*Figure 2*), which is a decision under risks with various negative effects on their health and society in general while they have the option of leaving its use. In this context, the prospect theory figure can help us to analyse the pushing factors to the use of Kanyanga, the expected gains from its use, the outcomes from its use and later on propose the solution.

Figure 2: Using prospect theory to understand the use of Kanyanga



Source: Adopted from (Oliver, 2017)

- **Nudges:** Nudging is proposed to be one way to show drug users that there are ways through which they can leave the drug consumption if they want. A nudge is any aspect of the choice architecture that alters people's behaviour in a predictable way without forbidding any options or significantly changing their economic incentives. As previously mentioned in this report, the government of Rwanda has tried other strategies to stop Kanyanga, such as the use of regulations and bringing Kanyanga users to justice; however, as it was shown, all these measures were not sustainably successful because people have continued to use Kanyanga. By putting more effort into nudges, it may be a sustainable way of dealing with the issue. In stopping Kanyanga use, its smugglers and users can be nudged in the following ways:
  - Providing considerable incentives to people who stop smuggling or using it, even if the
  - People were left with their choice of using Kanyanga or leaving it, but the number of people who use it can decrease due to the incentives that they intend to receive.
  - Writing on plastic bags has negative effects on health.
  - Posting in public places (like bars and markets) about the dangers of Kanyanga
  - Public education so as to create more awareness of the dangers of using Kanyanga.
  - Initiating programs to give employment to youth and other people at risk of utilising Kanyanga so that they may feel busy in that occupations and forget the irrational behaviour of using Kanyanga;

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In implementing these nudges, the author recommends that the activity should involve people with different expertise like Psychologists, Social Workers, Medical Doctors, lawyers, policemen (maybe without policeman uniforms), as well as opinion leaders from the community members.

Empirical Review

Substance abuse has complex roots in biological predisposition, personal development, and social context (McArdle, 2004). Specific social correlates include parent-child conflict, child physical and sexual abuse, family breakdown, and, in relation to school, scholastic failure (Diaz, 2002). Substance abuse also predicts affiliation with a network of deviant peers who introduce these adolescents to other substances (Fergusson, 1994).

Drug use was found to be a common psychiatric disorder that has severe health consequences for the person and some effect on the societal environment, hence needing a sustainable intervention to deal with it (Wittchen et al., 2011).

Various types of behavioural therapies were found to play a big role in dealing with drug abuse, and these include Cognitive behaviour therapy, contingency management, couples as well as family therapy (Carroll, 2005).

Kanyanga is the gin (drugs and brew) banned in Rwanda. It is smuggled by groups of people locally known as the "Abarembetsi (smugglers in English)".

The brew is banned in Rwanda, and there have been protracted efforts to stop its consumption. However, large amounts still end up in the country from abroad. The border areas of the east and northwest are where Kanyanga is common and often sneaked into Kigali. This drink has caused more than 40 deaths in Uganda in 2009, where the tests have shown that the killer spirit had been made from Methanol, which is poisonous (Uganda National Institute of Public Health [UNIPH], 2021). The drink is largely made from sugar waste products, but unsuspecting sellers add more quantities of other unhealthy substances to make it stronger, which is what the customers enjoy (Rwandanewsagency, 2009).

The penal code of the Republic of Rwanda says that: "Any drink parked in sachets or plastic bags is illegal and considered illicit; besides, in many cases, such drinks don't meet the required standards and their alcoholic content poses a danger to consumers, and the government urge the public, who are its strong partners to press on in this fight". The same penal code, in its article 24, it states that "any drink that exceeds forty-five per cent of alcohol and any other drink which does not have the required quality for consumption shall be considered as a narcotic drug (MINIJUST, 2012).

According to the Rwanda National Police, over 707,771 litres of local brew were destroyed in a period of ten months in the year 2011, with over 860 arrests (Thenewtimes, 2012). In the neighbouring country, Uganda, one litre of Kanyanga is 1000 Rwandan francs (1.18$) and in Rwanda, it is 2000 Rwandan francs (2.36$). As per the Rwanda law, the Umurembetsi or Kanyanga smuggler, when caught, is reliable to punishment where Article 263 of law No 68/2018 of 30/08/2018 determining offences and penalties in general, states that any person who unlawfully produces, transforms, transports, stores, gives to another or who sells narcotic drugs and psychotropic substances, commits an offence. Upon conviction for simple drugs, the offender faces between seven and ten years and a fine of not less than Frw5 million but not more than Frw10 million.

The government of Rwanda has adopted various measures to curb the use of Kanyanga by burning the gin to bring to justice its smugglers and users (*Table 1*), but almost all these measures are failing to handle the issue in a sustainable way; what has brought the idea of using a behavioural approach to handle the issue. The proposed behavioural approach to handle the issue of Kanyanga will be discussed in the following section.

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Table 1: Number of Litres of Kanyanga destroyed.

Date	The number litres of Kanyanga caught	Place	Source of data
July 2013	120	Gakenke District	(NYC, 2013)
June 2014	1645	Gicumbi District	(newsofrwanda, 2014)
June 2015	1620	Ruhango District	(newsofrwanda, 2015)
Jun 2016	1144	Bugesera District	(Intyoza, 2016)
Oct 2017	158	Gicumbi District	(Ingufu, 2017)
May 2018	3000	Burera & Rulindo	(Ijwiryacu, 2018)

A study conducted in India has shown that as far as stopping drug addiction is concerned, remedial measures can be developed keeping in mind the attitude and support from different sections of society. The attitude of the common man towards the drug addict can act as an enabler or disabler for local government to frame the policy for solving this problem. It becomes hard for the drug addict to be part of mainstream society if the attitude of the public is negative towards him even after he is treated. (Kapoor et al., 2021)

Despite various therapies, some of them were found to be discriminatory (Love et al. 2022). which were suggested by previous studies; less was searched on how victims of drug abuse may play a role in stopping the use of drugs by being nudged to take the lead. The current study is expected to contribute to filling this gap by contributing to the existing literature, specifically on Kanyanga drug use and behavioural change approach.

MATERIALS AND METHODS

Study Approach, Population, and Sampling

The survey adopted a quantitative exploratory approach. The total population of the study was 600 opinion leaders and local government staff from six administrative districts located in the northern part of the country from the extreme northeast to the extreme northwest (Kagame, 2014). The selected districts were found to be suitable for the research due to the fact that local news journals have been vastly reporting them to have a good number of Kanyanga smugglers and users. The sample of the study was 201 respondents calculated using Yamane formulae to a total population mentioned in the previous paragraph.

Data Collection Tools and Techniques

Secondary data were collected from previous scientific papers as well as local news journals, whereas primary data were collected using a questionnaire administered online to a sample of 201 respondents. In reaching out to the respondents, network sampling techniques were used.

Data Analysis and Presentation

The data analysis and presentation followed a content analysis focusing on counting and measuring occurrences of responses through data visualisation.

RESULTS

Demographic Data of Respondents

In this study, as presented in *Table 2*, 56.2 % (113 respondents) of the total respondents were male, while 28.9% (58 respondents) of the respondents were females, while 14.9% (30 respondents) did not specify their gender. Out of the 201 respondents, 0.5% (1) were under the age of 19, 12.4 % (25) were aged 20-29 years, 42.8% (86) were aged 30-39 years, 31.3% (63) were aged 40-49 years while 12.9 % (26) were aged above 50 years. Most of the respondents have acquired formal education, whereby 58.2% (117) had a university education, 28.9 % (58) had high school, 8.5% (17) had schooled up to P6, and 4.5% (9) had not completed any schooling at all.

The sample reflected that 73.1% (147) of the total number of respondents have a paying occupation, and 26.9% (54) were unemployed. Concerning the civil status of respondents, 59.2% (119) were married, 10.4% (21) were divorced or separated, 10.9% 9(22) were widowed, and 19.4% (39) were single or had never lived together. Regarding the

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location of the respondents, they are from 5 districts of the northern province of Rwanda and one district from the eastern part of the country, whereby Gicumbi District had the highest number of respondents; 27.4% (55), Musanze has 20.9% (42), Gakenke had 15.4% (31), Burera had 12.9% (26), Nyagatare had 12.4% (25) and least was Rulindo with 10.9% (22). Among the total research respondents, 97.5 % (196) had confirmed they had information about illegal drugs, and only 2.5% (5) had responded that they had no information about drugs. When answering the question on where they have got information about drugs from, 31.3% (63) had confirmed to have information from security organs, 30.3% (61) have information from their colleagues members of the community, 25.4% (51) got information from local government leaders, 8.5% (17) had information from the written sources and only 4% (8) were not concerned not specify the source of information either because they don't have information or just because they did not want to answer the question.

Table 2: Demographic Characteristics of the Respondents

Contents	Dimensions	f	%
Gender	Female	58	28.9
	Male	113	56.2
	Prefer not to say	30	14.9
Age	Below 19	1	0.5
	20 to 29	25	12.4
	30 to 39	86	42.8
	40 to 49	63	31.3
	50 and above	26	12.9
Civ. Status	Married/Living together	119	59.2
	Divorced/Separated	21	10.4
	Widowed	22	10.9
	Never married and never lived together	39	19.4
Education	No schooling completed	9	4.5
	Nursery school to P6	17	8.5
	High School	58	28.9
	University education	117	58.2
Employment	Unemployed	54	26.9
	Paid occupation	147	73.1
Location (District)	Burera	26	12.9
	Gakenke	31	15.4
	Gicumbi	55	27.4
	Musanze	42	20.9
	Nyagatare	25	12.4
	Rulindo	22	10.9
Info about drugs/Kanyanga	Yes	196	97.5
	No	5	2.5
Source of Info	Loc. Gov. Leaders	51	25.4
	Sec. Org.	63	31.3
	Comm.	61	30.3
	Loc. Gov. Leaders & Sec. Org & Comm.	1	0.5
	Written Sources	17	8.5
	N/A	8	4.0

Availability of Drugs and Their Forms

In this study, as it is presented in *Figure 3* about the availability of drugs in the district where the research was conducted, drinking liquid like Kanyanga scored high, whereby 147 of the respondents confirmed that it is available which

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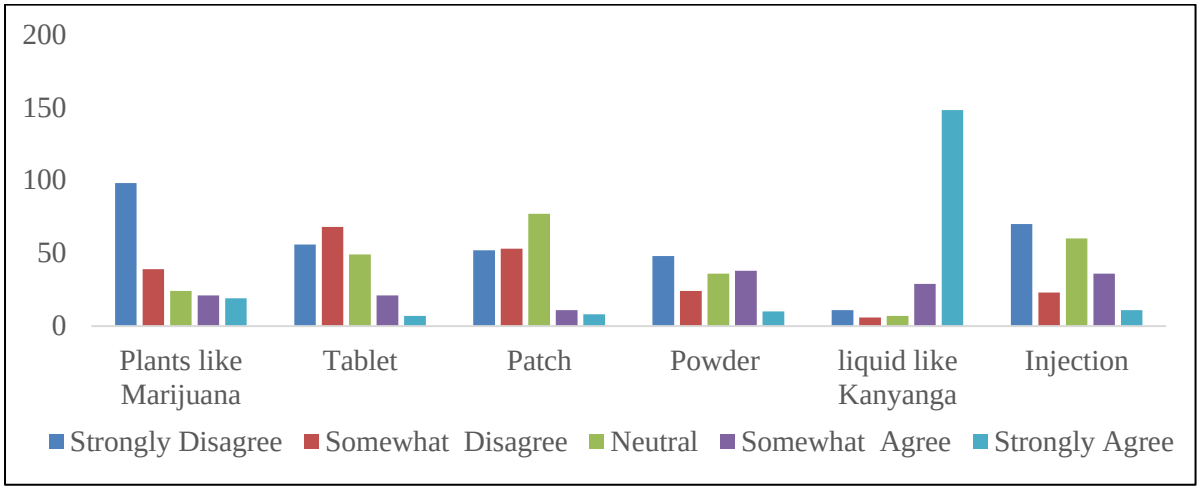
make 73.1% and tablets scored very low with 6 votes from respondents which makes 3%. About the availability after drinking liquid like Kanyanga comes marijuana with 18 supporting responses which makes 9%, then injection which has 10 responses constituting 5%, powder (sugar and salt) received 9 responses which makes 4.5%, patch and tablets come last with 7 (3.5%) and 6 (3%) responses respectively. Generally, marijuana was reported to be unavailable in the area with 99 supporting responses which makes 49.3%

Figure 3: Availability of drugs in the area

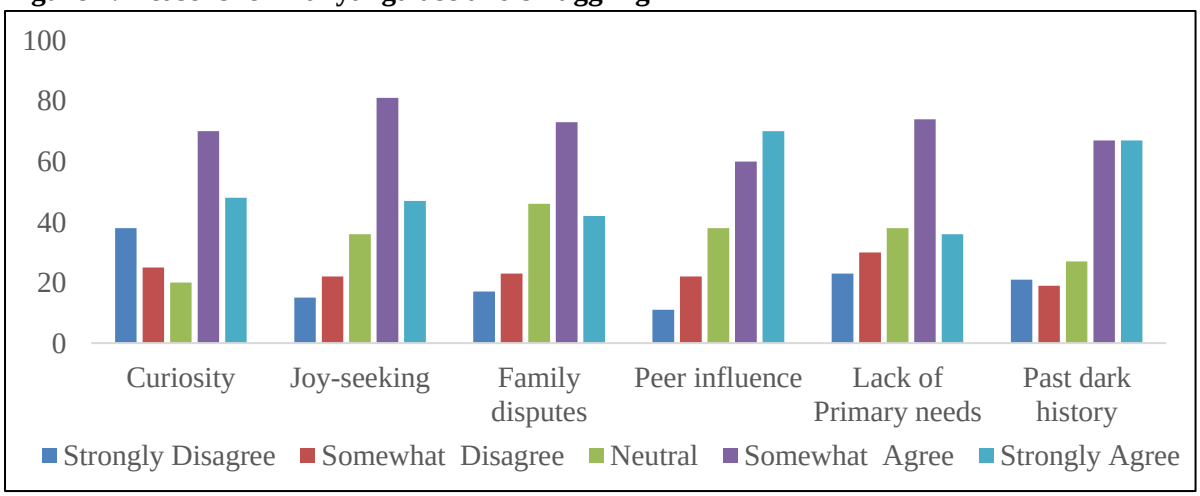


Source: Collected data

Reasons for Kanyanga Use and Smuggling

In responding to the question "Factors that lead to a tendency toward illegal drug use (Kanyanga)? as is presented in *Figure 4* about reasons for Kanyanga use and smuggling in the area where the research was conducted, peer influence scored high whereby 69 of the respondents strongly agreed that it is the main reason, which makes 34.3%; past dark history scored next with 66 strongly agree votes which makes 32.8%; curiosity came next with 47 strongly agree with votes which make 23.4 % of the total respondents; joy seeking follow with 46 responses on strongly agree which makes 22.9% followed by family disputes with 41 responses on strongly agree which makes 20.4%; lack of primary needs came last with 35 responses on strongly agree which makes 17.4% of the total respondents.

Figure 4: Reasons for Kanyanga use and smuggling



Source: Collected data

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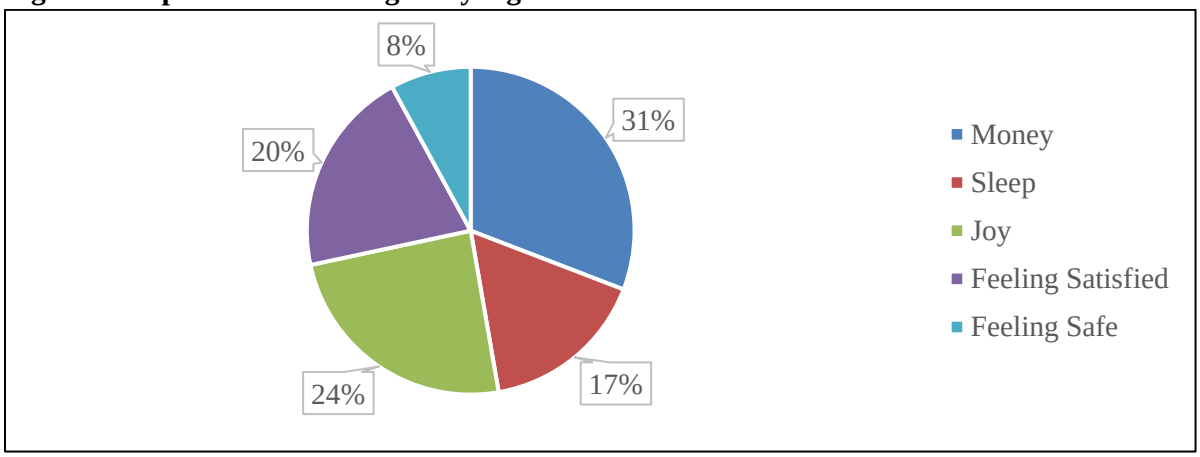
Expectations in Using Kanyanga

In reacting to the question about what people expect in using Kanyanga, as presented in *Figure 5* below, money scored high with 61 responses (30.3%); joy comes next with 49 responses (24.4%); the next is feeling satisfied with 42 responses which make 20.9%, sleep scored 16.4% from 33 respondents and lastly feeling safe scored 8% with 16 responses.

Figure 5: Expectations in Using Kanyanga

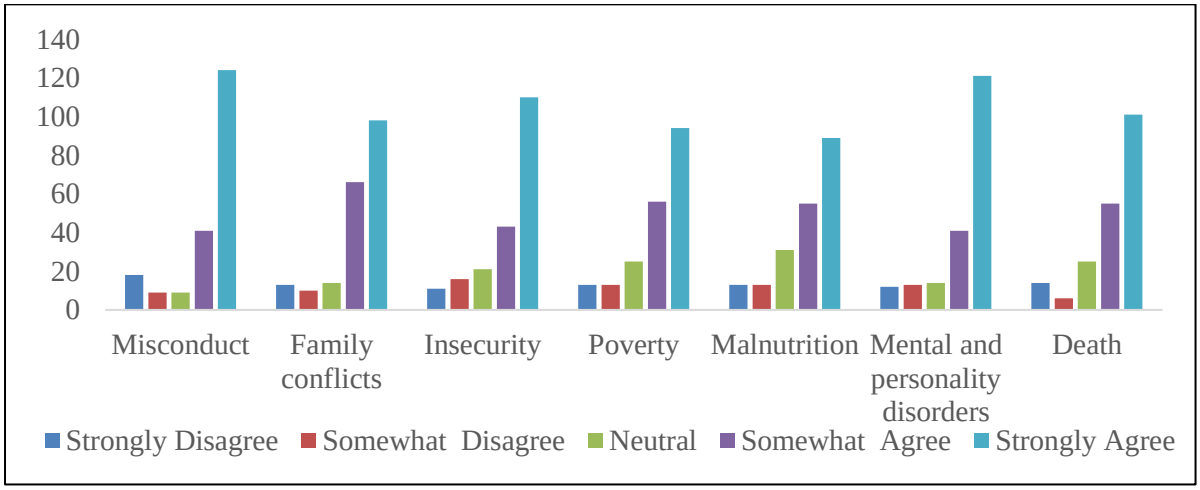


Source: Collected data

Consequences of Kanyanga Use

In responding to the question, seek response on the consequences of Kanyanga use as is presented in *Figure 6*; misconduct received 124 strongly agree responses which makes 61.7%; then comes Mental and personality disorders, which received 121 strongly agree responses which make 60.2%; insecurity received 110 strongly agree responses which make 54.7% of the respondents; death received 101 strongly agree responses which make 50.2%; family conflicts received 98 strongly agree responses which make 48.8%; poverty received 94 strongly agree responses which make 46.8% and malnutrition was the last to receive 89 responses which make 44 % of the total respondents.

Figure 6: Consequences of Kanyanga use



Source: Collected data

Strategies to Stop Kanyanga Use and Behavioural Change

In responding to the question seeking to understand the best strategies to stop the use of Kanyanga for a behavioural change, as presented in *Figure 7*, psychological counselling with nudging scored first with 108 strongly agree responses, which make 53.7% of total respondents, correctional centres with nudging

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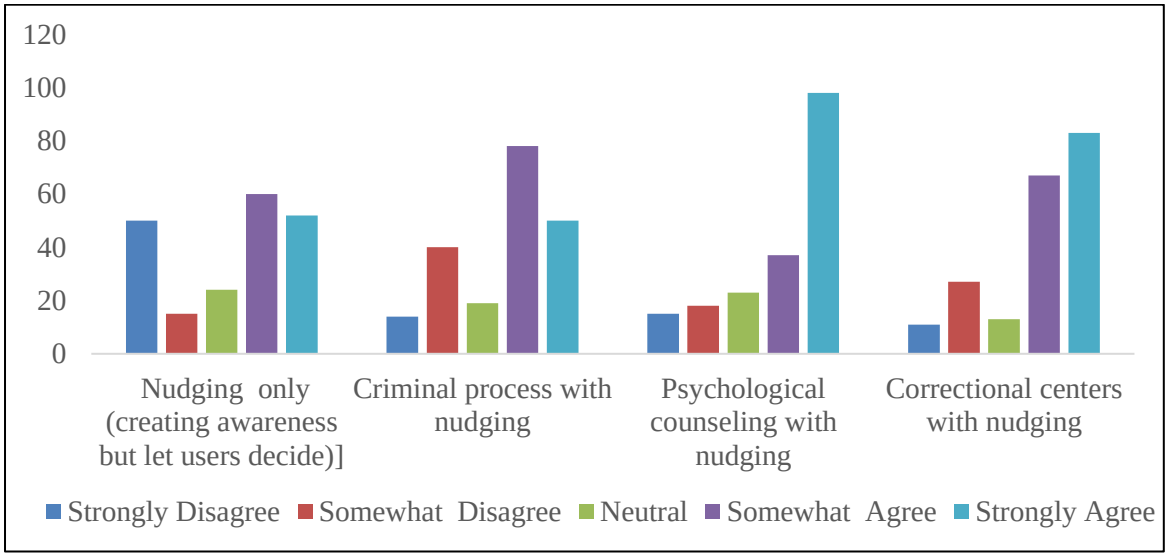
centres scored second with 82 responses which make 40.8 % of the total respondents; nudging only (creating awareness but let users decide) received 51 responses which makes 25.4% and Criminal process with nudging scored last with 49 responses which make 24.4% of the total respondents.

Figure 7: Strategies to stop Kanyanga use and behavioural change

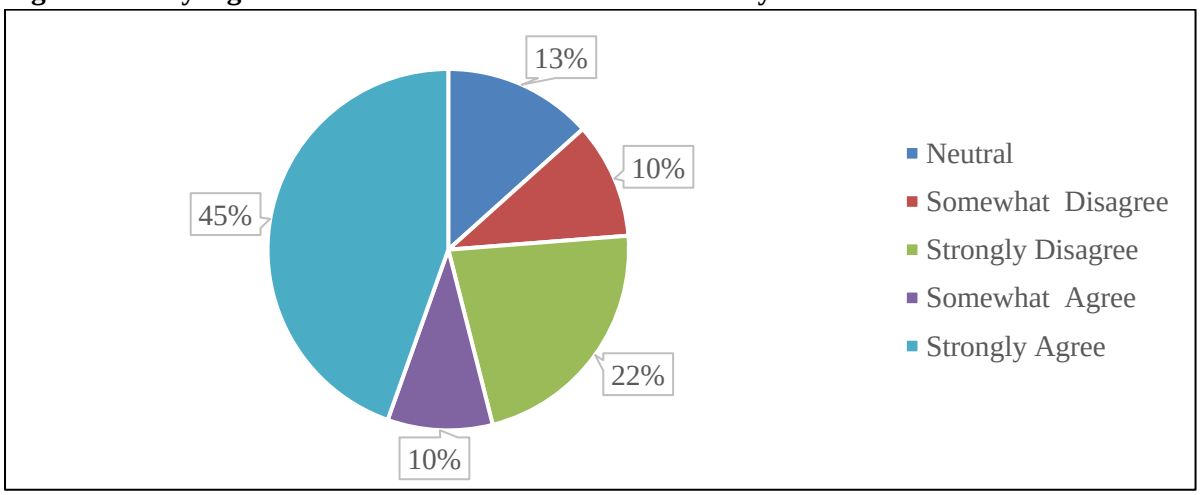


Source: Collected data

Kanyanga is a Health Threat to The Rwandan Society

In reacting to the question about Kanyanga being a health threat to Rwandan society, as presented in *Figure 8* below, 90 respondents selected strongly agree, which makes 44.8% of the total respondents; 18 selected somewhat agree, which makes 9%; 27 neutral to this question which makes 13.4%; 21 went for somewhat disagree which make 10.4% and lastly selected strongly disagree which make 22.4% of the total respondents.

Figure 8: Kanyanga is a health threat to the Rwandan society



Source: Collected data

DISCUSSIONS AND CONCLUSIONS

Previous studies have shown that social influence approaches emphasise the importance of social and psychological factors in promoting the onset of drug use and prevention (Schifano, 2009), while the current survey has focused on favouring individual decisions to stop drug use through nudging and counselling. Previous studies have also shown other therapies to deal with drug

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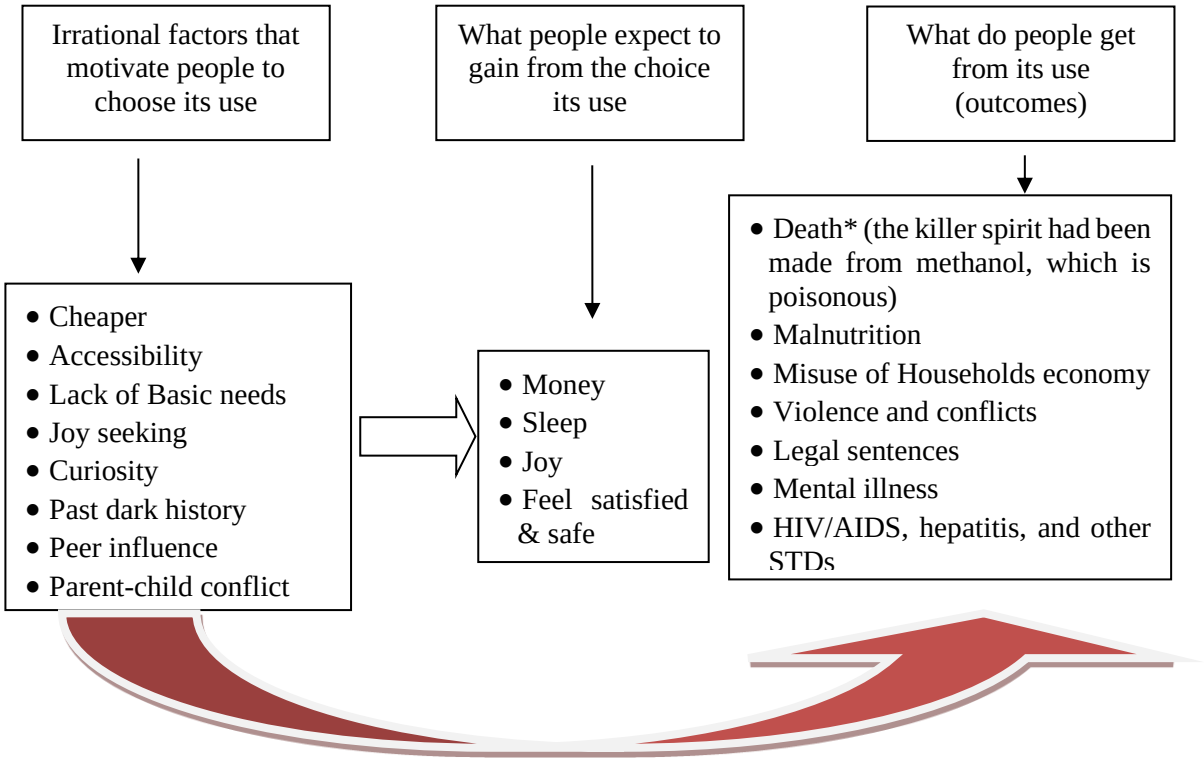
abuse, including behavioural therapies, were found to play a big role in dealing with drug abuse, and these include Cognitive behaviour therapy, contingency management, couples, and family therapy (Carroll, 2005).

This work has discussed the use of drugs, and the focus was put on the local gin, which is banned in Rwanda but used illegally. The work has investigated people's perception of the Kanyanga smuggling and use in Rwanda by exploring alternative behavioural concepts like nudging and prospect theory. It was found that people expect positive results from the use of Kanyanga but receive the opposite, which is explained by the prospect theory, which focuses on a decision at risk.

Previous research has shown that there might be social, heavy, and medicinal uses of drugs (love, 2023), while from the currently collected data, most of the respondents confirmed Kanyanga to be available at a high percentage compared to other drugs, and they added that its smugglers are expecting to generate much money from it which is not the case at the end of the day. As far as the prescriptive solution to fight the use of the gin, most of the respondents have recommended psychological counselling along with nudging, whereby correctional centres with nudging scored second.

For drug users, it may be difficult for them to stop their use rather than start using them; this research tries to provide clarification in this context using prospect theory. From the reality on the ground in Rwanda, people do not really get from drugs what they expected, yet they get almost the opposite. From this perspective, we may weigh the expectations and the consequences of using Kanyanga (*Figure 9*), where we can get the answer whether what people expect to get from the use of Kanyanga from different Irrational factors that motivate them to choose its use and What do people get from its use.

Figure 9: expected benefits and the effects of drugs/Kanyanga on its users



Source: collected data

In conclusion, the study found that Kanyanga gin is confirmed to be available, and its smugglers and users get from its consumption what was not expected after using the same; for behavioural change of Kanyanga smugglers, counselling services are highly needed in addition to whatever

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other form of interventions that could be used and involving the local citizens through nudging which can improve the outcome.

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